

ANNIE J. EASLEY
NASA ORAL HISTORY

INTERVIEWED BY SANDRA JOHNSON
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JOHNSON: Today is August 21, 2001. This interview with Annie Easley is being conducted as part of the NASA Headquarters History Office “Herstory” Project. The interview is being conducted at the NASA Glenn Research Center at Lewis Field in Cleveland, Ohio, by Sandra Johnson.

Good morning, and thank you again for taking time to meet with us and talk to us a little bit about your experiences at NASA Lewis Research Center in Cleveland. I'd like to begin today by getting some brief background information from you. Where were you from originally?

EASLEY: I was born and raised in Birmingham, Alabama, and I grew up, went to school there, grade school, high school. Then after high school I went to New Orleans [Louisiana] to Xavier University. And, yes, it is a co-ed school. It's not a boys' school, as I was so often asked. But Xavier University in New Orleans. I went there and majored in pharmacy, and after a couple of years, I got married and I moved to Cleveland, and I did have all intentions of going on into the School of Pharmacy, but when I came to Cleveland, they had shut down their School of Pharmacy at the local university. and I kind of had to take stock of what I was going to do.

I'm kind of going through this not detailed. But there was not a School of Pharmacy nearby. The closest one that I knew of at the time was in Columbus, and being a young married woman, I would never go away to school and leave my husband. So I chose not to do anything at that time.

But I was reading the local newspaper and I read about a place called NACA,

National Advisory Committee for Aeronautics. It was really a story on twin sisters who worked at NACA as computers, and the people were called computers. They described the jobs that they did, and it sounded really interesting to me.

So the next day I drove out to this place called NACA. I applied for a job, the kind that these twin sisters had that I'd read about, and within two weeks I was working here. So that kind of changed my life's goals, because as I continued as a computer, the kind of work that we did, we were called computers until we started to get the machines, and then we were changed over to either math technicians or mathematicians.

During that time—it was over a period of years—I decided mathematics would be the field that was better suited to the kind of work I was doing. So that's when I changed my career path from pharmacy to mathematics, and that was pretty much my career for the rest of the time at NASA.

I'd like to just throw in here at this time that I tell people that it doesn't matter what your age is or what you decide to do when you're eighteen or sixteen, it doesn't matter if you change your mind later on and change fields, because we need to be flexible.

JOHNSON: That's very true.

EASLEY: That's pretty much how I—

JOHNSON: How you came here?

EASLEY: —came here. I got into that field of mathematics.

JOHNSON: Was your husband transferred out here or did he get a job out here?

EASLEY: No. He got out of service when—his parents lived here, so when he got out of service, we decided to move here.

JOHNSON: That must have been quite a change for you, coming from the South, going all the way to Ohio. Was the feeling any different here than it was in Alabama?

EASLEY: No. I mean, people are people wherever you are, so I didn't find that it was that great of a—I guess I don't understand what you mean about a different feeling.

JOHNSON: I know for me, I mean, being basically a Southerner, and when I go other places, sometimes the people are a little different, different places you live.

EASLEY: Okay, I will say that not just the people here, but I think I fell into it myself. We were not as friendly. And I don't mean to say real hostile. But when I grew up, if you walked six blocks to the streetcar, you spoke to everybody in every house, or who's on the porch. But we didn't tend to do that here. It was just a different style of living; people did things differently. And I think we were more involved in our own personal things than the rest of the neighborhood.

I went to work every day, I went home. My days were filled up. It was a different thing than when I had grown up. I had been a child in school. So it was a whole different thing. And now married, and so I can't say it's just the location. My life had changed from being—I went from being high school, college, and then a married woman, so all of those changes were taking place. But I don't blame it so much, or say, "Oh, gosh, it was because I was in a different city." I think it's like traveling other places. We live differently in different places, but it's not a negative. You adapt.

JOHNSON: What made you choose pharmacy at first when you went away?

EASLEY: I just thought it would be fascinating. It's just something that I had thought about doing. Now, my original plans, when I was a little girl, I wanted to be a nurse, but I think that was because my mother instilled that in me, because when I grew up, nursing and teaching were, I guess we would call the protected fields. I could very well get a job in nursing or teaching when you're done with school.

I didn't want to teach, but the nursing field, I always said, "I want to be a nurse." But maybe about the tenth grade, when I was about fifteen or sixteen, I decided pharmacy is something. Now, it may have something to do with going to the corner drugstore, where they had all of the candy and the ice cream. [Laughter] I'm serious. But the pharmacy, I would see the pharmacist in there, and it just looked like a good field. I chose to go into the School of Pharmacy at Xavier University, and I had every intention of continuing in it, but as I said, change in location changed those plans.

JOHNSON: When you were in high school and you were thinking about college, your mother—you said you had some input from your mother as far as—was there any discouragement? I mean, being female, being African-American at that time, was there ever any discouragement about, why do you want to go to college?

EASLEY: I was raised by a single parent. My mother was my greatest role model. She still is. My mother always told me—I can hear her tapes being played in my mind forever. But my mother always told me, "You can be anything you want to be, but you have to work at it." She encouraged me daily. I'm so grateful that I had my mother as a mother. I have friends who feel that way about my mother. There was always encouragement.

JOHNSON: She encouraged everyone.

EASLEY: She really did.

JOHNSON: That's wonderful.

EASLEY: But the bit of telling me, "You can be anything you want to. It doesn't matter what you look like, what your size is, what your color is. You can be anything you want to, but you do have to work at it." And I still believe that.

JOHNSON: It's very true.

EASLEY: So she was my biggest cheerleader.

JOHNSON: That's great. Were you good at math in high school? Was that something you were interested in?

EASLEY: It was easy for me, but at the time I gave no thoughts ever to being a mathematician or going into math. I could do the problems, I could do all the homework. I didn't not have any problems with high school, but it was just not something I gave—my focus at the time had gone, as I say, from the little girl, the nursing bit, to the pharmacy bit. And maybe there was just that little bit of, it's still a helping-type thing. You know, the nurse would help, or the pharmacist is going to fill a prescription and make people better. So that may have been in the back of my mind, not the conscious mind, but in the back there.

No, the math was never a problem for me. I felt fortunate that school was fun for me, and I'm going to throw this in. This is my feeling now, and you can delete it if you want. I

thoroughly enjoyed school. I looked forward to school opening up. When I hear these—I don't know why we have such a negative connotation for school. We hear the media saying, "Oh, school's going to open. Oh, poor kids, you've got to go back to school." I don't know why we can't be more positive about it. My experiences throughout school were always great.

My mom—again, I went to—she put me in a parochial school in the fifth grade. It was her way of thinking, you can get a little better education there, so she did everything she could to encourage me. So I did go, from the fifth grade through high school, I was in a parochial school. I was valedictorian of my graduating class. All of this made her very happy.

JOHNSON: I can imagine.

EASLEY: So to see her happy, to take a good grade home. But I did have a lot of trouble with having to stay after school because I sometimes talked, I expressed my opinion. I think it was called "talking back."

JOHNSON: She encouraged you to be an independent thinker also, I'm sure.

EASLEY: But not to be disrespectful, and I didn't talk back to be disrespectful, but if I had an opinion, I expressed it.

JOHNSON: Were you an only child?

EASLEY: No, I had an older brother. He was six years older, but being six years older and being a male, we were pretty much—you know, I can say I was pretty much raised alone,

because by the time I was twelve, he was eighteen years old and on his own. So I was raised pretty much alone, as an only child. But no, I did have an older brother.

JOHNSON: When you first came to Cleveland, you decided that school at that point was out of the question because it was too far away, and you said you just heard about the NACA, and read about it.

EASLEY: I read about it. There was an article in the local paper.

JOHNSON: And decided it sounded like an interesting job. Did you have any expectations about that job already, other than what was in the article, or when they interviewed you or told you about the job, when you actually started work, were you surprised at what you were doing? I guess, like we were talking about before we started, how no one really knows that NASA or NACA was here, it was all—

EASLEY: Well, I didn't know that it was here until I read the—I'd never heard of it until I read the article, but it was such an article that the things that were described, the work that was being done by those sisters, those twin sisters, those computers, the people called computers, it was very interesting to me. It was something that I had a real interest in doing, and I was not disappointed when I came out, when I had the interview, and when I started to work. I just thoroughly enjoyed it and I enjoyed my career here at NASA, at NACA, and to see it become what we were, and the many changes that were made. But no, the job as I saw it, the work, as I encountered, there were no disappointments, ever.

JOHNSON: You were a computer?

EASLEY: I was a computer at first.

JOHNSON: Can you describe what your job was when you first started?

EASLEY: When I first started, going back many, many years, I started here in 1955. I started with NACA in 1955. Our jobs were really to do the computations for the engineering side of the house. The engineers and the scientists are working away in their labs and their test cells, and they come up with problems that need mathematical computation. At that time, they would bring that portion to the computers, and our equipment then were the huge calculators, where you'd put in some numbers and it would clonk, clonk, clonk out some answers, and you would record them by hand. Could add, subtract, multiply, and divide. That was pretty much what those big machines, those big desktop machines, could do.

If we needed to find a logarithm or an exponential, we then pulled out the tables and did it. We'd look up the tables and then put it in by hand. Or a square root. All those things, we had tables that we looked up. And that's why, in my lifetime, to have seen where we were and where we are, that I can have a little tiny something the size of, oh, gosh, well, my watch, practically, and it can give me all of those functions that used to take up so much space and so much time to do. And the clonk, clonk, clonk, clonk.

But I went through—that was the beginning. This is all doing the computations. But after that, I remember when it was such a big step when we got the computers themselves. The thing with the key-punched cards, where we'd go in and punch the cards. All of our instructions on a set of cards, a deck of cards, we called them. And then we'd travel to some other building where the computers were, and feed those cards into a machine and they would print out some answers internally, and a new set of cards would be punched out, with our answers on that new set of cards. And then we'd physically take those cards over to another machine that would print out the answers on great big huge sheets. That was a process that

we did time and time again. But we had progressed from doing those things by hand.

So I've just watched these series of generations of computers and I just find it fascinating that it's like historical, where we are today. We can just do things instantly now with the equipment that's available. That was kind of the beginning of working at NACA, the National Advisory Committee for Aeronautics. I have to try and recall it. It was fun.

JOHNSON: What were the facilities here like, the buildings? How many buildings were there? Where did you work?

EASLEY: I started out in a building called Material and Stresses, and we used the initials M&S. Now all of the buildings are known as numbers. By numbers, like it's now called Building 49, but in that building, it was a secure building, meaning we had to have a security clearance to work there. You did not get past the receptionist in the lobby unless you were cleared. We needed, I think it was an AEC [Atomic Energy Commission] clearance we had at the time, in order to work in that building.

It felt really special when I found out, oh, gosh, I'm in this special building, because people looked at that building and wondered what's going on over there. But that building was there. Most of the buildings were there. The newer ones are the ones that are north of Brookpark Road, but most of all of the other facilities were there. There are some newer ones that have gone up in what we call the West Area.

But the nucleus was there, the hangar, the Ad [Administration] building. Now, I actually was interviewed in a place they called the Farmhouse, and it was literally a house, I guess, that had been a farmhouse, and that's where the personnel people were at the time. That building has been gone for a long, long time. It's a parking lot, but I can remember the first day I came out, when my supervisor drove down to pick me up from that building. But this area here was the NACA. I think they broke ground in 1941 for this facility, for the

Lewis Research Center. I better not give you a name.

JOHNSON: I think it was the Propulsion Lab [Lewis Flight Propulsion Laboratory], wasn't it?

EASLEY: Propulsion lab, at the time, and then someone by the name of George [W.] Lewis, I think he was one of the first directors or the first director, and it was eventually named for him. I must add, one of the great things about working here at NACA and NASA was the depth of talent that you were surrounded with, and that was not just the scientific talent, but it's just a broad spectrum. Being so self-contained, we were like our own little world, because we had our own print shop, our own photographers. Of course, our security forces. We had our own firemen. Anything we wanted, we could pull on it from right inside. It was like our own city. There are quite few acres out here. It's a large facility, but if you drive down the main road, you just don't realize it.

JOHNSON: If you land, it's hard to miss it because of the hangar. That's the first thing I noticed when I landed, was the hangar.

EASLEY: Yes. We used to have our own planes here, too. We did. But being right adjacent to Hopkins Airport makes it real convenient for the location of where we are located. So it's an ideal location also, as you can tell.

JOHNSON: It's very convenient. You mentioned your supervisor. Who was your supervisor when you first started, do you remember?

EASLEY: Christine Truax. Christine Truax was my first supervisor, back in 1955. Yes, I do remember that.

JOHNSON: Was there a large group of computers or were you a relatively small group?

EASLEY: Actually, there were three different groups throughout the lab. We were in Building 49. There was another group, I think, in the building that we called the 8 x 6 [Supersonic Wind Tunnel], and Christine had two groups. Christine had another group of computers located in, oh, gosh, I think it was called CNT or ERB [Engine Research Building]. There were a total of three groups of computers, people computers, throughout the lab at the time, and all doing very similar work, but on different projects.

And, as I said, besides that, we'd get the data, we'd plot the data by hand or we'd read strip charts that have come off equipment. There was just the various things that we did. We were called computers, officially, until the machines started to come in. So to distinguish us from the machines, the machines were the computers and we were given titles as mathematics technicians or mathematicians. And I don't remember the year that happened or the years.

JOHNSON: It was a gradual process.

EASLEY: We were not the only computers in the world. Recently, I was on a program with some people from, I think they were from Pennsylvania someplace. But these women had been computers some place in Pennsylvania.

JOHNSON: As part of this project, we've interviewed some ladies at Dryden [Flight Research Center]—that were computers at Dryden, from [Edwards] California.

EASLEY: Well, they were in Pennsylvania. Well, our worlds are only so big. The only

computers I knew of were the ones here, until last year. I met these women who had been computers.

JOHNSON: When you were working, did you work as a team with the engineer or the scientist doing the work? Did you work usually on a project specifically with them, throughout that project, or was it just, whenever they needed something, they'd send it in to like a pool, and you would work on different things on different days?

EASLEY: We would pretty much work for—because you knew what was to be done, and we were assigned, or they were assigned, different computers to work on their computations. But if need be, we—we were a team. We were always a team. That's part of the greatness about the people. There were times when there was a deadline that had to be met, and to have the team, you saw the real teamwork in action, because people would just jump in and do portions and pieces to meet those deadlines.

There were some that, you know, they could come and just give you the work that needed to be done. Other times, you were helping your co-worker, your office mate, or you were helping the person next door. This was truly a teamwork effort and that was part of the—I think when you talk to so many people, I'll hear—they will ask you what you like about working there, and they will say the great people that they had to work with, to get the jobs done. Now, you didn't just do something and say, "I'm done." You kept working.

JOHNSON: What was it like working here, as far as the dress code? Was it more casual, or was it typical work environment for that time where women wore hose, suits, dresses, that sort of thing?

EASLEY: Well, in the South, I was used to everyone dressing up. Dressing up in the business

world, that's what I remember. Now, I do remember, at the time, I thought it was casual because some of the guys wore plaid shirts rather than the white shirts. And that to me was a casual atmosphere, but it doesn't compare to the word "casual" today. I won't even begin to try. Because we talk about dress-down day. It's a whole different world. Maybe the guys that I thought were casual then would be considered dressed-up today.

But I always loved dressing up. In college, I wore hose every day in college and high-heeled shoes. But on the other hand, I'm glad now that we do have flat shoes.

JOHNSON: Better for your feet.

EASLEY: But no, we tended to dress. We really did. No one ever said there's a dress code, but I think you did it yourself. It's how you felt about yourself. And of course, there were no pants. We did not wear pants at that time. Women did not wear pants.

I can remember the first pants that I wore to work. It was in 1970. In fact, I talked to my room supervisor about—because we'd started to wear pants in the outside world, and I said something to her about, "I have a pants suit. I'd really love to wear it to work." So we made a pact that we'd come to work the next day in pants, and it did cause quite a stir, but there was one woman who said, "I was just waiting for the first one to wear pants." I don't think she wore a dress ever after that. So that's a change. You know, we took the emphasis off what you're wearing. It's more like what you're actually producing. But no, we didn't have any dress—we didn't have any written dress codes, but there were certain things that you knew were acceptable or not.

JOHNSON: Do you remember what your salary was when you first began?

EASLEY: I think I was a GS-2. I don't remember what the—I don't remember the dollars. It

was probably \$2,000. I really don't remember.

JOHNSON: Did you feel that it was a lot of money for that time? Did you feel that you had really found something great?

EASLEY: No, because I came here with two years of college, and I was promised a GS-3 when I interviewed. When I got my first check, or the papers, it said GS-2, and I questioned it, you know, not the GS-3. It was a GS-2. And what they told me is, "Oh, well, there were no more GS-3s available." Whatever it was, I was working. But you know, from the beginning, you have to look out for yourself. So yes, that's what I was told, but when the paycheck came, it was different. That's strictly those people who are in charge. They're in charge of the purse strings, and they can manipulate it like they wanted to, and they knew they'd get away with it.

JOHNSON: When you first began, were there other African-Americans working here, visibly, or did you feel like you were a true minority here?

EASLEY: In that building, in that department, no, there was not. There was an African-American male working in the engineering side, and in the other group, in another building, there were two African-American females working. I didn't feel like I'm a minority, I'm less. I just have my own attitude. I'm here to work. You may look at me, someone else may look at me, and see something different, but that's okay. But I'm out here to do a job and I knew I had the ability to do it, and that's where my focus was, on getting the job done. I was not intentionally trying to be a pioneer. I wanted a job, I wanted to work. But it was never a "poor me," though I know I'm not so unaware that I don't know what's going on around me. Remember my mom said, "You can do anything you want to, but you have to work at it," and

that was part of it. With her strong teachings, I was able to do it.

JOHNSON: Did you ever feel any discrimination, not only being African-American, but just being female, as far as being able to move up, or to go on with your career? We talked about today the glass ceiling and that sort of thing.

EASLEY: Oh, it's definitely there. As a minority, I know that it was there, and one of the things I remember is having a picture made at a work site in Building 49. We had a piece of equipment that it took—I think there were six of us who worked on it. Two to each panel. There were six people that worked on it, and someone took a picture of us in a work situation. Now, there used to be open houses out here, in the earlier years then. Like once a year or once every two or three years, they'd have an open house, and this picture was blown up. I mean, they blew it up to put it on display. I was cut out of that picture. I was so embarrassed, when we go through this building, to see this—and one of them says, "Oh, Annie, they cut you out of the picture." I said something to my room supervisor. She says, "Oh, I don't blame you. I'd be upset, too." And that was the end of it.

So yes, there—as I said, people don't change. It doesn't matter where you're located. When people have their biases and prejudices, yes, I am aware. My head is not in the sand. But my thing is, if I can't work with you, I will work around you. I was not about to be so discouraged that I'd walk away. That may be a solution for some people, but it's not mine. So yes, I'm sure, I, like many others, have been judged not on what I can do, but on what I look like. So yes, I'm aware that that has happened. But, as I said, I would not let that get me down. Money is important to all of us. We need it to survive. You may control my purse strings, but you don't control my life. That's just the way I feel about it.

JOHNSON: It's a good attitude.

EASLEY: Well, we know we have to live. I'm still around. I'm enjoying myself.

JOHNSON: That's right. And you put in a lot of years here, too.

EASLEY: Yes, I was here for thirty-four years. And as I said, I have more good memories than bad, but I don't forget the real life, what really happened. Because in keeping with that, in later years, they started to interview—I guess they had personnel interviewing some of the minority workers, and because a group had gone together to talk to management about what the feelings were, but I didn't happen to be a part of the group. I just wasn't at that time. But I was the one that management chose to have them interview, and I mentioned the story of being cut out of the picture, and the interviewer said to me, about that picture-cutting incident, he says, "Well, Annie, at that time there was no one to complain to."

JOHNSON: Yes, that's true. At that time there really wasn't.

EASLEY: Well, that's too bad, but the problem is, some of those people stayed around for a long time, and some of their behavior was passed on to other people. I think of the poem, "Mother to Son." [by Langston Hughes] "Life for me ain't been no crystal stair" but you got to keep struggling. You keep going because you want to.

JOHNSON: During that early time, when you first started working, and then in 1957, of course, Sputnik went up, and the whole emphasis changed in this country and they formed NASA. Here, at the Research Center, you went under NASA. Was there a general feeling of, now we've got to head down this path, we're going into space, we're going to be a part of that? How did it affect the people here?

EASLEY: I think we were proud and we still are. I say "we." I still talk in the present. I retired a few years ago.

JOHNSON: You're still part of it, though.

EASLEY: There was a real pride in being able to have talent, resources, and knowing that we could get in here and really, really do something great. I mean, the work that we had been doing here had been not known. Not publicly, but there was a lot of research going on with the quiet, the jet, the pollution. A lot of stuff was going on, but when we became a part of the space effort, there was a real jump in there and we're going to do it.

Remember what I said earlier about teamwork? I think as a whole, it was "Jump in there. We can do it." And it's, again, part of that being so grateful to have seen all the things we can do, and the changes, from where we went and where we were as to where we went.

JOHNSON: Did you see a rise in the number of people working here?

EASLEY: Oh, we had a great surge in employment. A lot of people were hired to come in. Not just the fresh out of college, but a lot of people from other companies who were already seasoned, and other companies. So yes, our complement went up greatly. We may have gone up from, oh, gosh, maybe 2,500, 2,000-something, to maybe 5,000, at one time. We also have the Plum Brook facility, out in Sandusky [Ohio] where our nuclear reactor was. But yes, employment went up greatly, and everyone pitches in, everyone does a lot.

JOHNSON: Can you talk about some of those specific projects, maybe, that you were working on there in the late fifties, early sixties, when the space program was just taking off?

EASLEY: Oh, gosh, it's been so long. I can't remember all that. [Laughter] Really, I have to really go back in my memory bank to say, "What did we work on?"

I remember working on the simulator. We were simulating certain conditions for building the reactor out in Plum Brook, and that was, you know, how much cement do you need to pour, those kinds of things. That was in the late fifties. I remember working on that. If I'd known I had to remember this, I would have probably called up my memory bank last night.

I think now I'm almost into the seventies. We had some tests going on with putting up tapes on a jet plane to record some of the ozone to see, and come back and analyze that kind of thing, you know, what damage we're doing to our ozone layer. During the later years, I was working in software engineering and we worked in an area called the launch vehicles. I've worked on several different things throughout the years here, but we would work on some of the launches. We'd do the Shuttle launches or a lot of the launches down at—we'd go down to [Cape] Canaveral [Florida] with some of the unmanned launches.

JOHNSON: Did you work on any of the projects around the Centaur rockets?

EASLEY: Yes, because I think that—I better not try and recall exactly, but I think Abe Silverstein brought that here?

JOHNSON: That's what I found in the research, that Abe—

EASLEY: Yes, Abe Silverstein brought that project here, and eventually we had a hand in working Centaur. That's after I had gone into the—oh, gosh, what group was I in then? Launch Vehicles group.

JOHNSON: Well, President Kennedy, in 1961, made that commitment to go to the moon. Was there a great excitement here, after that announcement, knowing that you were working on—or, I believe he brought the Centaur here after that, but once that started coming in, knowing that those rockets were going to have something to do with those plans.

EASLEY: It was a great excitement, and a feeling of being a part. The accomplishments and the encouragement and the knowledge that we can do and we will do. So yes, there was always—that's part of the overall feeling of the team. As I said, a team again, because together we did it, but the attitude was, together we can do it. So yes, there was always the excitement. I think most people you'll find, if you interview them, the employees here, or ex-employees, will tell you, this is one great place to be, because it's such a great contribution. I'm sure other people feel that way about their work, but this is the only one I can speak for. It was my life's career.

JOHNSON: A lot of the other people we talked to were so involved in their work, to the exclusion of the outside world, and they were so involved with the people they were working with and there were so many hour for these projects, that—especially, we asked them about the sixties, if they remember, you know, the other things that were going on—the war, civil rights, the woman's movement, the different things that were happening during that time. It was a volatile period in the nation's history, and so many of them have said that they were so involved in their work and so committed to the space program and where it was going that the other stuff was sort of peripheral, but they weren't as aware of it. Did you find that here, as you all were working?

EASLEY: I can't speak for the rest of the people, but I'll speak for myself. I did give my work

a lot, but I was always aware of what was going on around me. I'm aware of the outside world because it's a part of my world also. Working was not my whole world; it was a portion of it. But there was more than just coming to work every day. There was the going home, there was the social life, so I feel that I was well-rounded. I was never, or never planned to be, the person out of the movies, you know, the guy in the white lab coat who never came out of the lab. No, I was always aware of what was going on around me, and when I was—I used to tutor. That, to me, is part of my community, to go out and tutor with the elementary school or the high school children.

I was going to go back to Birmingham before I moved here. The way I grew up, or where I came from, in order to vote, you had to take a test and pay a poll tax. We had to literally take a test before we could register to vote, and as soon as I turned twenty-one, because we had to be twenty-one then, as soon as I turned twenty-one, I went down to vote, to sign up, and I was very much—I'd studied, I knew all of my Alabama history, and the test-giver looked at my application and said, "You went to Xavier University. Two dollars." He never asked me one question. But after that, I started to help train people to prepare for the test for voting. That was in Birmingham.

Then when I came to Cleveland, I was involved as much as I could be in similar things. So my world has never been totally working. I've always had an outside life, and I think, for me, that's a healthy thing to do. And that has continued until today.

JOHNSON: Did the people here socialize together a lot? Was it like a family feeling?

EASLEY: In the beginning, it was very much family. Before I came, of course. A lot of these people came from Langley, so a lot of them were out-of-towners, but there were several social groups on site. I think they used to have what they call mixers, the dances. They'd have dances, they'd have movie nights for families. We always had the employees' picnic.

There were a lot of social things. Every year there was always the big Christmas dance at Christmastime. The different divisions always, and I think some of them still do, have picnics within their own group. But the great big thing was the employees' picnic. At one time it was called the newcomers' picnic, but then so many of the oldtimers were going, they just made it the employees' picnic.

Yes, there was a lot of socializing. We even traveled together. There were people who would run trips to different cities, so it was a great big family. Of course, as time went on—perhaps it's different now than it was then—but in the beginning, with all of the people from out of town, a lot of them not having family here, they sort of did things together. Yes, it's one big family out here.

JOHNSON: During the sixties, like we were talking about, the civil rights movement, the women's movement, do you feel that that affected your position or your work here anyway, either one of those things?

EASLEY: I think it was more, they insulated themselves. I think there were still the die-hards who didn't see that there were problems that needed to be solved. I think there were people who felt, "This is the way it always was and it's doing fine." As you said, you've talked to people who said they were not aware of what was going on, and that may very well be true of some people. It's like, it's someone else's problem, it's not ours. And it's only when we started to—we, the employees, had to get to management and talk and talk and talk and talk, to tell them, "Look, there are problems. There's not equality. If there was equality, we would not need an EEO [Equal Employment Opportunity] office. We would not need any of that. We would not need any laws that say, this is what you need to do to bring things in compliance." So it has not been all peaches and cream. We do need those laws.

I was an EEO counselor at one time, and just talking to some of the supervisors, their

mindset was just closed. I'm sure you know what a counselor does, the EEO counselors within NASA. It was not just—a lot of people thought it was minorities and women, but as soon as they added the age category, a lot of the complainers were white males over forty who felt they were being discriminated against.

So it's a kind of thing, discrimination of any kind can affect a lot of different people, and sometimes those people don't realize it until later on, they're affected. Then they can begin to look back and say, "Oh, that's how someone felt," because now they're on the other end. They may have been right up on top and they find themselves in a position of, boy, they took away all of my authority. I really don't have anything interesting to do. So it affects a lot of us, but at different times. It may take some people longer to learn than others.

JOHNSON: In the late sixties and after the last moon shot and in the beginning of the seventies, there were a lot of budget cutbacks in NASA, and I believe Lewis experienced quite a few cutbacks.

Some of the information—let's stop for a minute and we'll talk about that when we come back.

Okay, so when we stopped, we were going to talk about some of the budget cuts that affected Lewis in the 1970s. There were quite a few people laid off during that time. How did that affect the work that you were doing or the people that you worked with? Were people in your group affected?

EASLEY: Well, the whole entire lab, as we called our place, the lab, we were all affected in some ways, but there was an uncertainty because there was not a real pattern as to what would be cut and who would go. I think it was 1970, is the first time reality set in that, yes, the government does fire people. You can call it RIF, reduction in force, but the bottom line is, they went out. And there was a bit of uncertainty the day that—you hear rumors. There

were things in the paper that there are going to be some cutbacks. I think some of us grew up believing that civil service jobs were forever, and secure. We didn't think of them as ever letting people go, and that's just the way our mindsets were. We'd been told that or we chose to believe that, so when there were the cuts, it was a bit unsettling.

I think we took it—yes, the group I was in, there were some people who were let go, but we never figured out the pattern. But the way it was done, the division chief, a personnel rep, were in the building, in the division chief's office and the division secretary would call a person down to the office, and that is how they were told they were let go.

We found out, we sort of got wind of it and we started to, I guess we used a little levity by saying, "Let's not answer the telephone if the phone rings." Because we had one phone per office. If there were six people in the office, we all shared one inside line, and we just didn't know at the end of the day, you still—and to this day, I think a lot of us still don't know how people were chosen to be let go. And we went through that at least twice, or three times, where there was this massive layoff. It was not a pleasant thing, because you don't know—you're sitting there wondering, okay, who's going to get the next phone call. And it was not necessarily the last one hired, the first one fired.

In another group, I remember a young man who had just finished—he was working while going to school and he had just finished college, and had earned a scholarship someplace. But the division chief called him into his office and said, "Congratulations. Read this." And it was the proverbial pink slip. And I remember this young man saying he was the rudest person he'd ever seen, to do that in the way he did it. And he said he thought he was not the last one [hired]. Theoretically, the way they thought it would be done was the less seniority would go first, but that wasn't true in that case. When I talk about the way people did things, this is an example of someone saying, "Well, I knew that you were going to leave anyway. That's why you were chosen to be let go." They don't know that he was really going to go. He'd earned the scholarship, but there's nothing that said he was going to go. There

were no guarantees, or that was not a way to do it.

So yes, people were affected, all over. Some more than others, like emotionally. It's a big upheaval when your life is turned around like that, and so, yes, a lot of people. That was a very sad time. It was very, very sad. And then you sort of settled in. Some people were let go, some people were put in other jobs. We actually had one of the engineers, life scientist, out here, was let go of his job, but he had a right to take a typing test, and he did. He became a typist. He became a cleric for a while. He passed the test. I don't know the rules, but a lot of people were affected and it's not pleasant. And you didn't walk around saying, "Oh, gosh, I was saved." You wondered, "Well, why? And why was that person let go?"

So it was not pleasant. Those were bad times. And of course, we got rid of one whole division. The Nuclear Division was eliminated. And that was a lot of people. At the time, I think most of the operations out of our Plum Brook facility were shut down. Because remember, I said back in the late fifties, early sixties, we had this big surge, and now it was not by attrition. It was like, you go now. So that was bad. It was sad times.

JOHNSON: Since the space program was essentially winding down somewhat at that time, some of the emphasis went back into earth applications, as far as conserving energy with the energy crunches that we went through in the seventies, and the awareness of the effect on the environment of what was going on. Lewis sort of directed their research that way. Were you involved in some of those kinds of projects?

EASLEY: You know, at one time—now I can't remember—I was working in the energy directorate, and I was working on, I think we called co-generation, trying to get byproducts from coal and the steam, and I worked on that. I was involved in that project. See, I'd forgotten about that already. That was interesting, because I remember trying to—I would have to monitor the electrical use. A lot of our facilities would run at night because they

needed so much power, and they'd run at night when the rest of the world, or the city, is not using power, so we didn't have a big drain.

For instance, now, with the very hot and all of the air-conditioners, and they're asking us, don't do your dishwasher and don't do the clothing because there's such a drain. So we ran our major facilities on what we called the third shift, when the power demands were not as great with the rest of the world. We've done the energy bit, we've done a lot of the earth-type things. It's been done through the years, and I think we never really stopped doing it. It may not have had the air play that some of the other projects did. One of the things we have out here is an icing research tunnel. I guess you may be familiar with that.

JOHNSON: I've read a little bit about it, but you can go ahead and explain that.

EASLEY: It's one of the oldest ones. In fact, ours has been declared a historical site several years ago. Yes, the research that's done for the icing of the planes. So it's been done here for many, many years. This is one of the things, I said we've had these projects that have been ongoing, and it still goes on. No, you couldn't see it from where we were, and of course, we have the wind tunnels. We have all kinds of things that are done. It was more than just the space stuff. We did stuff before the space program and some of those projects continued. We are multitask, or we do many, many things.

JOHNSON: Do you feel that that diversity that Lewis was able to accomplish is what saved it during that time period?

EASLEY: Well, I don't know. You know, why shouldn't we be saved? I mean, why should we not be here? We, as I said, are one of the original centers. We're one of the old ones, even though people didn't know we were here. But the work has been going on. We've been

doing the work. We were not born when the space era started. We were in full growth.

The reason NACA became NASA is because of what they had to offer. They had the facilities, they had the personnel, with the know-how. It's not like they had to start from scratch. They were able to move into an organization. You had your Lewis in Cleveland, your Langley [Research Center] in Virginia, and the California NACAs. So we had strength to begin with. We took on, and were proud to do it, took on as a part of, when we became NASA.

I know there's talk now about, oh, the budget, they're going to be cut, they're going to shut down. But I think there's just such valuable work going on still that it would be a shame to lose what we have going here, for the nation to lose it. Not just locally, which would be a big loss locally, but for the nation itself, I think would be a big loss.

JOHNSON: During that time period, sometime in the early seventies, you decided to go back to school?

EASLEY: Yes.

JOHNSON: Were you encouraged to do that at work?

EASLEY: No, it was my own decision. I had really planned to go—my intentions had always been to go back to school. When I came here in—when did I come here? 1954. Those were my intentions. And then, as I said, it was kind of a setback—well, not a setback. I didn't do it when I couldn't find a school of pharmacy convenient. And then I'd made up my mind in—and then I started to work here in [19] '55, and then I was going to go back school in [19] '58 or '59, but I bought a house. We bought a house and that sort of put school on hold. I kept delaying it for one reason or another, but at some point in the seventies, I thought, "I am

going to go back." I just made up my mind. Actually, I started back in the sixties, but I was working full time and I thought I could only do one class at a time after work. I mean, that was just the way I felt. I'd been out of school for a long time.

And I did go. I just took one class at a time. Then when there was a change in my life, I just stopped doing everything. I didn't take any classes. And then in the seventies again, I thought, "Just do it. This time you're going to go and you're going to get it over with." I went. I did much more than I thought I could ever do because I signed up for two classes, while working, which I didn't think I could do. Actually, I made it through okay. And then I took three classes while working, but I didn't know at the time it was twelve hours' worth of classes.

No one told me it was considered a full load, because I would have said, "I can't go to school full time and work full time." But I was fortunate enough to get on an irregular tour of duty, which means that I could come to work at six-thirty or seven o'clock in the morning. I'd leave at eight-thirty, and go to class. That was later on. In the beginning when I took those three classes, I left work, I had a four o'clock class, a six o'clock class, and an eight o'clock class, so I was able to find three classes that I needed, in one stretch. So I didn't have to go to school, go down there five days a week. I could do it for three nights a week, I could do that.

After that, I was going in the daytime, so I did have—I'd come back to work and I'd work till eight-thirty or nine, because I had to put in forty hours per week, in six days. I had six days to do forty hours. But I was determined to do it. It worked for me, and I'm glad I did. I really am glad. And I still try and offer encouragement to say, "You're never too old, and if you want to, as my mother said, you can do anything you want to, but you have to work at it."

Then at that time, the social bit was eliminated. There was not a lot of socializing. You know, the parties and the dances and the movies. That, I didn't do. My life was dating, and by then I was divorced. But I would date, I'd go to school, I'd come home. I was more

disciplined then I ever realized, but I was glad when I had put forth the effort and it did pay off. I did what I wanted to do. And as I said, after that, I did tutor again. I started to, got really into tutoring with like an organized program. I did that until around, oh, gosh, [19] '79 or '80, where I tutored every Saturday morning, in a organized program here in the City of Cleveland. But then I learned to ski, and I was taking a Friday ski trip and I thought it'd be a bit of a chore to try and get up Saturday morning after being gone till late Friday night. And I didn't want my little tutee looking for me and not show up, so I kind of stopped doing it on a regular basis.

JOHNSON: You got a degree in math?

EASLEY: Math, yes. Mathematics.

JOHNSON: Which university?

EASLEY: Cleveland State, in Cleveland.

JOHNSON: Having the degree, did that affect your job in any way?

EASLEY: Well, it was a strange thing, because I was considered a subprofessional without the degree, and then when I got the degree, in order to become a professional, I had to take more classes. It was someone's opinion. Because again, you're working with people who decide what should or should not be done. If there was someone who would have said, "Okay, you have your degree." If you'd come in here as a new hire with a degree, you would be hired as a professional. You would be. You come in, you have a math degree, you're a professional. I was already here and they decided I needed X number of hours of training to be considered

a professional. They really and truly did. That's what I meant about some of these things are subtle, but why would I need those extra hours? I have all of this experience, I now have the education, but the people in personnel, or in training, said, or someone said—I don't know who the powers-that-be were, but you've got to have X number of hours of training to be considered a professional. But it's okay. I took the courses. In fact, I went to Houston and took one. Yes, I think that one kind of—yes, I did.

JOHNSON: And these were NASA-sponsored courses?

EASLEY: Well, I chose that course. They paid for it. I paid for my undergraduate education, and I don't even need to get into that. I paid for my own education.

JOHNSON: Did they pay for anybody's education? Was that a program in place at that time, that they would pay for people to go back to school?

EASLEY: It was very secretive, but I know for a fact that they had done it for undergraduates. When I chose to take math courses, which were work-related, having the knowledge that it had been done before, I talked to my supervisor, Bert Henry, at the time, and he said, "Oh, no, Annie, they don't pay for any undergraduate courses." I tried to explain to him. By then, we had a junior college, Cuyahoga Community College, that was now here, and they were offering classes. They sent out a flyer from the lab saying, "Check with your supervisor. You may be able to get aid for these courses." Now, that's a junior college.

I tried to explain to my supervisor that, when I asked him—because you had to go through channels—when I asked him about aid for education. As I said, he told me, "They only do it for professionals." I showed him this flyer that said, they may be able to get help. I said, "Burt, that's a junior college." It didn't matter. His mind was made up. The answer was

no. They will not give you help.

So I went about my business, I paid for my own course, and one of the engineers that I worked with said, "Oh, Annie, that's ridiculous." He took it upon himself to go to training, and he explained to the woman in training that, she doesn't want to cause any problems, but this is what's happening. And as it turned out, when I finished that course, I turned in my grade. Well, he sent it to training. He, my supervisor. And it was a perfect out for the woman in training to call him, and she said, "I see that Annie took a math course. Why didn't she come to us for financial aid?"

And he says, "Oh, well, I didn't think you did that."

And what she told me, she says, "He must have slept through all of his supervisory training, because we've helped lots of people." Now, I cannot tell you whether it was his ignorance. I don't know why, but you can't go around—when they say you go through channels, that's what you had to go through. And he was the one, the first part of that, and he was this one who said no. I do not know why he said no. I don't know if it's his—as I said, I don't know. Was he just unaware, or did he choose to say, "You don't deserve it." I don't know. But he was very apologetic to me, because he said he didn't know it. But he wouldn't listen when I tried to give him an example.

So you live with that kind of thing, but you don't let it stop you. I could afford to pay for my course, and I'd already registered for the next course. I didn't ask for the first one I took. It was when I was getting ready to take the second one that I asked him. The thing is, I don't know if he was that apologetic, if he felt that bad, as he claimed, but he never volunteered to pay for the course. Now, that was the math courses, and they were really work-related. There were other courses I took.

Then when I decided I wanted to, I realized there was someone who'd had his—he'd been paid while on leave. They paid for him to go to school, to finish up his degree. I asked for a similar thing, through training. They told me absolutely not. I don't put a label on it,

but there must be a reason. No one ever gave me a reason. They just told you no one ever did it. You go back to them with evidence that this person had this done for them, such and such a date. Well, I don't know anything about it, or there isn't time to play with these people who—the ones who have the authority to say yes or no, but I'm able to take care of myself, and that's what I meant about, if you can't work with them, you work around them.

So I was determined that, this is what I'm going to do. Even when I chose to take off three months. In fact, I stopped turning my grades in because it didn't really matter anymore. But I chose to take leave without pay, to finish up, and that's how I requested the leave without pay. It took a while for them to okay it. I did it in the appropriate time, but it took a while. I was already on leave when they finally okayed it. Because going and taking those three courses while working full time, it had been—you know, it kept me going a lot, and I decided, I'll just take leave without pay and finish up. Take four courses. I had a plan. If I take four courses, I can finish up at such and such a time. So that is what I did, but it took them a long time to just okay it. In fact, I had talked to the director and said, "It is very difficult for me to get this okayed," and he assured me that it was—he says, "Oh, Annie."

I said, "Well, why is it sitting on someone's desk?" Again, you know, the channel bit. I just said, "Well, school is starting. I'm on leave," and that's just what I did. I just went on leave. It was okayed after I had been on leave for two weeks. Leave without pay.

Still, that is not enough to deter me from my life goals of, you keep going, because there are people who have authority, and I think sometimes they abuse it. But it makes them think, I'm in charge if I say no. It makes me feel real good. But you don't stop the person from forging ahead.

JOHNSON: Do you remember the engineer's name that went to training for you?

EASLEY: Yes, but I don't know if he would want me to tell. Oh yes, I remember him well.

Yes, I remember him well.

JOHNSON: As the machines came in, you went more and more into that part of it, and to computer programming. Was that a natural path for the mathematicians to follow?

EASLEY: Well, I would say, yes, it was because we—I guess I left off with the punched cards. That was very natural to—we still did. We were still helping someone else with their work. I mean, working with the engineers. Those are the machines, we ran our own. We were still the operators, and I think it was called the old 650. We used an old language called SOAP. It may be Symbolic Optimal Assembly Programming, SOAP. But anyway, that's the language, but we still did it ourselves.

Then we moved up to higher machines, better machines. We still used to punch cards with the 704, and as I said, we used to punch our own cards, sit down with all of our instructions. But then we moved up in the world because we now have hired keypunchers that we would take our instructions to and the keypunchers would punch them up for us.

They also had machine operators, so they would run the work for us. I mean, that's how much we were growing, everyone. And not just the computers were using machines. Then other people throughout the labs were starting to do programming. They could be engineers, they could be scientists, but they were also using the equipment, the computer equipment. And then we went to the 360 because we kept getting bigger and better. Then we started with the—people getting their own—well, I was out of here before everyone had personal computers, which is where we are today. You're self-contained right there on your desk.

I've seen the transition, and it's been a great thing to see. I mentioned earlier the growth from where we were to how much we've come through, and what we can do. I'm glad to have lived in this time, and my good memories still outweigh the bad.

JOHNSON: Some of the projects you worked on during the time you were actually doing computer programming, you were actually programming code, weren't you, for some of these projects?

EASLEY: I was programming in FORTRAN. That's the language that we used when we did the code, yes. That was the FORTRAN programming, and that I used for years and years and years. I guess the COBAL was more our business side, of the people who did the business side of it. But the scientific world out here, we used mostly FORTRAN. I know there are a lot of different ones now that are used, but I didn't get into those. They came kind of after I had left. But FORTRAN was the one that we used mostly.

JOHNSON: In some of the research, I saw that one of your assignments included studies to determine the life and use of storage batteries. Can you talk about that a little bit?

EASLEY: Yes. We have a battery lab here where they did do research on batteries, and I was doing some of the computations with that. And batteries, like to use in a battery-powered vehicle, we would run studies on that. In fact, we used to have a little battery-powered car that they drove around. But we did research on that also, the computations.

JOHNSON: Well, now some of these vehicles are starting to appear in the real world, the ones that are the, what do they call them, hybrids?

EASLEY: Hybrids. There's one—I know someone here has one. I think it's a Honda. He has a Honda. He works out here.

JOHNSON: Chrysler is working on one, I know, too.

EASLEY: Yes, he does have one.

JOHNSON: How does that make you feel? I mean, because you were working on that project, so that was probably from the early work.

EASLEY: But you know, I guess when I see them, so much has happened in my life, I don't really give it a big thought. I'm happy at the time when I see it, but my big thing now is trying to learn to snowboard. Seriously, actually, there's a general overall feeling of feeling good about having done, just been a part of this family. That is just a good feeling. And I don't always pick out a specific project and say, oh, I feel good about this one or that one. It's the big picture, it's the whole thing, that I feel very fortunate to have been a part of here. Even to some of the extracurricular things, you may call them.

Out here we have a children's Christmas show, and it was originally started by, I think they put on a show for the employees' children at Christmastime, and it was—one of the guys would write a play and the local people would act it out. Someone decided, this is such a great show, why don't we share it with the school kids from the city? So they started on a Friday, bringing in busloads of school kids. I think they put 400 kids in that auditorium from different schools, to put this show on, to let these kids see the show.

Now, my first duties with this show were, when the buses came, I'd escort them to potty. We called it potty duties. But I worked my way up to ticket-seller. I was in charge of tickets. What I was going to say about that, on that Friday or Saturday was the finished product, but these coworkers, and I speak of coworkers as being the entire lab. They didn't have to work with me during the day, but in the evenings, these people are working on designing a set, writing a play, painting a set. We had work parties to do this. And I worked

on that, just a minor portion. They'd let me paint large surfaces because I can't do the intricate stuff. I don't color within the lines. I don't paint within the lines, either. But we all had a hand in doing it and that is where I saw—when I look at the talent. Like someone who may have been a clerical by day? She could just take some chicken wire and just manipulate it and there's the Pink Panther's head. Or someone is sawing, someone is doing makeup. That kind of a thing. That's the kind of person I said when I have watched them, through the years, my coworkers. You're so fortunate to be with those people. It's fascinating to me. As I said, I've seen them do it and when I retired, at my retirement party, I was presented a plaque from working with the children's Christmas show. That was very meaningful to me because it came from that cross-section of people.

If there's something to be done, you just see a bunch of people—I talked about our specific projects, when you needed to get it done, you all jumped in as a team. Well, this was the bigger picture. It was a lab-wide effort. People from all over. And the same thing with the employees' picnic. We'd paint whatever needed to be painted, you'd set up the games. That's the kind of thing that gives you a—it's part of your good memories about a place you worked, that when I left here, I could say, "I really enjoyed my years there."

It's kind of like my thinking back in high school. I really enjoyed school. So I'm glad that I have good memories, and I guess the expression is, "You just don't let them get you down." It is very easy to do, if you choose to, but I choose to take control of how I am going to feel, because I always tell people, "You can't make someone feel bad. They choose to feel bad." And I choose to feel good, because I think life is good, but that's my opinion.

JOHNSON: You mentioned earlier about going to some of the Shuttle launches. Was that work-related?

EASLEY: No, not really. Ours was more the unmanned flights. We would go down for some

of the unmanned flights, but I was there for one of the Shuttle launches while we were doing—on our official business. I mean, 4:00 a.m. in the morning that we are driving over to see, but we were working, I think, like the Delta rocket, Centaur launches, a lot of those. We had business down there. They were launched from the Cape [Canaveral, Florida].

JOHNSON: So you went down there with the engineers and the people who had worked on it?

EASLEY: Yes, with our work group. That's when I was in the launch vehicles group, that we also used to go to those. And we would travel out to California at times, because we had contractors out there working on projects for us. And other things I did, besides working, besides the assigned duties, I was a part of the Speakers Bureau, and that was always something I enjoyed doing. I loved to talk about the spinoffs in space. I used to tutor. I told you that. But I also used to recruit, at different colleges, for the lab. I remember running into some young man here, that I didn't recognize. He says, "Mrs. Easley, do you remember me? You recruited me from Georgia Tech [Institute of Technology, Atlanta]." "You really believe those things I told you?" But I recruited Georgia Tech, or in Michigan and Illinois, so I went to lots of places. University of Cincinnati.

Those too were great things to do, because you're still—it's a contribution. It isn't your job as—there's not a label or a title on you. We're not professional recruiters, but they used the employees to go to the different schools to do the recruitment. And you come back to training and personnel, back to personnel, and debrief with them. That, to me, was a part of my education also, to go and talk to these people and see what talent we have coming out of these schools, and how bright they are. You go and you talk to ten or twelve people a day, and you have an appointment set up, times, but then there are those who just couldn't get on the list, so that was a part of my NASA life.

JOHNSON: In your work, were you a part of the process of releasing technical reports?

EASLEY: Not really. I mean, I did more—I can remember checking someone's technical report when I wasn't supposed to, but I did not do a lot of report-writing. No, that was not a part of my—

JOHNSON: Were you ever listed on any of them as contributor or author?

EASLEY: I was listed on something years and years ago and I don't even remember the name of it.

JOHNSON: We were talking about the reports and being listed as an author or not [before the break].

EASLEY: I can't remember any specific ones, I really don't, because I didn't do a lot of report-writing.

JOHNSON: I know while you were at Lewis—and it was, what, thirty-four years?

EASLEY: Thirty-four years.

JOHNSON: There was a lot of changes and we talked a little bit about the technology, the social changes, as far as the family feeling at the beginning and the group activities that you were involved in. The last years you were there, were those kind of things going on?

EASLEY: There were still the same kinds of things. There were still the family, the

employees' picnics, and the division picnics. Those things were still going on when I left, and before I left here, one of the things I had done is, I had started to ski, and we formed a ski club. The club is still here, still going strong, and that became like one of the big social outlets. We started it as a ski club, but we learned that we had so much fun doing it—we started with eight people in January of [19] '79 and by February we were up to twenty, and within a couple of years, we were up to 200. But we did more than just ski, because someone said, oh, let's go—in the summertime, let's go canoeing or let's go whitewater rafting. We even took city trips to different places in the summertime, so you didn't have to be a skier to enjoy the club, and I think people joined it for the social bit. But we have all kinds of activities. They always had all kinds. The chess club, the camera club. I guess, the latest I heard of out here now was the hot pepper club. I don't know exactly what's going on now, but when I left here there was still the different activities, where people could, of like-minded things, they could get together and do them.

JOHNSON: You mentioned some of the departments you worked in. Did you move to different departments?

EASLEY: When I started, I was in the Computer Services Division, when I started here in 1955. In the late seventies, I moved over to the Energy Directorate, and then somewhere in the eighties is when I went to Launch Vehicles. Then we joined the Engineering Directorate, that is where I was when I retired. I was in different buildings. I guess I just mentioned about four different groups.

JOHNSON: Did you move for promotions or were there reorganizations going on?

EASLEY: When I got my degree, I moved into the Energy Directorate. It was either move or

leave, and I really was on my way leaving because they told me there was absolutely no place I could go and I was going to go elsewhere, and then I was asked to interview with someone in the Energy Directorate, and I chose to go there. When I moved again, it was because they were looking for more people in the Launch Vehicles Group. And actually, that's the only other one I went to. The name changed on that from Launch Vehicles to Engineering Directorate. But no, I did not go because there were promotions. I, personally, I think, only made those three changes, because the promotions just weren't always there. They just didn't exist. I would really have loved to have moved for promotions, but that's not the way it really was.

JOHNSON: Do you feel like any of it was related to the field you were in, or do you feel it was more a race or sex issue?

EASLEY: Well, let's put it this way. I don't think it was the field I was in. I guess I just didn't fit someone's requirements.

JOHNSON: Well, you were working in a field that wasn't traditionally a female—I think the computers, traditionally, were female, which I find interesting, because math and science isn't something that girls were supposed to be good in, but the field itself was more of a female-type field. Were there other men working with you in—

EASLEY: In the beginning, when I started, in my group, there was one male, but in the other groups, there may have been males already. And as the time went on, lots and lots of males came into the field. I don't know why. I will tell you, I thought maybe it was because it was a tedious-type work. It was repetitious in the beginning, the work that we did. When you are recording numbers and doing the same thing over and over again, that may have been

considered too repetitious for a man to do. Once we started into programming code, more and more men came into the field. Maybe it was because it was repetitious, and someone years and years and years ago had said women are good at repetitious or tedious stuff.

JOHNSON: Attention to detail.

EASLEY: But men did get into a lot. There are a lot of men in the field now, but they aren't called computers, either. But there are a lot of men doing it now.

JOHNSON: What do you feel like was your most challenging project that you worked on?

EASLEY: I don't know if there's a most challenging one. Everything I ever worked on has brought satisfaction, knowing that I was a part of doing something. But I guess I didn't see it as—oh, gosh, this is a—I'm not the kind of person who has a favorite or most challenging thing. Everything I've done, I think there's been a contribution, and I can appreciate anything I've ever worked on. Some of them required a lot more time, maybe.

I can remember working until ten o'clock at night sometimes, because we did need to get things done. Maybe I'd work till ten o'clock at night for three nights in a row, but it was okay, and that's after having come in at seven-thirty or eight in the morning. But it's okay because that was—I didn't consider it a challenge, and maybe my definition of challenge may be a little—I think a challenge that's really hard and really difficult, a hard task. But everything I've done, any task or any projects I've worked on, has been, I felt a great measure of satisfaction when I see the finished product. That's the way I see it. Boy, we made it through that.

JOHNSON: So if there wasn't one that was maybe the most challenging, were there any that

you felt discouraged by or disappointed in, as far as projects that you worked on or something that didn't go anywhere, that you feel like maybe you put some time in on?

EASLEY: I don't remember ever thinking that, oh, gosh, this was a waste. I don't remember seeing that. Whatever we contributed, there was some use for it, so I did not see anything that was down the tubes or wasteful. Now, I can vaguely remember someone back in the late fifties, one of the engineers bringing in things that we worked on, talking about a mission to Mars. I don't remember details on it, but when I hear similar things being said now, I'm thinking, "Oh, I remember. He used to come in. He would want this data worked up because it had something to do about a mission to Mars." So I don't think anything was wasted. There was always some use for it. The finished product may not have been that day, but I never felt like, oh, gosh, we put that time into it. Maybe we put time into something that we figured, it won't work. But that was not a waste. It was research. You found out either it would or would not, so maybe this is the time to stop it, if it's not going to work. So I don't consider that it's a wasted effort. It's that we had to research to find out where it would go.

JOHNSON: You mentioned earlier that you did what you wanted to do because you had that influence from your mother telling you that if you were willing to work on it—at the time, were you aware that you were dispelling a lot of the myths that our culture has about women and about African-Americans, especially in the fifties and sixties, were you aware that you were standing for something or that you would become a role model?

EASLEY: No. I didn't see it that way. I just saw my life as every day. This is the way I live. There are a lot of other people out there living the same way. Now, I didn't see myself as standing out, that I'm different, that I'm anything different, but this is the way it is to be. My mother said that—

JOHNSON: So that's the way it is.

EASLEY: And this is the way it is, and that's the way it was. I'm from the South, and I think sometimes people have misconceptions about Southerners. They don't always think of Southerners as stressing education. But I go back to visit with my friends now and it's the same kind of thing that we always had. My friends were all encouraged to go to school. One of my closest friends that I've maintained contact with, we went to high school together, that education was always stressed, and that's the thing you sometimes have to—moving from one place to another, you have to tell them, "Oh, no, education was always stressed. You go to school."

That's why I started off earlier by saying I wish the media could put a more positive slant on, "It's time to go back to school" rather than, "Oh, kids, you've got to go back to school." Why is there such a negative? And I think that's nationwide. But no, I never thought I stood out any differently. That's just the way life was supposed to be.

My mother wanted me to have opportunities that she didn't have, and I keep thinking that each generation should have a better opportunity. One of the greatest satisfactions I had in life was tutoring a group in a work-study program, and these were young people between the ages, I think, of eighteen and twenty-one, who had dropped out of school, the traditional school. As they got older—which, eighteen was old when you dropped out at fourteen—they had decided to go back, and I felt they were giving themselves a second chance. So it was a satisfaction for me to go and tutor those young people. And this is what I think. We need to give ourselves chances, rather than saying, "I can't do it" or "Someone is keeping me down."

Sometimes it may be a little harder, but we still have to struggle through it. If I can be a role model, that's fine. Because when I talk to kids in the eighth grade, I will tell them, "Your parents can go back to school. There's no age limit. You can always keep learning."

And I think we need to keep learning. But again, that's my opinion.

JOHNSON: Did it surprise you when people were looking at you as a role model? I mean, knowing that it was normal for you. You felt that that was a normal course for your life.

EASLEY: I still think it's normal. I think it's still a normal course, I really do. I still think it's a normal course. I'm thinking of the people I grew up with, and that's what we have to go back to, where we came from. My friends, they all went to college. They were encouraged to go. We did not come from rich families. We weren't born with silver spoons. We came from working parents. Some of us did come from one-parent households, but we had parents who encouraged us, who raised us in a way that, this is what you need to do to keep moving ahead, and you will have to. That's the thing. We were never told that, oh, it will be so easy, things will be given to you. We didn't expect that. We expected to work for it.

So when I look at my friends—as I said, I was home recently with two of my childhood friends, that we had just kept in touch. The one is a businesswoman. She runs her own business. My other friend is a Ph.D. who teaches at the college level. I have lots of friends who went to school and kept going to school. Like the one friend I mentioned, she has another sister who's a Ph.D. and one sister who's a medical doctor. We're all Southerners, we're all from Birmingham, so I don't see this as being different. It's like you're doing what's available, what you're supposed to do because you have the opportunity, so take advantage of it. But I never see myself as standing out as unique or different, but if I can offer encouragement to anyone, be it a child or an adult, that pleases me. But I don't think of myself as being unique. I mean, unique in a way, but it's just that there are so many people out there doing a similar thing.

JOHNSON: Some of the ladies we've talked to, they began work in the forties and the fifties

and they felt that by working for the federal government, it was more of an open environment, or accepting environment, as far as females working and that sort of thing. Do you feel that you would have had some of the same experiences if you hadn't work for NACA or NASA, or do you think your opportunities would have been the same, or different?

EASLEY: Now? I don't know. I don't know because I never worked for anyone else. It's difficult to say what would have been if you weren't really there. But I think even with the federal government out at NACA, women were placed in computing division or even—I remember someone, I think, who had a degree in accounting, who may have been put in clerical work. Remember, we're still dealing with people who have certain perceptions as to where women ought to be. Nothing was given to minorities or women. It took some fighting to get that equal opportunity and we're still fighting today. Of course, you know that. So I can't say what would have been if I'd gone to work for private industry. I do not know. Well, I'll never know. I don't think I'm going to work there.

JOHNSON: I wouldn't if I were you.

EASLEY: I don't fool myself and say, "Oh, gosh, I worked for the government." I mentioned earlier about one of the things that several of us thought about the government, that you couldn't be fired from the government. I've heard that expression for years and years. "You can't be fired from the government." Well, they may call it a reduction in force, but those people were let go. The results were the same, as if you say "You're fired" or you're going to be gently escorted out. You're out of a job. And that surprised a lot of us, back in the seventies. We just didn't know that could happen, but we found out, yes, it can happen. I still don't know why or how the people were chosen. I guess I feel differently that—I can't speak that I felt that, oh, gosh, I had better chances here than I would there. I do not know.

JOHNSON: When you speak to other groups or when you were doing college recruiting, you were encouraging other people to choose your field? Is that something you would still do, or what would you tell people?

EASLEY: When I went recruiting it was really for engineers.

JOHNSON: Was it? Really?

EASLEY: That's what it was because that's what we do most of the recruiting for. And when I recruited, I'm just really recruiting for engineers. I'm telling them about what's here, what the lab has to offer. And when I would go out and do a talk, I would talk on different subjects, and one of my favorites was always space spinoff, to talk about it. Or when I'd go to career days, I don't especially encourage people to be a mathematician, a scientist, or an engineer. I'm trying to encourage them to be something.

You just need to be—prepare yourself for whatever field you want to do. I don't expect of you to be engineers or scientists or mathematicians. We still need great teachers, because if we didn't have teachers, we'd have no engineers or scientists. We need the nurses, we need the doctors, we need the attorneys. We need the shops. There are so many different fields, but prepare yourself to be something. My talking was never just, "Look at what I am and be that." That's not what it was all about. It's just encourage them to prepare themselves. People find it strange that I would oftentimes stress English, to really learn English, because that's the language we use to communicate.

And I talk about the report-writing. I say, "We have a report manuscript section, and that's because not all of our engineers are real good with English, so we need someone to—the editors, the technical editors, to go over those reports and to be sure that they're able to

understand what someone is trying to say." And I said, "You may be the best scientist in the world, and you get in your lab and you do all of this good work, but if you can't communicate it to someone else, it does you no good." So yes, I do. That was one of the things I always stressed. Learn English. Because we do communicate. That's the language that we communicate in. It's not something you can go say, "Oh, it doesn't do me any good." But it does do us good. I would still stress that today, because that's how we communicate. I need to know what you're saying and you need to know what I'm trying to convey to you. So it was not all technical.

JOHNSON: Any other advice you'd give someone that was considering entering your field today?

EASLEY: Well, I would suggest that you take any possible courses, math courses, that are being offered, at the earliest opportunity, if you have a chance. If they're being offered in elementary school, whatever they are, start then, and just take whatever is available. Don't give up on it. Just stick with it. Don't listen to people who always tell you it's hard, and walk away from it. And I think we do make that mistake sometimes, listening to someone who says, "Oh, math is so hard," and maybe you won't even attempt it. For perhaps it won't be that hard for you, if you look into it. And they could be telling you that a foreign language is too hard, and maybe if you tried it, you could accomplish what you wanted to. That is kind of with anything you want to do, not just one field. Investigate, and then make your own decision. That would be my advice.

JOHNSON: You mentioned some of the committees and organizations. You were an Equal Employment Opportunity counselor?

EASLEY: Yes, EEO counselor.

JOHNSON: Any other thing? The ski club, you mentioned you were a part of that.

EASLEY: I'm one of the founders of our ski club. I was the first president out here. As I said, I was in the Speakers Bureau. You know, you do all those other little things. There's a Suggestion Awards Committee and all. There's just a bunch of little things you do through the years. They may not show up on a resume, but at the time I think they were meaningful, they were helpful. Again, we were helping people get an award for some suggestion they had made. We had a running club out here. I was also a part of the running club at one time. I used to be a runner. The work is fine, but I think the social bit is also that you're able to socialize with your coworkers. Not that you have to, but it's nice to be able to, if you so choose.

JOHNSON: It builds that team feeling, I'm sure.

EASLEY: For instance, as an example, the ski club. We would meet, and after we met, we'd all go out. A bunch of us would go out to dinner someplace, and someone made a comment that we make a lot of decisions at dinner that we don't do during that formal hour or so that we meet. But if something would come up, like maybe the whitewater rafting or let's go see a play someplace. That kind of thing would come up in the informal setting, while you're together socially. So we did a lot of that.

But skiing became a great big part of my life also. I became involved even with the ski council here in the city, the area, because we have our NASA Lewis Ski Club, but we joined a ski council that's an umbrella organization of about two dozen or more ski clubs in the greater Cleveland area. Well, I eventually became president of the ski council, and that

was a big part of my life. For three years I was president of that. So that all sort of grew out of the group we had here, and it expanded to something that was kind of city-wide. I find that we can do a lot of things. Work is something that we need to do in order to survive. We can enjoy it or we can not enjoy it, but, thankfully, I enjoyed mine. I've enjoyed the people I've met and I can't stress that enough. And not just the person I sat next to in the office, but a cross-section of people.

Right now, I have been gone since December of [19]'89, but there are still a lot of people. I mean, today we've been lucky that no one is on this floor, but I chuckle sometimes that I really don't have time to go into the lab. I don't have time to talk. Because I enjoy seeing the people that I once knew, and I've met some of the ones who were not here when I was, didn't work here at the time, but I've met them since then. So it's always nice to be able to come back here. And that's why I thought this would be a better setting to meet with you than someplace away. That it's like, back in a familiar place.

JOHNSON: You mentioned your mother several times, as probably your most ardent supporter. Is there someone else in your personal life or professional life, anybody at NASA, that you feel like was a mentor, or somebody that you really felt—or more than one person—that you felt may have contributed to your career or your belief in yourself?

EASLEY: I already had my belief in myself when I came here. Well, I did. I already did. But there are people, and I can't just point out any one who was, oh, gosh, like this person really took me by the hand and really showed me the way. But there are people who helped me along the way. That's the work part of it. There's no one who would be on a level with my mother, because of her, from the time I was a little kid, just constantly, constantly giving me encouragement. When you brought the report card home, the smile on her face, and how happy she was with the grades. If there was an A and a B, she would encourage me to bring

that B up the next time. You know, you have to work on that. And I didn't get paid. I didn't get pennies or nickels or quarters for grades. Well, I know some families do that. I didn't get that kind—it was not that kind of thing. It was her encouragement, her pleasure, and her smile, when the report card came home.

So yes, there is no one else who was on that level, but through the years, I've had help from a lot of different people, and I think we don't really make unless someone helps us. Maybe some of us don't get the help that other people get, but we have to take advantage when we are getting help. So there are several people who have helped along, throughout life. There are people who have helped.

JOHNSON: I'm going to stop the tape for just a minute and then we'll come back, and just a couple more questions and we'll close it out.

Well, while you were here, there were some pretty famous Ohioans associated with the space program that came through here. In fact, Neil Armstrong began in 1955 here, the same year you came. Did you ever have a chance to work with any, like John Glenn or Neil Armstrong, or any occasions to work with them?

EASLEY: No, I did not. I just remember some of the earlier astronauts came to train on something we call a whirly-gig [gimbal rig]. I think it was called a whirly-gig. But you looked at them from afar, but I never worked with them. But I remember they came. This whirly-gig was some, like three circles of whirling. I think we called it a whirly-gig. They were here. One of my tours, they would come—maybe some of them came and spoke to us on the Ad [Administration] building steps and we all went over to hear them, but I never worked with them directly. But one of my memories of that class that Judy [Judith A.] Resnik [Ph.D.] was a member of, that astronaut group. She was from Ohio.

When they were new, the fresh class or group, they came here to visit and to tour, and

I was one of the drivers. I can't remember. Did they have ten, twelve, fifteen? I can't remember how many were in that class, but we took them touring the lab and the facilities, and I was one of the drivers. I might have had two or three of them with me, in the car with me. We, of course, went to different buildings, different facilities, and I had the car that acted up and I can't remember his name—not the car, the person. As we drove across the street, he said, "There's a snake." I looked, and he says, "Let's get it."

I thought, "That's not a snake. Get it away." I looked in the rear-view mirror and what I thought was a leaf was actually something, and we turned around, and he got out and picked it up. He wanted to scare Judy with it. By the way, I can't believe we did that, as adults. They were a great group of kids. But we did pick it up and I found a box to put it in, but she took it, and she was going to give it to someone. I mean, give it to a friend of some kind. But what I remember about that particular group, we all went out, after being together at all of these facilities during the day, we all went down the street to a place called Yesterday, to a restaurant, to dinner. Judy's dad—her parents came up and had dinner with us, and we had the greatest time. We left that place—they had live music. Now, these are my good memories.

They had live music there and we left there and went over to the airport to a Sheraton-Hopkins, to a place called Final Approach, and I think all of them had the greatest time. Because perceptions about cities—they didn't realize there was so much fun to be had in Cleveland, and that's the hotel they happened to be staying in. I remember that group for that much. Of course, what happened with them. It was [Ellison S.] Onizuka [Ronald E.] McNair [Ph.D.], they were all up there with us. That was my closest to a bunch of them. It was in a work-type situation. You know, I was driving them around. But we have had other astronauts come and appear, but I've never actually done hands-on work with them. But I have gotten to meet them, some of them, through the years.

JOHNSON: In fact, Ohio has the largest number of astronauts of any state. I think it's twenty-four now. Good concentration.

EASLEY: I was thinking of someone else I was on a program with in Chicago, but I can't remember his name. I guess we were at Chicago State [University]. After a while you forget all of the things. Oh yes, we used to go and do week-long programs sometimes. Like we did it at Chicago State. We'd do a week-long program, have the kids from elementary schools come in and do things for them, different experiments. We've done the same kinds of things here at home, but, again, those were kind of other duties and a cross-section of people who would go into it.

JOHNSON: Were those all volunteer opportunities? Did you volunteer to do this?

EASLEY: Oh, they're all volunteer. Yes, they're all volunteer. You just have to be excused from your regular work in order to do it. Yes, they were all volunteer. Like our Christmas show I talked about. When those people worked at night, I remember someone saying to one of the very talented people, when she watched them work, she said, "You guys should get paid for doing this." She says, "No. Then it would be work. It would not be fun." But yes, those were volunteer. When we go out and do career days or career weeks, it's a volunteer-type thing, but you're still representing NASA. That's where you're coming from.

JOHNSON: When you retired in [19] '89, December of '89, did you just decide, now's my time, or did you begin working on something else?

EASLEY: No. When I retired, I—well, in my life earlier, I never thought of just doing nothing. I always thought I would do something after I retired, but I kind of thought, maybe

I'll do real estate, but it was not etched in stone. So I retired in December of '89, and for three years, I was fully retired. I did not have a paying-type job, but I did a lot of volunteer work, because people know that you're there and if they know, they will ask you to do things. And I would always say yes. Lots of people have heard me say that I put more miles on my car as a retiree than I did as a worker.

I became very involved with the ski council and as president, I tried to attend as many different groups as I could. That means driving to Sandusky, Youngstown, Warren, to the Akron area, and the different clubs around Cleveland, but I enjoyed every bit of it. I thoroughly enjoyed it. I could have run for four years, but into the third year of the presidency, I decided, I think I'm satisfied now. I won't run for a fourth year, and I think I'll go and take real estate classes, so that is what I did. But for three years I was fully retired, and I was just meeting different groups all the time, and I was very, very busy with that. Now, real estate allows me to work other people's hours. Well, we are called independent contractors, but I know that we have to work with the people when they are off from their traditional nine-to-five jobs.

So I don't have to get up at 6:00 a.m. if I don't wish to, but then some days I do, because I choose to do it. I still call it retirement, I enjoy it, I do travel. Most of my travel, believe it or not, is built around skiing. I never went to Europe until I went on a ski trip. Actually, I never saw a mountain until I went out West on a ski trip. Now, I had never traveled before. I started to ski when I was forty-six years old, so I've been able to see a lot of things, but skiing has sort of been the thing that pushed me there. I may go to a place and not even ski, but it gets me to that area and I can tour. So I'm enjoying life, I've always enjoyed life, and I still do. And I like to play.

JOHNSON: Any other physical activities? I know you mentioned running.

EASLEY: I used to run. I do play tennis and I do golf. I do lots of things, none of them well.

JOHNSON: But you have a good time.

EASLEY: I do. I have a good time. And I think part of it is the people. Now, the running was a very alone-type thing. That, I could do alone and enjoy it, but I enjoy golfing. I enjoy being with other people. I enjoy doing things with people, whether it's golfing or going out to dinner. It's just that I like to do things with people. I have never been bored in retirement, and there's never a day that I say, "I wonder what I can do." There are always more opportunities that I can take advantage of, and I like it that way.

JOHNSON: Are you still involved in any tutoring or anything of that sort?

EASLEY: Only if they catch me. Actually, when I met those other computers, it was because I went out to do a program at Mills College in Oakland [California]. So every so often, I'm still found. I don't tutor on a regular basis, but if someone asks me to come to a career day, I will do it, to talk to the students. I'm always willing to do it. So yes, I still will be involved, as long as I possibly can, and as long as anyone asks me to do it.

JOHNSON: Are there any specific anecdotes or any incidents or happenings, than we haven't talked about, that happened while you were here at NASA that you want to mention, or anything you can think of offhand?

EASLEY: Well, not off the top of my head. I just can't think of anything. It seems like I've said a lot.

JOHNSON: We have. We've talked a lot.

EASLEY: I can't think of just any specifics, but if they come up, I'll make a note of them, if I think of any.

JOHNSON: Is there any topic that we didn't cover that you wanted to mention, about your work?

EASLEY: I think we've pretty much covered most of them. Again, I will stress, for me, it was wonderful, it has been a wonderful time to be alive, to see all of the changes that took place in my work life, from where we were to where we went. And to still see changes. I'm just fascinated by all of the changes. We can fax this and email that and voice mail. I mean, it's just fascinating to me.

JOHNSON: Are you keeping up with all the gadgets?

EASLEY: I'm not playing with them. I do what is necessary. I bought a computer because I thought I needed to, but I don't sit on it and play to see how much I can dig into. I don't have the time or the desire. I will get the email and I'll send it, but I don't play with it. It's not like this fascinating thing I play with. I'd much rather be out doing something actively, like on the golf course or doing other things. But some of the things I get are the necessities.

JOHNSON: Well, I appreciate you talking to me today and sharing your career and your many accomplishments, and your well-rounded career at NASA. In closing, I just want to thank you again.

EASLEY: Well, I thank you for coming and taking the time to talk to me. I'm always willing to talk, if anyone wants to hear anything I have to say.

JOHNSON: Well, we certainly enjoyed it. Thank you.

EASLEY: Well, thank you.

[End of interview]