

NASA HEADQUARTERS ADMINISTRATORS ORAL HISTORY PROJECT ORAL HISTORY TRANSCRIPT

JULIAN M. EARLS
INTERVIEWED BY REBECCA WRIGHT
CLEVELAND, OHIO – 22 FEBRUARY 2006

WRIGHT: Today is February 22nd, 2006. We are at the NASA Glenn Research Center at Lewis Field in Cleveland, Ohio, to talk with Dr. Julian M. Earls. This interview is being conducted as part of the Administrators Oral History Project sponsored by the NASA Headquarters History Office [Washington, D.C.]. Interviewer is Rebecca Wright.

Dr. Earls, thank you so much for taking time this afternoon to come in to visit with us for this project.

EARLS: Well, thank you for the opportunity.

WRIGHT: You dedicated almost forty years to NASA before retiring this past December as Director of the Center. With this oral history session, we hope to learn about the different aspects of those years, but before we begin down that path, we'd like to hear briefly about how you prepared yourself for this journey.

After graduating from high school in Virginia, you enrolled in Norfolk State University [Norfolk, Virginia] to pursue a college education. Tell us about those plans, why you decided to pursue that route and how it evolved into working here at [NASA] Lewis [Research Center, now Glenn Research Center].

EARLS: Well, when I was in high school, in one of our assembly programs, professionals came in, and one of the presenters was an electrical engineer, and I got so fascinated by what he said he was doing that I decided I wanted to be an electrical engineer. So my senior year, I received catalogs from engineering schools and wanted to go to North Carolina A&T [Agricultural and Technical State University] in Greensboro, North Carolina, but I could not afford to go away to school. Norfolk State was nearby. I grew up in Portsmouth [Virginia]. So I could commute to Norfolk State. But since they did not have an engineering program, I ended up as a physics major.

But the interesting thing about how I ended in physics was I decided that since I wanted to be an electrical engineer and they didn't have an engineering program, that I would take all the courses that they offered in math, go over to the Industrial Education Department and take the courses for an electrician, and combine those two and make myself an electrical engineer. But when I took the physics course, the major professor there, who really became like a surrogate father to me, Dr. Roy [A.] Woods, asked what my interests were, and once I told him that, he said, "Well, son, if you major in physics, physicists work as engineers, but it is rare that an engineer would work as a physicist, and you would have a broader range of options as a physics major." And that's how I ended up majoring in physics at Norfolk State.

WRIGHT: You were offered a job from NASA in Virginia, but you turned down that job. Can you tell us why?

EARLS: At the end of my undergraduate education, my bachelor's degree in physics, I was sent an offer to [NASA] Langley Research Center [Hampton, Virginia]. The salary was a startling

\$6,700 a year, more money than I could ever imagine. But here, again, Dr. Woods was my major professor and really like a second father, and he said, “Well, son, you really ought to go to graduate school, get a master’s degree at a minimum, and NASA will be there once you’ve finished.” And once he said that to me, it was, “Yes, sir,” it was no discussion on my part, because I trusted him. He knew what would be best for me, and so that’s when I decided that I would go off to graduate school rather than going to NASA. But always wanted to make sure that I worked for NASA.

WRIGHT: Why did you want to do that?

EARLS: Well, you have to remember this was before you were born. It was in 1960, and I finished high school in ’60, finished [college in] ’64, Sputnik [Russian satellite], the space race, the excitement of NASA and so forth, and I just knew that was what I wanted to do. So even while I was in graduate school at the University of Rochester School of Medicine and Dentistry [Rochester, New York], I had gone there on what was then an Atomic Energy Commission fellowship in the field of health physics or radiation physics.

So once I finished my studies there, [I] went to Brookhaven National Laboratory [Upton, New York], because part of the obligation [for the fellowship] was to work a summer at a national laboratory. Interestingly enough, the only place where I submitted an application for employment was to NASA here in Cleveland, Ohio. [It was] just divine intervention [that] I received the letter making me the offer. [I] told my wife to come [with me] to Cleveland, Ohio, that we would stay here maybe two or three years and then transfer back to Langley so I could be close to home. That was over forty years ago, and [we’re] still here.

WRIGHT: When you moved to Cleveland, the United States was in the midst of societal changes in regard to civil rights. During this time period, there were racial riots in a number of locations, including the Cleveland area in July '68 and '66. However, you continued to maintain your focus for your career advancement and brought your family here. Can you share with us how these events impacted you professionally and personally and why you wanted to make sure you had a home in Cleveland?

EARLS: Well, I really liked being in Cleveland, and there were friends of ours who were undergrads [undergraduates] at Norfolk State who had accepted positions here in the Cleveland school system. My wife was an education major, elementary education, and they made an offer for her to teach here in Cleveland. So we almost had another family here in Cleveland with our friends, who had finished undergraduate with us, and then I met employees here at the Center, and many of them were from Virginia and from parts of the South. So we sort of had transferred part of the South to Cleveland, Ohio, so it was really not that difficult to make the adjustment.

There were racial issues, but those racial issues were not just external to NASA, because when I started with NASA, there were only a handful of black employees here at the Center, and in supervisory positions, we did not occupy those at all.

WRIGHT: In fact, you joined the staff at the Lewis Research Center as head of the Health Physics Section and became one of the youngest managers in NASA history, and, as you just mentioned, you were one of the few African-American in, I think, personnel of about four thousand people

in the Center. Share with us some of the challenges and how you worked through those issues and started your legacy here.

EARLS: Now that's an interesting story, because I started with NASA September '65. The Atomic Energy Commission made me an offer in November of '67, and I decided that I wanted to give that a try. So I left NASA, left two people here working in my area, health physics, radiation physics. One left and went to North Carolina. The other remained here alone. Four months after I left here, the individual who was here got killed, so that left NASA with no one in my particular area.

So they contacted me at the AEC [Atomic Energy Commission] working in New York City. [Working in New York City, for me,] was a mistake, because that's not the place to rear a family, and I actually lived in East Orange, New Jersey. When they contacted me, I said, "Well, yes, I'm interested in returning, but I will only return as the Section Head." So they made me an offer to come back to head up the group, and that's how I became the head of the NASA Health Physics and Licensing Section in 1968.

WRIGHT: That's quite a remarkable challenge for the Center from someone who was only twenty-five.

EARLS: There were not that many of us in those areas, though. In fact, that's what I tell students today, that if you prepare yourself, you never know what hand fate will deal you. I had been prepared in undergrad, prepared in graduate school, liked what I was doing here at NASA. At the Atomic Energy Commission, there was more traveling than I would like to do. And then

when the opportunity came, even though it was a result of very unfortunate circumstances, it turned out that that was absolutely the right move. I was in the right place at the right time.

WRIGHT: While you were joining the staff in Cleveland, there was a somewhat reduction or tendency to reduce money that was going to the Space Programs, but yet you felt this was a good move for you, and your family, too, to be here. Did you have any apprehensions that at some point your job may be gone?

EARLS: I guess I was too young to be worried about that. And we had a vibrant program going in my particular areas, because at that time we had a 69-inch Cyclotron here. I had worked at Brookhaven National Laboratory on a machine, a Dynamatron electron accelerator. That was the first one in the world. Glenn, Lewis, at the time, had the second one in the world, so I was here working with that.

We were doing work in nuclear physics. We had special nuclear materials, basic materials, by-product materials. [NASA] Plum Brook [Station, Sandusky, Ohio], we were gearing up with the space power facility there, building that as a nuclear facility where we could, in fact, do research and testing on radiation effects on materials and power systems for space that would use nuclear materials. So it was a vibrant area and a good time of being in the Agency, and we were not threatened at that time, even with supposedly some very serious budget cuts. We felt fairly comfortable. As a matter of fact, we did undergo a RIF [reduction in force] back in '73, but some of the people that were RIFed were actually brought back after only being gone for several months.

WRIGHT: Although your job seemed to take every moment that you were here, because you've just mentioned all the different programs you were doing, in '68 you joined the staff at the Cuyahoga Community College [Cleveland, Ohio], started working there as a math instructor. Tell us why you chose to take on yet more duties.

EARLS: I always believed that I had an obligation to try to return something for the help I had received, [from] Dr. Woods and the professors that I had at Norfolk State in undergrad, [and] my high school teachers. I really believed that I could not repay them directly. But if I could do for some other youngsters what they had done for me that, in a sense, that would be a way to pay back.

So I went down to Cuyahoga Community College and decided that I would teach on a part-time basis and did that for over twenty-five years. I don't know how I ever found time to do that, but it really was a labor of love. And as a matter of fact, some of my students ended up working here at Glenn, because when I was in the class, I would try to make the course fun, find out what interests were for the students, and several of those students I convinced to take the apprenticeship examination and come to work here at Glenn. George Harper came in the apprenticeship program, went down to Cleveland State [University, Cleveland, Ohio], got his degree, [and is] working here as an electrical engineer. Another one ended up working here for a while but left and went to work for Honeywell. So I almost had a recruitment program out of my classes at Tri-C [Cuyahoga Community College].

WRIGHT: Apparently worked well.

Another area that you volunteered with at the late '60s, was the Equal Employment Opportunity Committee. In '65 the federal government had established this new commission, and so this was a new idea, a new way to help bring issues to the forefront. How long were you on this committee, and what was your involvement on that participation?

EARLS: I was a catalyst, probably, for the Committee being established here, because as a new supervisor at Glenn, Lewis in 1968, there were supervisory courses that we would take in orientation courses. And I remember through the Organization Development and Training Office sitting in this class, and one of the tests that they were giving dealt with humor. They would have a story and ask you to pick the right punch line for the story, and they had two stories in there that were the most racist that you could ever imagine. I was so offended that we would be a federal agency, a Research Center, having a training and development program with racist materials in it, that I went straight to the top.

I went to the Center Director and ended up meeting with an individual named Henry Barnett, who turned out to be a good friend and mentor. He was the equivalent of the Director of Administration here at the Center. [I] told them how upset I was with that material, shared that with them, and Henry Barnett had that material removed from the program immediately.

Then I started to review where we were as a Center, and in those days we had an adjective rating system here at the Center where you could be poor, fair, good, outstanding, excellent, and so forth. And not a single black employee at this Center had ever received an outstanding as an adjective rating. [I] looked around to see where were the blacks in supervision. Well, there I was, lonely by myself as the only black supervisor. And I said, "We need to do something."

So I really organized the black employees here, and we would meet on weekends, offsite at a local church, put together documentation, the statistics in terms of where we were at this Center, black employees compared to other employees, and went to management and said, "Something has to change." Henry Barnett decided that he would establish an Equal Employment Opportunity Committee and asked me to serve on that Committee. And another friend of mine, Harold Ferguson, became the first EEO [Equal Employment Opportunity] Officer. He had a degree in physics, and they moved him over to head up that office. And that's when we started to make some inroads and some changes in terms of minority employees at Lewis Research Center.

WRIGHT: Can you share with us those first few years and the accomplishments that you were able to make, as well as maybe some of the challenges, because this was so new to so many people.

EARLS: Well, for example, the Graduate Education Program here was almost a good old boys network program, and no blacks had ever been successful in applying for and getting through that program. [Through] the EEO Committee, that's when we started to get access to these programs and how available they were.

I had no desire to work on a Ph.D. I started making so much noise about these programs not being open and available, someone in one meeting said, "Well, if you've got that much energy, why don't you apply for the program." So my back was against the wall. So as a result, I applied to go to the University of Michigan [Ann Arbor, Michigan] to work on my doctoral degree through the NASA program.

So I'd been working for NASA six years, and that's when I applied for the program, and NASA sponsored me for my doctoral work at the University of Michigan, excellent program. You may be familiar with it. But you would go to the university of your choice, but you had to get accepted at the university. NASA would pay your travel to the university, your travel back, pay all tuition and all fees, and give you one year to satisfy the residency requirement at the university. Then you would return to NASA, and your research had to be related to NASA programs. But the interesting part of it is you got paid full salary for the entire time you were in the program.

Now, the other part of it is there was an obligation. For every year you were away, you owed NASA three years. So when I returned to NASA after going to Michigan for a year, I had a commitment for three years, but one of those years I was working on my doctoral dissertation. And I don't think I met anyone who ever left NASA anyway because it was such fun working here and such a challenge that once you got the degree, there was little chance that you would pack up and leave or resign.

WRIGHT: Well, apparently you made very good use of your time because you were also awarded a master's degree in environmental health while you were working on your doctorate?

EARLS: Yes. That was in the School of Public Health there. And here again, you talk about a dramatic confluence of events. While I was away, NASA made a decision that we would get out of the nuclear business, so that was when they shut down the reactors that we had here. We got out of the program for special nuclear materials. The Plum Brook reactor was shut down. But [I

was taking courses in environmental health at Michigan.] I didn't realize the benefit of that kind of training and education. Then the Environmental Protection Agency [EPA] comes online.

NASA now is confronted with problems of air pollution, water pollution. We are trying to get permits for disposal of waste materials and so forth, and here I sit with that training. And Henry Barnett contacted me at Michigan and said, "When you come back, how would you like to head the Environmental Health Office for us?"

And I said, "Absolutely," and that's how I ended up as head of the Environmental Health Office, which included the radiation programs, but also air, water pollution and noise and industrial hygiene.

WRIGHT: That was a new office as well?

EARLS: New office, new office as well.

WRIGHT: Explain how you took your training and your knowledge and came up with the goals and objectives for that office. How did you take an idea and turn it into a functional reality?

EARLS: Well, it was sort of easy because we had regulations that were passed by the Environmental Protection Agency, and federal agencies were not exempt. So for all our discharges from our sewer systems and water systems here, we had to get what was called an NPDES permit, a National Pollution Discharge Elimination System permit. So we had to set up programs to make sure that we had the right treatment facilities for wastewaters from our research facilities here. We were doing research where we would be machining materials. We

also had to be concerned about the health of the employees, noise pollution. So we had to establish a program whereby employees who were working in areas with high-noise levels had medical programs and protection programs for them, the whole area of industrial hygiene, working with mercury, working with other materials that were potentially harmful to the environment as well as to the employees.

So my challenge was to establish programs that would keep us in compliance with the regulations that had been established by the U.S. [United States] Environmental Protection Agency, and the US EPA also delegated part of their authority and responsibility for oversight to the State of Ohio. So now we had to satisfy the Ohio Environmental Protection Agency as well. So my program and my challenge was to define programs that would keep us in compliance with the regulations that were being established.

WRIGHT: Were you given a staff and a budget in support of your administration?

EARLS: Yes, I was. In fact, some of the people that had been working with me when I was doing the health physics and the radiation physics work, came onboard. Then we went out and hired industrial hygienists. They're the people who specialize in studies that would deal with asbestos, mercury, those kinds of—all non-ionizing radiation materials, lasers and so forth. So we had to expand the staff to make sure that we brought on people who had expertise in those areas.

WRIGHT: Apparently your expertise went down to the city level as well. You helped develop procedures to reduce air pollution in Cleveland. Was this part of your work that you did here, or did you do this also for the city?

EARLS: See, one of the things I never learned was how to say no. So every time I was asked to serve on a panel or work with some nonprofit organization, then I would say yes. So I was asked if I would be willing to work with the city and volunteer, and I did that. [I] also worked with them with respect to some small businesses, trying to help them get off the ground and get started as well. So I was volunteering to do many things, in addition to the teaching at the community college and going out to schools and giving presentations as well.

WRIGHT: Well, this was just one way that NASA Lewis was getting back into the community with your expertise, so I imagine that was a nice crossover for you as well. You were able to take your work during the day and help your community with it as well.

EARLS: That's one thing I've always loved about NASA. NASA has always encouraged employees to be good citizens as well as good NASA employees. So we were supported, and continued to be supported, in terms of volunteer activities, outside activities, outreach programs, if you will. Any number of our employees served on school boards within their communities and were active in all kinds of social organizations and civic organizations and fundraising and charitable organizations as well.

WRIGHT: While we're talking about the late '60s and early '70s, I also understand that there was a Radiation Safety Committee here, and you were a member of that. Was that different from the work that you were doing at the time, or yet just specific to a function?

EARLS: Well, I'm to blame for the Radiation Safety Committee as well, because when I worked for the Atomic Energy Commission, one of the things I did was inspect programs in the northeast part of the nation that had broad programs in radiation, medical radiation, nuclear reactors, etc. What I discovered was those organizations, rather than getting a license for each individual task, would get a broad by-product material license so that they had the authority internally to do much research and to obtain materials without having to go to the Atomic Energy Commission for each and every one.

So when I came back to Lewis, I decided that we should pursue a broad by-product material license, which meant that we would have the authority as well to bring in materials without having to go to the Atomic Energy Commission with a "Mother, may I?" But to do that, we had to have a Radiation Safety Committee, and we had to submit the backgrounds, resumes of those individuals to the AEC to get approval. And once that was approved, then we could get what was called a broad by-product material license. And since I was the health physicist and was head of the section at that time, then I became the Radiation Safety Officer, and as a result of that was the organizer and the interlocutor, if you will, of that Radiation Safety Committee.

WRIGHT: Referring to the Atomic Energy Commission and inspections, I understand that you were also responsible for investigating all radioactive mishaps within the Cleveland area with Dave Hammer. I was reading about that. I thought some of the investigations could be an

interesting subject for us. I know that you did one at the Cleveland Hopkins [International] Airport [Cleveland, Ohio], but the one I thought you might want to tell us about is the radiation check on wedding bands. I thought that was kind of interesting. Share with us some of the things that you did as part of that team to go out and respond to mishaps or potential mishaps.

EARLS: Whenever there was an accident in this area involving anything, radiation-wise, I served on the team, would get called in. Fortunately, there were only a handful of those [cases] because one thing about Atomic Energy Commission is their regulations are quite straightforward, and they were conducting inspections so there was quite a bit of preventative action.

But with respect to the wedding band issue, it turns out that for the gold implants into teeth, someone had managed to get some contaminated gold and use that in dental implants. Well, when they discovered that, they had to take these gold implants out, and they were disposing of those. But some ingenious individual decided to take that gold, melt it down, recycle it, and had it molded into wedding bands, and that surfaced. And all of a sudden, we've gone from the teeth to the fingers with respect to that kind of an issue. So we were asked to take a look at that, and it was not as massive a problem as it could have been because, fortunately, there was traceability. And that was what that was all about.

WRIGHT: Well, it was quite interesting. I guess bands that could glow in the dark, right?

EARLS: Yes, [but not in fact a reality. It is a nice bit of humor though].

WRIGHT: Another interesting item that I found but couldn't find too much information about is that a newspaper article cited that you were a member of the Apollo 13 launch team.

EARLS: Oh, yes.

WRIGHT: Tell us how you were a member of that.

EARLS: Well, the only reason I was involved in that was, you may recall that the Apollo 13 launched radioactive materials on [board] as a power source. Therefore there was this fear that if something went awry during the launch, then you needed people with radiation physics and health physics backgrounds there as part of that launch team. So we were there, and we were stationed all around in the swamps and so forth around [NASA] Kennedy [Space Center, Florida], alligators notwithstanding, in the event that something went awry with that launch.

And there's been some recent concern with Cassini [Huygens spacecraft and probe, mission to Saturn], and any time you want to launch radioactive materials in space, there's that kind of concern. So the Agency was straightforward in recognizing that there was a potential problem and asked those of us from around the Agency who had backgrounds in radiation, radiation physics, to come down and be members of the launch team in case something went awry.

It went awry, but not during launch, and, in fact, some people say, "Well, Julian Earls, you're to blame," because Apollo 13 wouldn't have had the problems if you hadn't been a member of the launch team." [laughs]

WRIGHT: Any thoughts you'd like to share about watching that launch, and watching the Saturn V go into space?

EARLS: It was fascinating because that was really the first launch that I had witnessed, and it was just absolutely fascinating. And as a matter of fact, our younger son is a filmmaker out with [20th Century] Fox [Studios], and when they were making Apollo 13, he came home and somehow when he left, all the paraphernalia that I had from the Apollo 13 launch disappeared from my home, so I think I know today where it is.

WRIGHT: He's storing it for you.

EARLS: Yes.

WRIGHT: Well, that's very interesting. I'm glad you had that opportunity to do that.

You also served as a health physicist consultant to TRW [Inc.]. How did that come about?

EARLS: TRW wanted to get into some work where they had to utilize special nuclear materials. That's Uranium 235. Well, you don't care about all those details. But they didn't have anyone there that was versed and trained, so they brought me on as a consultant to educate and train their managers and engineers and technicians who would actually be utilizing these materials when they came onboard, and they had to have verified that they had the experience and the training to get a license from the Atomic Energy Commission. So since I had that experience, they brought

me on to be a consultant to train and lecture and get their people ready for their getting into a program with radioactive materials.

And NASA was very supportive. That's another beautiful facet of working for the Agency. You can get approval for outside employment requests, and as long as you do those on your own time, as long as you don't utilize any information that is relevant to your job within NASA, you cannot leverage that, but you can work independently. Those are the kinds of things that allowed me to go out and do the consulting and the public speaking and so forth.

I also believe that an advantage is it keeps the name of NASA out in the other sectors and generates a degree of support and respect for the Agency. And since this is the nation's space agency, every time someone has to go into a booth and pull a lever to vote on something, if it is NASA related, then they're likely to support us. Or as they interact with members of the delegations from their states, both in the [United States] House [of Representatives] and in the [United States] Senate, then if they think favorably of some experience they've had with NASA, then that works to our advantage as well.

WRIGHT: You mentioned earlier that you wanted to work for NASA when you were in college, and so many of us who were born at that time do remember the space race and the astronauts. And in '78 when NASA announced a new class of astronauts were going to be selected for the new [Space] Shuttle, you were among those that put their name in for it. Tell us why you decided to take that route, and why did you want to go on that adventure?

EARLS: I had friends at [NASA] Johnson Space Center [Houston, Texas], and I had met any number of people around the nation within NASA, and they contacted me and said, "You know,

we think you would be an excellent candidate for the Astronaut Program.” So I thought about that, sat with my family, and decided that was something that I would like to do.

In 1977, I submitted my application, along with the other eight thousand people who applied for the Astronaut Program, and a few months after I sent in my application, I received this thank you, but no thank you letter. Now, I sat with my family around the dinner table, trying to decide how I was going to break the news to them that NASA turned me down as an astronaut, and their reaction was absolutely amazing. They almost burst into applause, because they said, “You know, we really weren’t that interested in your being an astronaut. It’s a dangerous profession. It’s risky.”

And I said, “But you were supportive.”

They said, “Well, we thought that was something you wanted to do. If that’s what you wanted to do, we really would be supportive of your doing that.”

But what’s interesting is that Guy [Guion S.] Bluford [Jr.] was in that class, and Fred [Frederick D.] Gregory in that class, and I got to interact with Fred and Guy over the years. [I] discovered that Guy Bluford and I were born on the same day, November 22nd, 1942. And I kid Guy because I say he was born at 10 in the morning, I was born at 4:15 in the afternoon, and I tell Guy that NASA went with the old man, that’s why he beat me out of my slot.

But the other thing that I try to tell people is that the advantage of working with NASA was, even though I wasn’t an astronaut, that I was still an integral part of the Space Program. And you may not get what you go after, but that does not mean you’re a failure, and to end up my career as a Center Director, working for Fred Gregory as the Deputy Administrator, earlier in my career having Guy Bluford come work with me at Lewis Research Center as a Program Director for one of our contractors, all the richness of those experiences and those interactions,

[were very special and rewarding. I also had the privilege of] working with Charlie [Charles F.] Bolden [Jr.] as well. The entire [Ronald E.] McNair family became like a second family to me after the loss of Ron. And Ron had gone to North Carolina A&T, which is where I wanted to go, by the way. An interesting aspect is that his physics teacher at North Carolina A&T had been the physics professor for my major professor at Norfolk State. So it was a small world, but we made those connections.

So I was somewhat disappointed that I didn't become an astronaut, but then when I met those astronauts, and every one of them I consider a flawless human being, it became clear to me why NASA turned me down, because, certainly, [of] the caliber of those people, they are just simply special.

WRIGHT: Maybe they knew they needed to save you for Center Director. That might be what it is.

Speaking of the Shuttle, Lewis had a limited role in the development of the Space Shuttle. Did you have any interaction during that time period when they were developing the Shuttle, with your area?

EARLS: No. In fact, there was limited interaction here at Glenn. In my particular area [I was] more on the institutional side of the house. I didn't have any interactions at all with that phase of the program.

WRIGHT: In the '70s, NASA Centers were moving ahead to implement a lot of contractors in their workforce, and this was a somewhat new approach and it also started to move in here as

well, in Glenn. How did this impact your management style, or were you impacted by this new decision?

EARLS: I was not impacted directly in my particular group because the first contractors that came were more in areas where we had had technician support. But I will tell you that you talk about a traumatic experience for the employees here at this Center. The approach and attitude was almost as though, "They're taking our jobs." I think even today there are some small vestiges in some little pockets of viewing the contractors as not really a part of the NASA family. But initially it was absolutely traumatic and difficult.

However, the management at the time did make a decision that no one would be hurt as result of the contracting effort. So every employee who was displaced as a result of the contractor employees coming onboard, every one of those employees was offered a position in a different organization. And by that time, I had become a Division Chief in the Health, Safety and Security Division, so I was able to bring on employees who had been displaced from other organizations into my division. Any number of divisions here were able to do that, and so no one lost a job as a civil servant as a result of the contracting-out effort.

WRIGHT: Did you see any difference in production or overall attitude over the next years of the fact that not every one was a civil servant, that contractors were doing the work?

EARLS: No. As a matter of fact, one of the things that I think happened was we found out that there was a symbiotic relationship, if you will, [when] those contractors came onboard. In the early days, in fact, some days now, you don't know which employee is the contractor and which

one is the civil servant, except based upon the functions that they are performing. But as years went by, they integrated very well into the system.

But here again, I think contractors would like to become civil servants to such an extent that some of them have actually taken a reduction in salary, particularly in the clerical area to come onboard to work for NASA as a civil servant. [That is] because of what used to be the job security associated therewith. The kind of work that they were doing in terms of the technician workforce [was critical], often they would be working hand-in-glove with some of the engineers. But there had to be a clear line of demarcation in terms of giving directions to the contract employees and only working through the contracting officers and contractors' [contracting] officers, technical representatives, which was a little cumbersome. But we've made a lot of progress in that arena. But it was extremely difficult in the early days and took a little while for the contractors to be accepted by civil servants.

WRIGHT: Let's talk about your role as Chief of the Health, Safety and Security Division. You now had about a hundred people that were under your leadership, and you were the Center's first black Division Chief. How did this role change you, and how did you change this division once you walked in the door?

EARLS: Well, it was interesting because it was almost as though the organization I had in terms of the Environmental Health Office expanded. I ended up with that new division having the fire department as part of that organization. We were, I believe, the only Center that had civil servants working as firefighters, so they came into the organization. The Safety Office, which had been separate from the Environmental Health Office, became part of that division. But we

had worked so closely together in terms of health and safety, that that was a natural marriage, if you will. Eventually, Plum Brook Station became part of that division, and therefore, here I was with an organization remotely located fifty miles away as part of the organization.

But one of the things that I always— I just had a blessing, if you will, of having good people. With the wrong people, no organizational structure will work. With the right people, almost any organizational structure will work. But having the folks in that organization who knew their stuff and who recognized that we had to work together and that, if we were going to be successful, we had to take whatever little barriers may have existed between organizations before and break down those barriers. And I've always been the kind of person that sought input and got interactions among people. So it worked because of the people and because of my approach that I really needed to get them involved as much as possible in the decision-making process, where we had the time to do that, and the luxury of being able to ask the right questions and get people working on the program and get them working together.

WRIGHT: Can you share some of them methods that you used when you were seeking input and getting them to interact together?

EARLS: One of the things I would do is that I found out [that sometimes] someone in the health physics area and someone in industrial hygiene area were on different pages with respect to an approach to a task. One of the things I would do was ask them to reverse roles. I would ask the person in the health physics area to, in fact, define for the industrial hygiene area what should be done, asked industrial hygiene people to define what the health physics people should do. It was amazing how once you got people acting in the different roles and [then] come back and start to

integrate it, they had a real appreciation for the challenges on either side. I would make sure that I would do that.

[There is a great benefit in] just establishing teams. When there was a problem to be worked, just making sure that we had the diversity of the different disciplines working on the particular problems [was helpful]. There were things that we could gather from the industrial hygiene area [people] working with permits for lasers, that the people who had worked the ionizing radiation portion of policy and regs [regulations] could help. So once they found out they had a lot more in common than they had in difference, it worked, it worked well.

WRIGHT: How did the employees enjoy their interaction? Do you feel like they gave you input and feedback that this is working or not working?

EARLS: They really did. Because what I would do is make sure that periodically we would have sessions where we would all sit in the same room and talk about the challenges, talk about the results, and review what changes had occurred. Also we got together for nonwork-related events, a division picnic or during a holiday season, and people would get to know each other. We would go out to lunch together. I remember just [getting] a bus and taking all of us up for one of our staff meetings to Plum Brook. We had employees in the organization who had never been to Plum Brook Station in Sandusky. So doing that, those kinds of things tended to break barriers down as well.

WRIGHT: These sound like easy answers to potential problems and good ways to resolve. Did you have issues that didn't get resolved that you had to take on a different method?

EARLS: Well, in every organization, you have a few people that I call on the lunatic fringe that are chronic complainers that are only happy when things are going wrong. And what you have to do is you really have to find out where those people are, who those people are, and you really have to deal with them directly. If you're not careful, if you don't hold them accountable, then the people who really do the useful work discover that the benefits are the same whether you are a productive employee or a nonproductive employee.

So you have to make sure that your reward system rewards those people who have the right approach and the right attitude. But you also have to have some discipline in the system, and I had to do some things that were not quite popular in terms of some disciplinary actions. But I really didn't have a choice, because it was for the good of the organization. And very often, just the prospect of a disciplinary action or just having people deal appropriately with "If you do not straighten up, get your act in order, then these are potential consequences," if they really know that you mean that, you will find that you're able to get results.

WRIGHT: During this same time period, you also did a few more things in your spare time, like forming the Development Fund for Black Students in Science and Technology in 1983. This inspirational organization provides scholarships for African-Americans who choose technical majors at historically African-American colleges. Tell us about this and why you felt that this was something that you wanted to do.

EARLS: I believe that with the shortage of black students in these technical disciplines, that something had to be done. I also recognized that if you were an athlete, if you played basketball,

football, any of the sports, scholarships were available. People didn't ask about your family income. They just said, "If you're capable of performing, then we will give you a scholarship."

My philosophy was we should show the same kind of respect and support for students who choose technical disciplines. So there was a friend of mine, Hattie Carwell, who was a fellow health physicist, and Hattie was working with the Department of Energy. She and I were members of the National Technical Association, and we wanted the NTA to start a scholarship fund, and as hard as we tried, it was like trying to put the toothpaste back in the tube. They were busy dealing with other things professionally, so we decided that we would form our own organization, and that's when we formed the Development Fund for Black Students in Science and Technology. [We] went through the Internal Revenue Service and got a 501(c)(3) designation as a charitable organization and then started by saying, "We want to find graduates of the historically black colleges and universities who were in technical disciplines and get them to become members and contribute to the scholarship fund."

One of the reasons we focused on HBCUs [historically black colleges and universities] was that we wanted to go where we got the most productivity. An overwhelming majority of blacks who were in those technical disciplines got their undergraduate degrees from those institutions, and so we decided that's where we would focus and support the students who went there. And we started that organization, as you point out, in 1983, and it's still going strong today.

WRIGHT: Were you able to reach your goal of your endowment?

EARLS: No. Well, we're almost there, but we thought if we'd just get a thousand scientists and engineers contribute a thousand dollars a year for the rest of their lives, then we would have it made. The first year, I think we ended up with twenty-five. But now we're probably up to about seven hundred members, and you have to make that commitment, a lifetime commitment, for a minimum of \$1,000 a year to maintain your membership in the organization.

We have a Board [of Directors], and I served on the board for the first few years, but we've now turned that over to some of the younger Turks, if you will. We get this annual report on where our students are. And any number of students who have graduated with those degrees now come back and contribute and are members of the organization.

WRIGHT: You also helped establish a Career Awareness Program, and these again to help motivate minority students to pursue careers in science and engineering. Was this more of on a local and a high school effort?

EARLS: Yes. What happened was we had, in those days, high school and college students, probably a hundred and fifty, two hundred of those students, who would come here during the summers. What I decided to do was to bring college students together in the auditorium with the high school students and do what I call a career awareness effort. So, during the summer [I would set aside one day in] the auditorium, and we would play games to begin the program.

I would have brainteasers and projects that they would work together at their tables. I would have the college students one by one come up representing their schools, talk to the high school students, and their only charge was tell the high school students what [they] wish someone had told [them] when [they] were in high school to make [their lives] better. They

would do that, interact with those students. The reason I would do it early, during the summer, is from that point on, they would interact with each other and form relationships and have those high school students think about college in a technical discipline.

I still did that program right up until I left NASA, and any number of students [who have] come through that program have gone on and get Ph.D.s. Some of them are back here. And as a matter of fact, I just gave a presentation January the 20th to the National Reconnaissance Office in Chantilly, Virginia, and when I walked in the auditorium, here was a young man who had his Ph.D. out of Stanford [University, Stanford, California] who had his own consulting firm in computational fluid dynamics. [He] had a contract with the National Reconnaissance Organization and came up to me. He was one of my students from that summer program. And since then we reconnected, and he's been e-mailing me photographs from when he was here during the summer with his cohort. We started talking about any number of those students and where they are today.

WRIGHT: What a great story. It must be very rewarding to know that he has gone so far.

EARLS: Well, absolutely. And there's another professor at the University of Michigan. His wife works for Ford Motor Company. They met as engineering students here in my program, and two years ago when I went up to Michigan to make a presentation, they made sure that they were there and we reconnected there.

Another one of these students is a faculty member now at Georgia Tech [Georgia Institute of Technology, Atlanta, Georgia], and he was quoted in the paper when we had the problem with the foam on [Space Shuttle] *Columbia*, because he's an expert in fluid flow, fluid

dynamics materials, and they were quoting him in *USA Today* [newspaper]. So I contacted him again. And we have quite a fraternity and sorority, if you will, of those students around the country.

WRIGHT: A very unique association.

EARLS: Yes.

WRIGHT: When you were talking about being the Chief of the Health, Safety and Security Division, one of the things that you mentioned was a reward-type program, as well as discipline. One of the other committees that you worked on for the Center was the Incentive Awards Committee, and trying to get employees to think of ways to have cost-savings for the Center as a whole. Can you give us an idea of some of the ideas that they shared and how they, those cost-savings, did affect the Center, and your participation on that committee, how hard was that to determine that, yes, these were the right ones to give the awards to?

EARLS: My job was sort of easy because as the Chair of the committee, when an employee would make a suggestion, I could farm it out to those people who had the expertise in those particular areas to do the evaluations and then come back with the recommendation. [We provided] both tangible and intangible awards. The fun part of that was you actually got to give employees cash, check, money, for their idea, so that was quite an incentive.

But we had people who would come in and submit a recommendation that would relate to things as farfetched, as one might think, as the parking problem that existed at the Center. We

also had people who would submit recommendations in terms of the various forms that we were [using] and how to become more efficient and more effective in that area.

One of the challenges was, often people would submit [ideas], and someone might determine that the idea was really a part of their job. Therefore since it's part of a job, they were not entitled to an award. But I was always very liberal in those interpretations because you really wanted to make sure that the program was fair and objective. [We would have] several reviewers, and when it became an issue of whether or not it was part of a person's job, that's when I would take a personal interest and actually get in and review the position description and performance plan for the employees.

But we've had suggestions that came in, [for the] board that we have out in front of the building now that makes the announcements of special days and events and so forth. But we also had [suggestions about] our travel process and our travel procedures and how to streamline those. A lot [of suggestions were] in terms of information management and the computer information systems and how to streamline the e-mail systems and so forth. It runs the gamut, and some of those ideas have resulted in considerable cost-savings for the Center.

Most recently, the idea of having employees being able to get funds, refunds, if they are able to save money on travel, that [is] if the travel costs X dollars, and they are able to make arrangements [for] X minus Y, then a percentage of those savings could come to them. So it really was quite a program. [We decided not to just] present those awards to the employees by having them come over to the administration building, but I would actually go to their worksites and make the presentations there. [This way] their coworkers could see, [the presentations which] served more as an incentive for other people to submit ideas as well.

WRIGHT: How long were you the chair of that committee?

EARLS: I chaired it for about four or five years.

WRIGHT: And help set the system up as well?

EARLS: Yes, yes.

WRIGHT: Well, if you don't mind, I think we're going to take a break for just a few minutes, and then we'll start right back up.

EARLS: That's fine.

[pause]

WRIGHT: I'd like to start our next portion talking about the Cleveland Chapter of the National Technical Association, the NTA, that you helped organize, as well as the Chapter working with NASA to establish a contract for the Career Awareness Program. Talk about how those two work together, your influence on both of those, and then also share with us your role as national president of the NTA.

EARLS: It seems like every time I have an idea, somebody's already thought of it. I decided that since I was going around talking to students in high school, and many of my colleagues here at

NASA [were] making presentations. [I thought] we needed to formally organize so that we not only went out and gave these presentations but we could meet as a group, exchange ideas, talk about what each one is doing in his or her technical arena, and have an organization technically where we could grow, share experiences, and be a support system for each other. So I decided to form an organization to do that.

One of my friends was down in Washington [D.C.] and met a NASA Headquarters employee, Roscoe Monroe. Roscoe said, "Well, we have an organization like that. It's called the National Technical Association." It turns out that the National Technical Association was established in Chicago [Illinois] in 1925, an organization of minority scientists, engineers and technologists, and they had chapters around the country. So I decided rather than start a new organization, that we would form a Cleveland chapter of the National Technical Association.

It was a very small organization, and they would hold [national] meetings periodically. When the organization started, they were so small that when they would meet [for] their national get-togethers, they would go to a YMCA [Young Men's Christian Association], and the members would stay in the homes of other members in the early days. I got so fascinated once I met people in the organization and those who had started or been around early, soon after it started, that I said, "You know what we need to do? We need to have a national conference where we try to pull together blacks in science and technology to give technical papers and get NTA on the map with an organization, with a structure like that."

And so I decided that that's what we would do. We formed a Cleveland chapter. The core of the Cleveland chapter members were NASA employees, but we reached out. We had employees from Sherwin-Williams [Company] who were here, from GE [General Electric Company], [and we] really reached out to all the technical organizations and formed that chapter.

We held the first national symposium called *Blacks in Science, a Technical Symposium*, in Cleveland, Ohio, in 1978, I believe. We still have photos from those early days when most of us still had hair and the hair was a different color.

But one of the things we did with that program, with that chapter, is we decided that we would go into the high schools and establish an ongoing program. It's so easy to go into a high school, an elementary school, a junior high school, on Career Day and disappear and come back a year later. And I thought, "That's not very effective." If we're going to have an impact, then we should do something that gives us an ongoing constant interaction and relationship with the students. So we decided that we would form a Career Awareness Program and that we would go into the schools on Saturday mornings with members doing demonstrations and giving lectures and then have the students do some things that were hands-on. Also, they would form math and science clubs in their schools.

So we decided that we would get our organizations to support us. For example, on one Saturday morning, I went in and did a lecture on the physics of noise. So I had sound-level measuring instruments from NASA, portable instruments that I took, gave a lecture to the students, showed them how to use the instruments, and left them with them for the week for the students to go out and take sound-level measurements near an airport, on a street corner during high-traffic time, in their rooms when they were playing their stereos, and come back, write a little paper on the physics of noise.

Another friend was a civil engineer. He had them actually build bridges and structures out of toothpicks, and then they would come back and do experiments where they put various weights on the bridges to see what kind of stress factors there were and what kind of loads the bridges could bear. Another [member] was into photography, and he would come in and give a

lecture and then show [the students] how to use photographic equipment. Also, having parental involvement [was necessary]. We would meet every Saturday of the month, but on one Saturday, the students had to have their parents come with them, or one of their parents, so that they could continue in the program.

And that was the beginning of the Career Awareness Program. We started in the East Cleveland school system, moved it out into the Warrenville Heights school system, both school systems that had predominantly minority enrollment. Interestingly enough, we tried to get into the Cleveland school system, but the barriers there were, "If you're going to come into the school on Saturday morning," they told us, "we have to open the school, we have to pay the custodians, and therefore you have to pay for those." Well, we were members volunteering, and we didn't have resources to make that kind of thing happen.

The other thing we wanted to do was provide fieldtrips for the students so that they could come visit NASA, go visit Sherwin-Williams, and that's when NASA stepped forward out of the office of Equal Opportunity Programs in Headquarters and funded the program. We could, [now], pay for supplies, pay for equipment, pay for instrumentation and so forth and pay for the services of the buses to take [students] on various tours around the city.

And we would do things with them. One of the things we [sponsored] was a solar energy project where we had [students] build solar dishes, and then on a nice Saturday use the solar dishes that they had built for a little roast for hotdogs and hamburgers and things like that. What was so rewarding about that, we had students who would come through that program and over the years go off and get engineering degrees and come back. A couple of them work at NASA, some in [this] area, and they [are members of] the Cleveland chapter of the National Technical Association [working] with students.

WRIGHT: That's terrific that it's continuing, that that cycle hasn't been broken.

EARLS: Yes, and what I'm trying to do is to expand that concept. The governor of Ohio has charged the president of Ohio State [University, Columbus, Ohio] Karen [A.] Holbrook and me to chair a Science and Math Education Policy Advisory Council. That is, there's such a concern about the poor performance of students in math and science and students not choosing math and science and engineering and technical career fields. We've been charged to pull together a panel to come up with an implementation plan for the state of Ohio to improve the delivery of math and science education to the students, and also to have students going off to colleges choosing technical disciplines.

And one of the things I want to do is to piggyback on the concept that we use with NTA and see if we can get broad-based support for that in the state of Ohio. [We need to] get other organizations to do those kinds of things, because they are very cost effective. [However] you have to have dedicated employees, dedicated members that would give up a Saturday morning to go work with those students.

WRIGHT: Well, good luck with that. And you're doing that now?

EARLS: Doing that now. In fact, I started it as the Center Director at NASA, and then when I was retiring, I contacted the governor's office and the president of Ohio State and the chancellor of the Ohio schools and the superintendent of schools to say, "I won't be with NASA and I can pass that baton."

And they said, “You don’t get out of it that easy,” so I’m continuing to do that.

WRIGHT: They probably think you have more time now.

EARLS: Well, that’s what they think, and as a matter of fact, I do.

WRIGHT: While you were establishing so many of these programs, you were somewhat preparing to be educated yourself in a program. You participated in a fourteen-week course at Harvard University’s Graduate School of Business Administration [Cambridge, Massachusetts] in 1979, and while you were there, you were NASA’s sole candidate that was participating. Share with us your experiences at Harvard. How different was that or how similar was that to your previous educational experiences?

EARLS: There are all kinds of advantages to working for NASA. I did my doctoral studies with NASA support. NASA has the program for management development, advanced management program, Harvard, MIT [Massachusetts Institute of Technology, Cambridge, Massachusetts], Stanford. It’s a competitive process where one applies for the program. You get interviewed in Headquarters, [and] if you’re successful, Headquarters submits you to the university. The universities don’t always accept every candidate that is nominated, because they have their own criteria as well.

But I was indeed fortunate to have been chosen for the Harvard Program for Management Development. So I went to the Harvard Business School never having taken a business course anywhere in my life. I went into my room the first evening I arrived, [and] there was this desk

and there were books stacked that must have been two feet high and three feet [wide]. I thought they were books for everybody in our group, because there were six of us [and we] shared [a] common living area, common living room area and kitchen and so forth. It turns out that [these books were just for me and we all had identical sets].

It was a [fourteen]-week program where we went to [classes] six days a week. I discovered that I was at a distinct advantage, however, because [of my technical background that helped in the accounting courses and courses in] computer information systems. [Other courses were in] organizational development programs [and] management development programs. Well, it was much easier for me to pick up on the management development, organizational development, organizational psychology courses, than it was for those who did not have a technical background to pick up on the accounting and the courses that dealt with regression analysis. So I ended up being the focal point and the tutor for the people in my group in terms of computer usage and those technical disciplines.

It was probably one of the most rewarding educational experiences I've had. It was like taking a drink of water out of a fire hose, though, because they threw so much material at you. Your classes would start in the morning. You would get a lunch break. You would go back, finish class around four, and then come back at seven for an evening session, and then get ready for the next session.

When I [arrived and] saw these beds with this lamp on the headboard, I wondered what it was for. It didn't take me long to learn [that I] would have that light on studying and reading for the next day until two or three o'clock in the morning. But then [we got] the message. They really want you to interact with the members of your group and start spreading out some of the

responsibilities so that no one person has to go through everything. And they do things by case studies, so they taught you teamwork.

The real advantage of being in that program is there were about a hundred of us in the program from all over the world. So the true advantage was the interaction with people that became your colleagues, and to this day we keep in touch with each other. And the Harvard Journal has sections in there for each one of those classes, and mine was PMD 37 [Program for Management Development] and [our] cohort [stays] in touch with each other. In fact, one of the members of my group was the Deputy Commissioner of the National Basketball Association. So we got to go see the Boston [Massachusetts] Celtics play a game and sat right on the front row behind the team, because Simon [P.] Gourdine was in our cohort group. So it was beautiful.

When I got back to NASA, any number of the things I learned in that program carried me through all the way until I finally retired from NASA. In fact, [that experience] helped me as I'm thinking about things to do with the Business School at Cleveland State, I'm the Executive-in-Residence at the [Nance College of Business Administration] at Cleveland State [in Cleveland, Ohio]. The kinds of things that I picked up in that Harvard Business School program are things that helped me through NASA in terms of organizational development, organizational skills and, in fact, are still helping me today.

WRIGHT: I was going to ask you how you enjoyed being in the Boston area, but if you got to see a Celtics game, I guess it was worth being there. Was that a change of pace for you to be there in the Boston area?

EARLS: Yes. One of the challenges, though, was being separated from my family, because there was absolutely, I think, only one weekend that they let us have a Saturday off and I was able to come back home. So being separated from my family for that entire period was tough, but they kept you so busy you didn't have time to have too much sympathy because of the program. But I enjoyed the Boston area. In fact, when I went back to run a couple of the Boston marathons, it was sort of refreshing to get back up there and not have to study for a change.

WRIGHT: Between 1988 and 1994 at Glenn, when it was Lewis, your position changed a number of times, increasing with responsibilities and management authority. I'd like to take the next few minutes and maybe walk through some of these roles and for you to share with us what you learned from that role, what you were able to offer, as well as what you learned from one that you could take on to the other to share with the others?

I believe you became Acting Director of the Administration and Computer Services Directorate in April of '88. So how was this position different or similar to the one that you had had prior to that?

EARLS: Well, my boss at the time, Ed Richley, who again became a mentor and a friend, as a matter of fact, started off as a good boss, ended up being a good friend. When he would go away on travel, he would rotate folks acting from the divisions that were in that organization. Shortly after he started that rotation process, I noticed that when he went away on travel or on vacation, he didn't rotate it. I was the person that got the, quote, opportunity to serve in his stead. So finally I asked him why, because I thought it was causing some difficulty with the other division chiefs noticing that they weren't being asked. His response to me was, "When I go away and

come back and anyone other than you is acting, my in-box is stacked high. When I come back and you have been acting, there's nothing in my in-box," he says, "so I don't need anyone acting for me that's going to save the work and the decisions for me when I get back."

So I said, "Well, I guess I'm stuck." But at any rate, he became a mentor for me, and when he retired, I became the Acting Director for that organization and subsequently, later on, became the full Director of Administration and Computer Services.

There are so many positions; I guess people say I couldn't keep a job. At one point, I was asked to be the Assistant Deputy Director for Business Resources Development, and [I benefited from] the things I learned in working as Division Chief and Acting Director of Administration Computer Services. I also was this Chief Information Officer for a while, [and that] helped me in terms of Business Resources Development. One of the challenges that I was given was [due to the fact that] NASA Lewis, at the time, we were state of the art in computer use for technical applications. [However,] we were almost in the Dark Ages when it came to management information systems. So I was asked to chair an effort to get a management information system in place, computer based, for the Center.

And I ended up choosing a contractor, Batelle [Memorial Institute, Columbus, Ohio] to come onboard and to give us a computerized system. [I] and worked with them, learning more than I ever wanted to know about the problems associated with getting business systems electronically. And one of the decisions we made was to try to get our travel system handled all [online]. I thought that that was going to be an awesome challenge, which it was. But we did that, and we [were] the first Center in the Agency to have everything associated with travel done electronically. Then we expanded and ended up with what we call LMIS, the Lewis Management Information System.

So when I became head of the Business Resources Development effort, I had some experience from Administration and Computer Services, in that arena, plus my volunteer efforts, plus I had consulted with TRW. So that helped me to a great degree in terms of what my challenge was.

My charge in Business Resources Development was to help the Center with respect to grants to historically black colleges and universities, and business with minority business concerns. I just took the approach with the senior staff that we at Lewis never wanted to be number two in anything. We wanted to be number one. So my [question] was why aren't we number one in terms of grants to HBCUs and in terms of contracts with small and disadvantaged businesses. [I] got a commitment from [the senior staff] that we would make that happen. But my charge was I had to find the universities, and I had to find the companies that could do what we needed to be done.

WRIGHT: And you did. You surpassed the other Centers in giving those grants. Tell us about those years.

EARLS: Well, I set a goal that within three years we would go from being near the bottom to being at the top. Turned out that we got to the top in one year. But where ignorance is bliss, is what I say. I just decided, with the support of the Executive Council at the time that, we would award grants to HBCUs the way we awarded grants to MIT, to Ohio State, to Stanford. We would go to the research organizations and say, "If you have research programs that you want done, I will find universities that are capable. You visit them, evaluate them, look at the

professors, look at what kinds of research they've done, what kind of publications, what kind of products, and decide whether or not they are capable."

Well, other Centers were only using funds that came out of the Headquarters' Office of Equal Opportunity, so the Center's budget was not impacted by research grants that other Centers were giving. I decided to use our budget, and that was just such a shot in the arm that by the time the dust cleared in the first year, through utilizing mainstream dollars rather than set-aside dollars, we had become number one in terms of research grants.

And we had given grants in computational fluid dynamics and materials research and probabilistic theory applications, all of those, because those professors were extremely well qualified. They had degrees from major institutions. They had come with considerable experience. They had grants from other organizations, and I just said, "You can do the work," and they could do it.

With respect to the business arena, I kidded people because we had contracts that were for janitorial services, for security services, and I said, "Well, okay, folks. We have ash and trash and cops and mops, but if we're really going to be number one, we need to find businesses that can do work for us in the mainstream arenas as well." And I pulled together a conference here where we brought in companies that we believed had the capabilities. [We] brought in our research people and had two days where they just sat down and talked with the folks about their companies and what they were able to do. And we were able to build the contracts with the [United States Small Business Administration] 8(a) [Business Development] Program that have served us well to today. Many of those companies have graduated from those 8(a) Program and are extremely large and successful businesses.

In those days, I think we may have had contracts with small businesses as an Agency and small disadvantaged businesses [at] less than 5 percent. Congressman [Louis] Stokes, through his legislation, mandated that we have 8 percent of contract dollars with small disadvantaged businesses. When I left NASA Glenn Research Center, 44 percent of our contracts were small and disadvantaged businesses, and we didn't miss a beat in terms of quality.

That was the thing that sold the program. When people would award those contracts, they found out that they got more bang for their buck dealing with small companies. NASA was a big deal with the small companies, and often it was the president, vice president, CEO [Chief Executive Officer], who took personal interest in making sure [they] performed well because they knew that if they were going to get other contracts, they had to perform. So we had accessibility to them. So sometimes the GE's and the Pratt and Whitneys, would sort of take us for granted. So it really, really worked extremely well.

And I did not do that by myself. The researchers here became convinced that that was the thing to do, and they started to ask for small disadvantaged businesses for tasks that they had coming up.

WRIGHT: And the colleges that you approached, I'm sure they were very receptive to being able to work with NASA. Had this been maybe the first time that they'd ever been approached?

EARLS: The first time. As a matter of fact, the first contract grant that I awarded was to Wilberforce University [Wilberforce, Ohio] to do some things in materials research. That was a million dollar grant, the largest grant that they'd ever received in their history. And what was interesting was the way that happened. We had a Ph.D. here from MIT, Dr. Al [Aloysius F.]

Hepp. He had gone to undergrad at the University of Pittsburgh [Pittsburgh, Pennsylvania]. His major professor as undergrad at the University of Pittsburgh was the vice president for research at Wilberforce University. So through that connection, we discovered the kind of work that they were doing there. And we had this signing ceremony here where Daniel [S.] Goldin, the Administrator of NASA, and Larry [Lawrence J.] Ross and the president of the institution came here for the signing ceremony for that first contract that we awarded to an HBCU, and now we have them across the board.

The other thing that I did was I said, “Now that we have them, with those research grants, we ought to have an annual conference where we bring all the universities, Hispanic-serving institutions, tribal colleges, HBCUs, every year bring all the students and the faculty members who are working on the contracts here to Glenn. [They should] make technical presentations to our staff on progress, results, any publications.” We started that and do it every year at the Ohio Aerospace Institute. [We] bring those students and those professors in here on an ongoing basis.

Now, I think, one other Center has decided to model a similar program after that. [There are] several advantages. It helps us in recruitment, because now the students and the faculty members get here. The students make the presentations so they get experience in making presentations before a technical audience. And it really does build on our relationships and collaborations with those institutions.

WRIGHT: You’ve brought so many different types of ideas for conferences and symposiums and programs to your management. Do you ever feel like at some point they weren’t going to let you through the door because you had such great ideas but they kept supporting you in these efforts?

EARLS: I really didn't have any difficulty at all getting support for things that I wanted to do because the management here actually believed that it was beneficial to the Center. And, in addition, I always concentrated on first or foremost making sure that I did my job. If I didn't have credibility in terms of performance, then they would not be likely to support me as I thought about the other things that I wanted to do. And I would always do things in a collaborative style and method.

And even with being on the Executive Council, not being a member per se but being an Assistant to the Deputy Director for Business Resources Development, I would never let my boss get surprised. I never went forward with an idea that I did not first discuss with my boss and laid that out so that when I went in there, I already had an advocate. I would meet with other members of the Executive Council to make sure that they were aware of what I was trying to do and what we were trying to do. So that's always a good philosophy, I believe.

And always, like I say, I tell people, "I did what my bosses told me if it was not illegal, immoral or life-threatening." And once I provided my input and the decision was made, then I said, "Well, that's what I'll do."

WRIGHT: A couple of good life lessons for us all.

EARLS: Yes. But you talk about those contractors' contracting performance. We've got this ITC [Imaging Technology Center]. There's nowhere in the world you have a better organization for the kind of things they do in imaging technology. We couldn't survive as a Center without a first-class operation in that regard.

And we get called upon at [Glenn Research Center] for other Centers to utilize the talents and skills of the people that are in that organization. I hold [them] up one as an example of having contractor support that you don't recognize that they're different, that they are not NASA employees, members of the NASA family, that's a prime example of the kind of quality that you get. When you work well with people, you can't ask for anything that they don't try to do for us.

WRIGHT: I think it goes back to your lesson earlier you shared about having good people to work with you in the program.

In '95, you were talking about positions and were appointed as the Deputy Director of Operations. Tell us what this job involved and how big was your organization for being Deputy Director of Operations. What all did that entail?

EARLS: That was almost an Administration and Computer Services Directorate again, because as the Center went through reorganizations, that directorate was no longer there. So as Deputy for Operations, the Center Director looked at me as the focal point for all the institutional things that were going on here at the Center in terms of our procurement organization, in terms of LTID [Logistics and Technical Information Division], computer services organization, across the board, the legal office, Office of Equal Opportunity Program, and so forth. Those organizations essentially reported through me here at the Center. So it was Yogi Berra, "deja vu all over again." To go back to bringing a structure together that would have a focal point for operations here at the Center internally so that the Center Director and Deputy Director could focus on up and out and many of the research functions here at the Center.

WRIGHT: You had quite an organization and a number of different types of disciplines under you. How did some of your earlier methods of feedback and input and interaction work with the organization of this diversity?

EARLS: Well, it worked well because one of the things, I would always tell people that I'm the most ignorant person in the organization and that what I need is to rely upon you and your expertise to make sure the right decisions are made. I was never reluctant to say to someone, "That's outside my area, but that's your responsibility. You've got the degrees of freedom to do what you need to do, but let me know when you need help. I [will] be the leverage to get things done if you find yourself with your back against a wall or something of that nature."

But my background in radiation physics, health physics, my Harvard training, my experience in outside organizations with the development fund, with NTA, all of those things sort of came together so that I was at least familiar with the operations that were under me. In the early days, I was also on something called the NASA Exchange Council, so I got to know how to deal with the unions in terms of their membership there. And it is extremely important that you have the right relationship with the union and employees who are in that bargaining unit. During that time, one of the things that we were trying to do with that Exchange Council was to see what kind of services we could provide to employees.

So there were employee clubs here, and they all had to get their charters through the Exchange Council. I got experience in interacting with people through those levels with their requests for funding support for what they were doing. I had a lot of varied experiences that were outside the job. This whole issue of parking, we used not to allow on-street parking at Lewis Research Center. That worked well until we started getting so large that the issue

becomes how are we going to deal with that? So I was charged to pull together a group to look at that.

The smoking policy here at the Center. I'm sitting here as Health Safety and Security Division Chief and all of a sudden I find out one morning that I've been asked to try to develop a policy here at the Center, not only because of the health of employees but because any number of employees are complaining about smokers in their buildings, in their offices, and so forth. So I get asked to pull together and develop a smoking policy.

We had at the time two unions, unions for technicians and unions for the professional and clerical employees. I was not about to go deal separate negotiations. So for the first time, I convinced the two unions to come sit, and the three of us, management and both unions, would come up with a policy. I asked them for input and would take their ideas and make sure that whatever we developed was developed through consensus. And we were able to get through a lot of the things.

So all of that really got me ready, and I didn't realize it, for being the Deputy Director for Operations.

WRIGHT: One of the major impacts for the Center, in November of '95, was that it was chosen as a site of NASA's Automated Data Processing Consolidating Center, which you had quite an influence on doing that. Share with us why you chose to put together that proposal, and what made you think that the Center could handle such an operation.

EARLS: I had the utmost confidence in our Computer Services organization and believe that one of the things that we needed to do at Lewis, or Glenn, Research Center was to be a greater

partner and player in agency-wide programs. And we sort of had a reputation [in the Agency] of not being very cooperative. I think a lot of it had to do with our history, that we were entitled to have a big ego based upon the accomplishments and achievements of our employees here at the Center, the chapters in books that were being written. Books that were written by our employees became textbooks that were utilized in the results of experiments and research that we had done here. So we sort of felt that we were so autonomous that we didn't need Headquarters or need other Centers. I thought that we needed to shift and break that paradigm, if you will. So every time there was an opportunity to do something in support of a Headquarters, an agency-wide, initiative then I thought that's what we should do.

So I turned to our people in the Computer Services Division and said, "Let's put together a proposal and see how competitive we could be," and just left them alone. They came up with the proposal, went forth to Headquarters, and they evaluated it on criteria. We had to commit to certain resources here. So I had to get the Executive Council at the time to agree to make the commitment in terms of the resources, both funding-wise and people-wise, and they agreed to do that. And we submitted the proposal and were very successful in getting that done.

WRIGHT: Now talk to us about the implementation. How did this effect, now that you were doing agency-wide services, how did that effect the workforce here at Glenn?

EARLS: Well, one thing it did, it really did improve morale because all of a sudden now they believed that we were a player and were getting recognition from the other Centers.

We also did the same thing in terms of our procurement organization. We probably were processing more grants through our organization here than probably all the other Centers

combined. So what we agreed to do [was] to take on the lead role in grants processing. [NASA] Goddard [Space Flight Center, Greenbelt, Maryland], I think, was probably the next largest Center in terms of grants. So we offered to do that, and the Agency came forward and said, "Well, yes, you can do that as well." So our employees really felt like they were making a contribution to the Agency. It was challenging work, and I think people really do appreciate and seek challenges when they come through those gates every day. If you give them meaningful things to do and they can see the results of what they're doing, then that's inspiration. We can't always give people promotions and raises as much as we would like to, so there are things that transcend that in terms of satisfaction and coming to work.

WRIGHT: Were you able to add more personnel?

EARLS: No.

WRIGHT: This was utilizing the workforce you had.

EARLS: We had to utilize the existing workforce to make that happen.

WRIGHT: Another big event for the Center was in '95 when it was renamed NASA John H. Glenn Research Center at Lewis Field. Were you involved in that transition period?

EARLS: I was here, not that directly involved except when the Senator [John H. Glenn] would come. I had the opportunity to interact with him, and I would always tell him that he was

second, because the first thing I did was I made sure I connected with Annie Glenn. I would escort her while other people were paying attention to the Senator, and that way I could get more things done and accomplished through working with Annie.

The Senator did not really want the Center to be named for him. He believed that it was named for the Lewis family and he would have been perfectly satisfied if we had named a building here for him. But fortunately, the Lewis family understood and keeping the name Glenn Research Center at Lewis Field worked as the right compromise. Every time the senator has been here, it has been inspirational for the employees. He's a great supporter. We have our conference room that we named after him, and when he was here, we made sure that he was accessible, and I will absolutely say to you that our employees really had a moral boost with the name Glenn Research Center because of the image that he had already projected in terms of support for NASA.

But then it was sort of a rebirth, if you will, or another shot in the arm, recharging of the batteries for the employees here to see that name change. It was somewhat difficult for people to get used to saying [Glenn Research Center, especially] for those people who had been around many, many years. Some of them still slip and say Lewis Research Center. But we've come full circle in that regard.

WRIGHT: Ohio has quite a legacy in giving the Space Program astronauts. You have a number of them.

EARLS: I think someone told me that the largest number of astronauts have come from Ohio.

WRIGHT: On a different note, I wanted to visit with you a few minutes about President [William Jefferson] Clinton's national performance review. This was an effort that caused the Center to undergo an organizational realignment to comply with this decree from him, which called for a better, faster, cheaper way of providing service to customers. Additionally, the restructuring at the Center was consistent with an agency-wide zero-based review designed to eliminate redundancies at NASA Centers. Talk to us about how you were involved with restructuring, how did that impact what you were doing at the time, and how it impacted the Center as a whole.

EARLS: Fortunately, years earlier I had been asked to work with the Office of Aeronautics and Research Technology in collaborations between Langley, Glenn, [NASA] Ames [Research Center, Moffett Field, California], and [NASA] Dryden [Flight Research Center, Edwards, California]. We spent about two solid weeks onsite at Ames working on what we call a Project Reliance. In Project Reliance, we focus on fabrication and manufacturing engineering services. [We] concluded that there was duplication among those four Centers, and that maybe what we could do for efficiency and effectiveness would be [to] eliminate the duplication. When the work needed to be done in fabrication, go to [a] Center based upon their being a Center of excellence in that. That program is still ongoing today.

So when it came to zero-based review and looking at redundancy, looking at collaboration, we sort of had a leg up here at this Center. The other thing we looked at was in terms of streamlining management. So we had sections, branches, divisions, and directorates. We decided that we needed to flatten the organization. So as a Division Chief, I was one of the first to eliminate one of the layers and take the sections out and go directly to branches. So I'd had experience in seeing how that would work and how we could [change] the ratio of

employees to supervisors, and we really had some experience before the zero-based review started that helped us.

But when we took a look at what we needed to do, and that's when I really first interacted with Al [Alphonse V.] Diaz, because Al Diaz was on the team. We talked about consolidation and so forth. Our experience had been we had already done some of that. So we were able to do things internally [at] the Center. The kinds of things that resulted from that were organizational restructuring, flattening the organization, combining organizations. Engineering and technical services were combined so that you had the engineers and technicians working more closely within the same organizations. In the institutional side of the house, we were able to take logistics, technical information, [and] pull [these] into an organization [with] functions that were heretofore in different organizations.

So we were able to restructure and it was fairly painless. In terms of our Chief Financial Officer, [we put] that organization together in terms of the Financial Management Division and the Resources Analysis and Management Office and doing some combinations there and reducing the layers of management in that organization. [We were] just taking a hard look at what we were doing in the contractor world as well and able to do some more consolidation with the major contractor we had here.

WRIGHT: Any time in an organization when you start shifting things, employees get a little anxious about how it affects them. How were you able to communicate to the employees that the impact would not directly affect their jobs and that this would be a good thing for the Center?

EARLS: By making sure that they were involved in the process. Employees of Glenn, I think, get so tired of me and my analogies, but one that I always use is I tell people I've never known anyone to take a rental car to the car wash before they turn it in. But then I say, "You treat things differently when it's your car," especially if it's a new automobile, you notice how far people park it away at the mall. They don't park it close in. They don't drive over freshly tarred roads or loose gravel. [There is a] difference in the way people treat things when they belong to them and when they belong to someone else.

So if you could give employees ownership in the decisions and the policies, they tend to treat them better. So this was not an instance where management made those decisions. We had, throughout the laboratory, teams that were brought together to look at how we were structured, how we were organized, where we could gain efficiencies and then get their input. Now, everybody didn't get what they wanted, but I firmly believe that because they were able to get involved then that's why we did it with less difficulty than it would have been otherwise.

WRIGHT: Were budgets affected through this organization?

EARLS: Well, budgets were not changed significantly, but what we were able to do was to get more bang for the buck. But it was part of the effort to look at how we could, quote, do more with less. I maintain you can't do more with less. You do less with less, but what you do is you prioritize and you do the most important things with less. And therefore, my philosophy was always if you take things off the table, pick those things that are most transparent to the people you're trying to serve.

So the budget started to decrease, but we were able to get gained efficiencies. And that's quite a challenge even as we sit here and speak today because when I was leaving Glenn as the Center Director, we were faced with some challenges, especially to the Research Centers and the aeronautics world. [The challenge was] how we were going to continue to meet the requirements of the president's challenge in the terms of the vision for space exploration and keep a healthy NASA Glenn Research Center, which historically had been one of the Research Centers within the Agency. So making some shifts in what we do and how we go about doing it is extremely important and critical.

WRIGHT: Before we close this segment out, I wanted you to talk to us about your service to your country by serving on the President's Race Initiative Panel. What an honor for you to be a part of that panel. Tell us what that was like to be chosen.

EARLS: That was an honor and quite a surprise. There was a dialogue on race, and the administration decided that there needed to be a dialogue on race and its impact in the technical community. I received this phone call from the White House Office of Science and Technology [asking if I] would be one of the panel [members] to start that dialogue and develop an operational plan for making things happen. And so I, of course, said yes. We had several meetings, which culminated in a conference in Philadelphia [Pennsylvania] where the President was there himself. And it was a giant conference, but at the end of that, we went into our panel discussions to say what are the kinds of things we need to do to start that dialogue. [We needed] make sure that there is diversity and make sure that there is respect and improvement for what all people bring to the table in terms of science and technology.

And we ended up with a report [in which] I have a lot of pride. It talks about programs that have worked, even mentioned my Development Fund for Black Students in Science and Technology as one of the examples of what can be done. It also talked about the role of historically black colleges and universities, tribal colleges, Hispanic-serving institutions, and so forth, and getting them into the mainstream, piggybacking on some of the things that I had done in the early days when I was Assistant Director for Business Resources Development. So I was able to come in to that panel and talk about things that we had done at Lewis Research Center, Glenn Research Center, that really did contribute positively to this dialogue on race and start talking about that with the professional societies as well. And I think almost every professional society has a committee that deals with diversity and involvement of minority programs and minority scientists and engineers as well. So I thought it was a meaningful experience for me.

WRIGHT: Have you had any follow-up information on the report and how it's affected other groups?

EARLS: No. In fact, that's probably a failure on my part in trying to follow through on that. At the time there were individuals in the White House Office of Science and Technology Policy [who have] moved on. One of the individuals was a professor at Ohio State University, and he's one of my surrogate children, Dr. Oliver [G.] McGee. Now he's moved on to be the Director of Research with the United Negro College Fund. So he is my contact in terms of how we're doing and what happened to the report.

WRIGHT: On a personal note, how was it to get a phone call from the White House to ask for your services?

EARLS: Well, let me tell you this: I've received a lot of phone calls, but none have had that impact.

And what was also interesting was that another member of the panel was Dr. Howard [G.] Adams. What's so interesting about that is Howard Adams and I both went to Norfolk State. I was president of the freshman class and the junior class. Howard was president of the sophomore class and the senior class. Here we end up on a presidential panel, the only university in the nation that had two representatives, and we're both from little small HBCU, that is now large, in Norfolk, Virginia. You can realize and understand how Norfolk State took advantage of that tidbit of information to share with the people and use it as a recruitment initiative, if you will, for students to come to the college.

WRIGHT: And I think that's a good spot for us to stop for just a few minutes, so let's take a break.

EARLS: All right.

[pause]

WRIGHT: Well, before we close out the session for today, I would like to spend a few minutes with you for you to share some stories and maybe some anecdotes about some of the people that

you've worked with. At one point when we were on break, you were sharing that although you weren't selected for the astronaut selection in 1978, you became very close with some of the members of that class and the classes that were after that. Tell us how you have developed working relationships with members of that space flight team.

EARLS: Well, I'll tell you that when I've met these astronauts, and not just from that class but every one since then, I've concluded that NASA put together some specifications, and they have this little room somewhere in the back where they build flawless people and they come out as astronauts. Every single one that I've met has been able to interact with students, with scientists, with researchers, with the President of the United States, with CEOs. They are absolutely fabulous.

As a matter of fact, I was just at a meeting yesterday. I'm on a board of a metro health foundation here, and the CEO said he was in a program and was in there and seated next to one of the astronauts. The astronaut made him feel as though he was the only person in a roomful of about fifteen hundred people. So they are extremely talented people. I've been privileged to work with them.

In the early days, after I was not selected for the program, one of the first programs in which I participated with an astronaut was at Pratt Institute in New York. They brought the astronauts there, and Fred Gregory was one of them, and we were supposed to do a program for the students. I was the motivational speaker, to be followed by one of the astronauts, Fred Gregory. So Fred and I met then and developed a relationship that has continued through the years, and that was in 1979, I believe.

I met Guy Bluford. In fact, for Guy's launch, you may recall that his was the first night launch, and for each one of the launches, they would have an education program. I was invited to be the keynote speaker for the education program associated with Guy's launch, [and] I got to meet Charlie Bolden's mother. When we were there, we developed a love affair, because she was a delightful woman. I kid Charlie because years later I was scheduled, after I'd met Charlie on several occasions, to introduce him at a conference of the National Technical Association in Cincinnati [Ohio]. Since I knew I was going to introduce Charlie, I wanted some privileged information about him for the interview. So I called his mother.

We must have talked on the phone for about forty-five minutes. She gave me some stories about Charlie that were hilarious. So in my introduction, I used some of those stories. The audience was howling. Charlie had his head down on the table, because he was embarrassed. He also threatened my life as a result of that association. [laughs]

But I met Charlie. We worked programs together, primarily motivational programs. With Guy, we just developed a relationship over the years, [both of us] being physicists. When Guy left the astronaut corps, he came to Lewis Research Center, Glenn now, of course, where he was the Program Manager for a major engineering support contractor for us, NYMA [Incorporated]. So our relationship continued over the years with that.

The other astronaut was Mae [C.] Jemison. Mae and I met [when] she was being inducted into a sorority as an honorary member in San Francisco [California]. I was the keynote speaker. We met that Friday night in San Francisco, and the following week the National Technical Association had its convention in Chicago. So we connected again, because she was a member of the National Technical Association.

So I've had great experiences meeting the astronauts. But there are some [other] unsung heroes [in my life]. When I first came to work at Glenn, my Division Chief was a man named Leroy Humble, and he was the one who was supportive of my going to graduate school to the University of Michigan. As a matter of fact, he was the one who brought me back to NASA as a section head [after I left in 1967].

Henry Barnett. Henry Barnett was from Richmond, Virginia, and when I came here, we connected. He was the Director of Administration Computer Services equivalent, [and was] from Richmond, Virginia. We had that Virginia connection so that made a difference.

I think about Jim [James W.] Kennedy, Center Director at Kennedy. I met Jim Kennedy when I first went down to Marshall Space Flight Center [where] he was [Deputy Center Director] and had invited me for a presentation. We connected there and I followed him through his career, all the way to being the Center Director now.

So those are long-term relationships that have just served me extremely.

[I met] Al Diaz when he was doing zero-based review. After the [Space Shuttle] *Columbia* [STS-107] tragedy and the Administrator decided that he wanted a team to extract from the *Columbia* report lessons that would apply to non-mission Centers, I served on that committee that developed the Diaz Report. Al never liked it being called the Diaz Report, but no one would let him change that name. So Al Diaz and I developed those kinds of relationships.

Jim [James L.] Jennings. I've known Jim Jennings from the early days of the National Technical Association. Jim Jennings [eventually became] the Associate Administrator for Institutions and Asset Management. I'd met Jim when he was working at Marshall, [after which] he went on to Kennedy and became the Deputy Director of Kennedy and [then] Headquarters.

So these relationships over the years have been extremely valuable and rewarding. With every Administrator I've developed a working relationship. Each one had his own style, but I was able to grow and get meaningful assignments, even though I was here at Glenn, for almost every one of the Administrators asked me to do some special project that was important to them. So I was honored and humbled to be asked to do those kinds of things for the top levels within the Agency.

WRIGHT: Can you tell us, mentioning all these folks that you just talked about, some your colleagues and peers and others your bosses, what qualities did you admire in them? Do you see a recurring attribute that you look up to with these people that you find so rewarding to work with?

EARLS: I think that they were always willing to empower others to make decisions. They were not micromanagers, and it's tough not to micromanage, especially if you're managing an area over which you've had nuts-and-bolts experiences. To be able to let go is something that not everyone can do, but they all had that kind of ability and also the people skills. Except for maybe one out of the group, they were always able to make people feel comfortable in their presence and never made distinctions because they were at that high level and someone else may have been a custodian. Especially I learned from them you have to value the clerical and support people, because I will tell you this, if you want to fail in any organization, alienate the secretarial, the clerical staff, and you are on a slippery slope.

But you can't fake sincerity and you can't fake caring, it really has to be genuine, because people can see through. I tell people, "Within three seconds, people can tell whether you're alive or Memorex, and you can't fool people."

WRIGHT: Any lessons that you learned from any of them that you can share, especially the Administrators? You said you had worked on some special projects for them.

EARLS: I've learned that you must surround yourself with people who are smarter than you. You can't be an expert in every area. And I tell people that everybody is ignorant except on different subjects. So [do not be] afraid to share the spotlight. You don't have to be everywhere and do everything. Allowing other people to be out and be visible and meet with folks was something that I always like doing.

My Deputy, I think, Rich [Richard] Christiansen, got a little bit [concerned] that I would send him so many places. The opportunity [arose] to be on a TV program, I said, "Rich, this is your turn. You go do that." But he was extremely good at it. He is extremely good at doing those kinds of things. And I think it sends a message to employees, too, because you can suffer from overexposure. The Center Director or any manager, if you're constantly in front of people, I think that you can wear out your welcome, and people start to say, "Well, oh, no, not him again, not her again." And if you don't have something substantive, you probably should pass up the opportunity to be in front of an audience, unless you've got something that is meaningful and impactful and something that is current. And most of them were that way. They would send other people out, give them the exposure, give them the visibility, and I think if there's one lesson I learned, that's the one that I value the most.

WRIGHT: Maybe, too, another lesson is that when you meet someone, you never know where they'll end up. You met Fred Gregory, and here he ended up being the Deputy Director of NASA.

EARLS: That's right. That's right.

WRIGHT: You were telling me at the break that you really fault him for not becoming an astronaut because he took your place.

EARLS: He absolutely took my place. In fact, I tell him, and every time I see him, he and I kid about that. When I applied for the Astronaut Program in 1977, this is the first time they had opened it up to nonmilitary, in fact to civilians. You didn't have to be a pilot [for] the first time.

Well, Fred Gregory applied for the program through the military, but he also applied through the civilian process. Well, he got chosen through the civilian process. Fred tells me that initially he was a helicopter pilot. And I don't understand that military environment, but evidently there's something associated with whatever you start, that's how you're known. If you're known as a helicopter pilot, it's pretty difficult to get assignments otherwise.

So he didn't make it through the military process. He was chosen through the civilian process. And I tell him, "That was my slot." And if he had not applied, then I would have been the astronaut.

And he came to Glenn for a presentation once, and we were in this auditorium and I was to introduce him, and *Jet* magazine had just published Fred's picture in his astronaut uniform at

the anniversary of his becoming a pilot astronaut. So I had these brilliant people over in the ITC take that photograph and morph my face into the photograph and put it on this big screen in the auditorium. Fred laughed so hard, I thought they would have to take him out of the auditorium. But that's the relationship that he and I enjoyed, and as a matter of fact, as a Deputy Administrator of the Agency, he was instrumental in my becoming the Deputy Center Director here, and it was no doubt through his influence that I became the Center Director of Glenn Research Center.

WRIGHT: Well, I'll look forward to talking with you more about that tomorrow. Just one final question, just a fun question here at the end. We are in an Olympic season. It's Olympic Games, the Winter Games in Torino, Italy. We see the results every morning and watch the programs at night. But four years ago, you were involved in a very special, very unique way by being a torchbearer for the Salt Lake City Olympic Games. Tell us how you were able to do that and what that meant to you to be part of that.

EARLS: I'm going to try to give you the short version, because it's absolutely an amazing story. I received an e-mail telling me that I had been selected to be a torchbearer for the Salt Lake City Olympics. I hit the delete button because I knew someone was kidding me, figured it was one of my buddies doing that. I got another e-mail, and I deleted it. Finally, I received a telephone call telling me that I had been selected to be a torchbearer for the Olympics.

Then I knew they were serious. So I asked, "Can you tell me what was the process?" And they told me that I had been nominated, and I asked, "Can you tell me who nominated me?"

And they said, “Well, no, not really, because we assume that the person that nominates an individual lets the individual know that they have been nominated.”

I was clueless trying to find out who had nominated me. I’m in Atlanta, for a presentation, [leaving] on the elevator. As you may recall, the torch came to this country to Atlanta, that’s where it started its route through the United States. I’m on the elevator, [and] a woman gets on, and she’s wearing an Olympic vest that has “torchbearer,” and I say to her, “Are you a torchbearer?”

She said, “No, I’m one of the staff who’s working it.”

I said, “Well, I’m going to be a torchbearer.”

She said, “Where?”

I said, “In Cleveland, Ohio.”

She said, “Cleveland, Ohio. We are trying to get the Rock and Roll Hall of Fame in Cleveland to be the host stop for the Olympic torchbearers in Cleveland, and I have not been able to get in touch with anyone to make it happen.”

I said, “I’m on the Advisory Board for the Rock and Roll Hall of Fame in Cleveland, and I can make it happen.” I said, “But by the way, I’m trying to find out who nominated me.” So I got her card, gave her mine, came back, set up the arrangements for them to come to Cleveland Rock and Roll Hall of Fame, made arrangements for the band from Shaw High School [East Cleveland, Ohio] to perform.

She contacts me and says, “All I can give you is the name of the person in California, Roger Curtis. That’s all I know, because it was sent by an e-mail.”

My son is in Los Angeles, works for Fox Studios. I asked him to see what he could do. He finds Roger, [and] I call Roger. He's elated that I now know he submitted my name. I said, "Well, have we met?"

He said, "You came to [NASA] Jet Propulsion Laboratory [Pasadena, California, JPL] to a procurement conference. Two years in a row you were the speaker. I was so impressed with your presentation that as I was sitting at my desk, TV is on, they asked for torchbearer nominations. I swing around, hit the e-mail, nominate you, telling them about you and what you had done and how you had inspired me." That's how I became a torchbearer; [I] had no idea. And Roger and I have developed a relationship because I was back out to JPL again for a speaking engagement, invited him to be my guest and invited him. Now I'm going back to JPL again next month for their conference to speak again, and I'm going to take Roger out to dinner again.

So my wife and my son [will get to meet] him. We developed a relationship, but it was just a complete total surprise to me, and quite the honor for me. And it was on New Year's Day.

WRIGHT: How exciting, and what a wonderful memory.

EARLS: Yes.

WRIGHT: And how wonderful he picked someone who could run, since you do marathons.

EARLS: Well, carrying that torch—

WRIGHT: Is that not running?

EARLS: It was running, but I'll tell you what, it must have been twenty-four degrees below zero in downtown Cleveland that night, but you didn't feel the cold because of the honor of carrying that torch. I had so many family members and friends, colleagues from NASA, who actually came down there at 7:00 p.m. that night to watch me carry that torch. Humbling doesn't come close to say how I felt about that. But here, again, I've just been blessed with so many friends and so many supporters.

WRIGHT: Well, I think that's a great place to stop this afternoon, so we'll start again in the morning. And thank you again for spending the afternoon with us for this project.

EARLS: Well, it's a pleasure for me to do that.

[End of interview]