SWE GRASSROOTS ORAL HISTORY PROJECT

Roberta Banaszak Gleiter

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Society of Women Engineers National Conference

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This oral history interview was recorded November 3, 2010 at the Society of Women Engineers National Conference in Orlando, Florida as part of the SWE Grassroots Oral History Project. A copy of the audio recording of the interview has been deposited at the Walter P. Reuther Library and Archives of Labor and Urban Affairs, Wayne State University. The interview may be used for research and educational purposes only.

Roberta Banaszak Gleiter is a project engineer and technical manager at Aerospace Corporation. One of the top students in her class at Purdue University, she received a degree in chemical engineering in 1960. Unable to find employment because of her gender, Gleiter instead married and raised three children. In 1980 she participated in a workforce reentry program for women engineers at California State University—Northridge, which was funded by the National Science Foundation. After completing the program and interning at the Aerospace Corporation, she accepted a full-time position at the company and has remained there throughout her career. She served as national president of the Society of Women Engineers from 1998-1999 and was elected into the Society's College of Fellows. Also a Fellow in the Institute for the Advancement of Engineering and a member of the American Institute of Chemical Engineers, International Council on Systems Engineering, and ASME, Gleiter was named an Aerospace Corporation Woman of the Year and received the Outstanding Chemical Engineering Award from Purdue University in 2008.

In her 2010 Society of Women Engineers Grassroots Oral History Project interview, Gleiter explained how she chose chemical engineering and the difficulties she encountered as a female student; the discrimination and discouragement she faced during her job search that led her to leave the field after graduation; the reentry program that led her back the field twenty years later; her career at Aerospace; her involvement in SWE; and becoming a cofounder of the Global Institute for Technology and Engineering.

- July 2016

TROY ELLER: Okay, today is November 3rd. This is an interview with Roberta Gleiter. She is a past president of the Society of Women Engineers and a fellow of SWE. This is an interview for the SWE Grassroots Oral History Project. The interviewer is Troy Eller, and we are at the SWE conference in Orlando, Florida. Thank you for joining us today.

ROBERTA GLEITER: Thank you, Troy.

TE: To begin with, can you tell me where you were born and lived growing up?

RG: I'm from the Midwest. I was born and raised in Chicago, in the south side of Chicago, which I don't go back and visit because it's not a good place to visit right now. (laughs) It was the south side of Chicago.

TE: OK. Could you tell me what your parents did?

RG: My parents are both first generation Americans. They were born and raised in this country, but their parents came from Poland. [01:00] So, my ethnicity is from Poland, and from both my mother and father's side. My parents are just phenomenal people; everyone says so, of course. But nevertheless they were not given the advantage of a formal education because, because being children of immigrants they were doing grassroots-type of activities in the country to have the salary to raise a family. So, my father—I think that he went into high school. They had to work. They had to work. There was no question about it. They worked on the farm. In the case of my father, that was their sustenance, and they did do schooling.

My mother—they had nine children—so, my mother was sort of in the middle. [02:00] The sons were the older ones, and one of them was going to become a doctor. So, all children were required to work to put him through the university, residency, and internship. So, my mother—I think it was something like fourth or fifth grade was all she was allowed to go to. And my mother is an extremely bright woman, very high IQ, very well read. She can beat anybody at *The New York Times* crossword puzzle. Fantastic. But she was not given the luxury of an education, a formal education. Because then her brother did in fact become a doctor, a physician/surgeon. But, everybody else paid the price. So, they valued education very highly. (laughs)

TE: Yes. Growing up, could you tell me what were your interests in school and when did you start to develop an interest in engineering? [03:00]

RG: Ah yes. I was fortunate to—actually, to start out as a bilingual because it was the sisters at St. Bratislava (??) school that came from Poland and couldn't speak English very well. Really weren't very good at math or science, unfortunately. They beat the boys but they didn't hit the girls, so I was very lucky. (laughs)

But despite that kind of environment, the math and the science just from the books—as poorly as the books were written, because that was way back when, I mean, in the 1940s. So the books were not very well-written, but nevertheless, the books did pique my interest in math and science. It came naturally to me and I just—I just loved it. And I didn't know why because I certainly wasn't inspired by the good nuns. (laughs) [04:00]

But when I went to high school it started to blossom. I taught myself to use a slide rule. And then they had me teaching a class because the nuns didn't—the Sisters of Mercy in the high school didn't know how to use a slide, "So would you teach a class?" (laughs) So early on I had a great interest. And of course I took math and science courses. And my parents, of course, were very encouraging to anything academic and they really did like the math and sciences for me. And I was having a great time. I just really enjoyed all the different courses.

And it ended up that I hadn't heard the word engineering, which is very interesting because when it was time to go to college, I had straight A's. I excelled at all the courses. And, of course, I enjoyed most my math and science. And so it was like, wow. Where do I go and what do I do? [05:00] And so it was getting time to start selecting and so I asked my mother. I said, "What should I be studying? Where do I go?" And she said, "Well, I don't know, but we're going to go to the most educated person we know, and that's Dr. Kachela (??), who's your dentist." So, every two weeks—because I had scarlet fever when I was a child, so my teeth didn't have all the enamel on it, so I was living at the dentist. And so she said, "Well, ask him." So, I went to see him, because I was going right away. That was a continuing basis. (laughs)

Well, I said, "You know, I don't know what to study, and I don't know where I should be going." And he said, "What's your favorite subject?" And I said, "But they're all my favorite subjects." I really—. "What's your best grades?" I said, "Well, they're all straight A's." (laughs) He says, "Well, what do you want to

study?" [06:00] And I said, "Well, I want to study the hardest thing I can study." (laughs) And he said, "I don't know what that is, but when you come in, in two weeks, I'll have an answer for you." So, okay. So, I come back, and he says, "I've got the hardest subject that you can study at the university. And that's chemical engineering." I said, "Great. Perfect. I'll become a chemical engineer." Didn't know how to spell it, so to speak. (laughs) Of course I could spell it, but I mean I was—it sounded good to me because I was always helping my father with his projects, and he built a garage from scratch and we drew his blueprints. This is a person, you know, that was not formally educated in this, and he had the knack. He was a natural. He designed and built all sorts of incredible things. So, I was involved with that. So I didn't—yeah, I sort of sensed that that was probably some aspect of this word "engineering," that the chemical engineering that was the hardest thing to take. [07:00]

So I said, "Hey, where do I go?" You know, "I'll take that. Where do I go now to take that?" (laughs) And he says, "I don't know, but I'll get back to you in two weeks." (laughs) So then I'm back again, because you had to see the doctor or else you're going to lose the teeth because of all the cavities. So you're right there always, catching him there. So, anyhow, so I come back again and he says, "Well, the best school in the whole United States for chemical engineering is Purdue University. However, you could also go to—," I think it was University of Michigan, or there was another one on the east coast. Which was actually, when I looked into it, was sort of a no-brainer where I was going to go. Number

one was Purdue because it was a top school, but also number two is because the other universities would not accept women. They would not accept women in their engineering programs. Women didn't belong there, and they weren't going to have them there. [08:00] Purdue University had to take women if they applied, had the right grades, and everything because it's a land grant university. And as such they are required to allow women to take their programs. So I was very blessed that Purdue University had that kind of program and allowed me to be taking—allowed me, notice. (laughs) And that was in 1956 that I was starting my engineering at Purdue University.

TE: Great. Could you tell me what it was like to be a woman engineering student at Purdue?

RG: It was interesting. When they—recently, I was awarded the Outstanding Chemical Engineer award. I'm the seventh woman in 102 years of giving this award. So, that gives—that's the flavor for it. Well it just so happened that they had me talking—and this fits back with what I'm talking about. (laughs) [09:00] They asked me about my early years at Purdue, and I mentioned some things that happened, and they were horrified. They were horrified. "Well, it wasn't in the chemical engineering school that we did that, did we?" And I said, "Well, I really don't remember." Like fun—I remembered clearly. (laughs)

Because I had classes that were actually with the Korean War veterans. And they had seen war, and they had this little cutesy girl that was going to be an engineer, too, and how dare she be there. And then when I got better grades

than them they were really unhappy with me, because I had better grades and I was this fresh face that always smiled—and I still smile even. I'm 50 years older, and I'm still smiling. (laughs) [10:00] But the professors and some of the TAs [teaching assistants] and—.

This was a full-ranked professor, though, that in this one course that came up to me. I always sat in the front because I absorbed more. I didn't want distractions. I was enjoying the classes, you know, so I would sit up front. And this professor comes up to me and he puts his finger—this finger, index finger—right in my forehead and touched me, which I took—. (deep inhale) I came from a Catholic girls' school—. (laughs) This guy comes up and puts his finger—he says, "I'm going to fail you if that's the last thing I do. You're taking a seat that belongs to a man." And, of course, I sat there and quaked in my shoes and—I was just really scared. (laughs) You know, I had to do well. My parents were sacrificing for me to go to school. My father took out his whole retirement money. I mean, when he retired he got no pension because he took it out to put me through Purdue. [11:00]

But, of course, that is part of the story, too, because the reason that happened that way—Purdue offered me a scholarship. And in those days you had to have a signature verifying you were from the school. They didn't need verification for the grades. They already had that. They needed verification that I was still at the [high] school or whatever. The nuns had to sign it. Well, when the nuns—when I went to get the signature for the scholarship they said, We can't sign that. You're

going to turn into a pagan. (laughs) I mean, I was a naïve kid but, I mean, I was still—that was ridiculous. Even I knew that. I said, “No, no!" (imitating) Jesus: "No, you can’t go there." (nun speaking) "Okay, come see me next week." I come in next week. Well, now we’ve got three Sisters of Mercy going around me, hovering around me. And I’m sitting in a chair in the middle, and they’re circling me like a piece of dead meat there. (laughs) [12:00] Telling me and shaking their fingers in my face saying that, You’re going to become a pagan, and women don’t do things like that, study engineering. Women don’t do that. You go be a nurse. You can go teach. You can’t do that. We’re not going to sign it. I said, "But—." You know, I’m in tears. I know my parents have no money. This is a real—here’s a wonderful gift from Purdue University, and they’re saying they won’t sign it? I just—. (laughs) So, it ended up—that went on for several months, as a matter of fact, and they never did sign it, and I never did—Purdue could not give me the money because that was one of the things.

And, I have since given a big donation for an endowed scholarship at Purdue University that makes sure that they don’t have to go to their schools to get a signature for it. The university can do it without a signature from the school. [13:00] It’s a nice, fat endowment, and they’re—I’m sure I’m getting even with those nuns. (laughs) So anyhow, that’s—.

Let’s see now, but I—engineering is—that’s how I ended up at Purdue, and I really have enjoyed my time, and [Purdue was] horrified when they heard the stories of—. That was just one instance with the professor with the finger on the

forehead saying he was going to fail me. And I ended up getting a B, because I got an A in everything, so he couldn't give me anything lower than a B, because I had an A on all the tests and all my work.

TE: Sorry.

RG: But yes, it was not a friendly atmosphere. SWE was just starting at that time. It was about six years old. And there were just a couple women at Purdue, and most of them dropped out. But when I was a freshman I think there was maybe, I don't know, ten women in all the engineering disciplines. Something like that. [14:00] And we, of course, belonged to SWE, but we didn't have many activities because you really were crunched. And so we didn't have anything really formal. It was just at various universities, and this happened to be one of the sections. And so I was a member of SWE, and they didn't have any (membership) numbers. So when I reentered SWE—when I came and reentered the workplace—they asked me what my number was. I said, "We didn't have numbers." (laughs) Didn't have records. So, it was interesting in those early years.

TE: So you had, in some classes at least, a rough time at Purdue. Where did you get support? Were there professors who supported you? Were there other staff members or other students who were supportive?

RG: Yeah. [15:00] Actually, there was one professor that was—he recognized the system was not at all focused on all of the students, and he tried to be very

helpful. I know when I was talking about going to get my P.E. [professional engineer's license]—you know, take the testing—he said, “Don’t bother. Chemical engineers don’t really need it, and you know, you can—.” He was very helpful about that because ChemE’s are a different breed. So, it’s not like a Civil [engineer], where you really need to have that. So, he was helpful.

I had lab partners who were very good and helpful. When I was putting out my resume to get a job—I was one of the top grads, and I wasn’t getting any interviews. And I remember this—I still remember him, that he was so kind. He said, “Roberta." He said, "Your grades are way over mine, and you’re not getting interviews?” [16:00] He said, “I’m turning away interviews. What’s wrong?” He said, “What are you writing on your resume?” And I said, “Well, you know, the usual stuff.” “What name do you write down?” And I said, “Well, I put Roberta Banaszak," because that was my maiden name. Roberta Banaszak. And he said, “No. Don’t use your first name. Use an initial. They’re rejecting you because you’re a woman.” I said, “Go on. Go on. Would somebody really reject me because I’m a woman?” He said, “Yes.” (laughs) I’ll never forget him. And I think—how wonderful of him to have—.

I was so naïve that I didn’t realize. Even though having a hard time in classes and everything, I sort of always pushed it out of my mind, didn’t interfere with my engineering studies. Because that was my goal, was my engineering studies. And so it was like, “Whoa. Is that what the world’s like out there?” (laughs) And then I found out it is how the world is out there. (laughs) [17:00] Put my initial

down—Wow! People invite me for interviews. I'd get to the door, they'd see me with a skirt on. And they'd say, She's a woman. What's she doing here at an engineering interview? And they would tell me, Oh, we already filled all the spaces. We won't take your time in an interview.

One company didn't do that, though. They sent—they wanted the resume sent to them on the east coast. So, there went R. Banaszak over to the east coast. (laughs) Well, they were pretty darn impressed. They wanted to fly me out. And so I made arrangements and I flew out. And when I got to the airport, and there was supposed to be someone meeting me, and there was a man in a suit, so I walked over to him, and I said, "I'm—." And he said, "No!" Real loud, resounding voice. And, you know, we're in the baggage area to pick up. It's like, "Ah, oh, um—." Step back. [18:00] Okay, the luggage comes and people are picking it up, and I found mine, so I walk over to him again. He's the only one with a suit on. (laughs) And he's standing there not getting luggage. So I go over to him and I say, "My name is—." He yells again, "No!" at the top of his lungs, and I just—. (laughs)

So, I stand there. Everybody's gone now. Everybody's taken the luggage. He's there, and I'm there. (laughs) Obviously he's the guy and I'm the candidate. So before he could shout at me again, I went and said (speaking quickly), "My name is Roberta Banaszak, and I'm here to—." (laughs) And he said—looked at me with a scowl on his face, and he said, "You lied!" And I looked at him and I said, "I beg your pardon, sir. I never lie." I was raised very—very narrow focus. You

never lied. (laughs) I never lied. My parents taught me—I never lied. (laughs) [19:00] He says, “You’re a woman.” Like I just crawled out from the dirtiest rock there was. “You’re a woman.” And I looked at him, and I said, “I’m an engineer.” He says, “You’re a woman.” And he said, “And don’t bother worrying about getting up early tomorrow because we really don’t have anything to show you. And you can go back if you want to now.” I said, “No. I came out here to interview. I flew across the country to interview. And I would like to see your facility. I’ve just taken some graduate courses in processes,”—in chemical engineering. I said, “I’d be very interested to see some of your processes.” He said, “Well, don’t count on it. And we’ll pick you up at 10:30.” Yes, so he could get rid of me before I got trapped. (laughs) So off I go, and I was really disheartened but I thought, You know, well, that’s okay. We’ll make lemonade out of lemons. [20:00]

So they picked me up. We go over to the facility, and it’s a huge drug company. Chemical—you know, pharmaceuticals. Okay. Walked in the door, and the first thing—the person who takes me is one of the guys. He says, “That’s the ladies’ room. We have one in the whole”—this is a huge company. And he said, “This is where the secretaries go. This is where you go to the bathroom.” I thought, I flew across the country so I could find out where they go to the bathroom. I just love this. (laughs) So, I’m standing there looking at him, and ooh—not far from that door is the door to the process room. It says Process Department. And I thought, Oh! Fantastic! So I go walking up and I’m, of course, dressed properly with pants,

so I could crawl ladders. With flat shoes that are secure on my feet, so it's for safety reasons. I know how to tour a plant. Yeah. (laughs) Purdue taught me how to do that.

So I go up and put my hand on the door, and he says, "Stop!" [21:00] Now this was a different guy from the one who rejected me. (laughs) And he is just the same ilk, though, you know. "Stop!" I had my hand on the door and I thought, Oh! I started to turn it, and he said, "Take your hand off the door!" And I said, "That says Process Department. And I'd really like to see your Process Department. I have some graduate level course work in it and I would really think that would be good." And he says, "You're not allowed in there." And I said, "I'm not allowed in there?" And he said, "You're a woman. We don't allow women in our Process Department." I said, "Do you have someplace where you do have—I'm an engineer." I said, "I'm an engineer." And he says, he says, "No. We don't have any place that a woman can go." I guess to the ladies' room, is the only place.

So, I was like, Whoa, this is not a good sign. And, he said, "But, we do have a library, and we need a technical librarian." Now, I respect and honor librarians. They are wonderful. [22:00] Very excellent in their field. But that's not what I studied. So, they took me in the library, and it was like—and my eyeballs are really big in my head. And I said, "Oh, very nice library, thank you, yes." He offered me a position in their library, which I immediately declined. I figured I didn't go through five years of chemical engineering school at Purdue within a four year and two summers span, so I really—22, 23 credit hours a semester. It

was killer time. And I did very well, and they're going to put me in the library in a corner somewhere at the—. No, I'd rather not, thank you. (laughs)

So it ended up that—we were going to get married anyhow, my husband and I. And so we did get married as we had planned—on my birthday. So he couldn't forget a present, you know. (laughs) [23:00] And raised three wonderful, wonderful children, who are wonderful adults now. And I wouldn't change anything. And then I reentered the workplace when the time came around.

TE: Okay. So you were—raised your—or you stopped looking for a job and started raising your family—

RG: That's right.

TE: —between 1960 and 1980?

RG: That is correct.

TE: And during that time, did you expect that you were going to go back and try to find a job later? How were you feeling? What were you thinking about the situation?

RG: Oh, yes. Very interesting, because when you go through a complete rejection like I did with—. When you're so intense in your pursuit of the engineering field—because now I loved it. This was my love for my—my engineering was my focus. And then to have that focus—essentially, you couldn't implement it. [24:00] It was somewhat devastating. And it does pull you down. I was immensely happy with a

marvelous husband who has been so supportive to me, and raised three wonderful children. But still, it took something away from me. It brings me to tears as a matter of fact. Because it was something where you say, “Am I ever going to be able to practice my field of engineering?” It meant so much to me. And yeah, I eventually did, and I’m so thankful. But it was very difficult during those years because there’s just so much you can talk about to people about diapers and the grocery store and what’s on sale, you know. (laughs)

TE: Right.

RG: It was devastating, like you’re in a desert, you know. (laughs) And my husband is an engineer, bless his heart. [25:00] So he would come home with his—when he was working in the oil industry, which was great, which is akin to my chemical engineering. So, I mean, I was heartened when he’d bring home discussions about technical matters in his workplace and it made me feel somewhat like, Oh, okay. A little bit of salve on the wound. (laughs)

TE: Right.

RG: But, it wasn’t until—it was 1979 when they had an ad in the paper and our children were set to go to college, and we didn’t have the money, you know? This is tight. I’m going to have to do something to help contribute some funds, you know, and do something. And my husband saw an ad in the paper from one of the local universities, California State—Northridge university. And the National Science Foundation had funded a pilot program for reentering women in

engineering. [26:00] To give them a year's program. It was from across the country. Women traveled in from around the country and lived in Northridge for a year, and I could drive there in 20 minutes. My husband said, "You've got to apply." And I said, "Nobody wants—." This will tell you how I felt. "Nobody wants an old chemical engineer. An old woman chemical engineer." I didn't know how young I was at the time. (laughs) But I felt—this is just—you know, who wants me? You do feel rejected, and you do feel like, well, it's not—there's not a path ahead that really is going to be satisfactory to bring your entry into the field that you love.

And that's why I feel so strong and donate my time to many different things, because I want other women to not have to go through what I went through back then. I want the young women to feel empowered rather than diminished in their power, and in control and be able to practice the field that they love. [27:00] Even—no matter what the field is, I will just go out and speak with young people and encourage them to hang in there if things do happen.

It was—the National Science Foundation had this program only one time in its history. And it happened to be right in my neck of my woods. And it was something I participated in. It brought me back to my curriculum. Because they had refreshment courses, a year of refreshment courses. And I took them and one of the professors pulled me aside and said, "Roberta, we're going to ask you if you'll just go work full time,"—because we had internships too. "Would you please go work full time? Because you're ruining our curves." Because I was

getting straight A's in everything. Everything came back. Purdue beat you in the head until you got it, you know. (laughs) [28:00]

So what I thought that I had lost and felt so bad about was actually there, ready to be retrieved. So I was able to retrieve all the basics of the engineering courses that I had and was actually—I was their success story, they said. (laughs) They brought me back for the final—when they give out the certificates and stuff and gave me a certificate and all that, and they said, "You're our success story." And I worked at the Aerospace Corporation. That's where I did my internship, and that's where I am still working, at the age of 72. (laughs)

TE: So, going back to school 20 years later—

RG: Yes.

TE: —how did attitudes change? Did you find it was a drastic difference from your first time in college?

RG: Actually, it was interesting because it's different, of course, and improved. But it's got a ways to go. [29:00] I still feel it has a ways to go. When I myself went to graduate school, there was no question. It was totally open at graduate school, so I went and got my master's at USC, and so—after I started working, you know. So that was good. And then that's when I established myself there, that I started to really get more proactive and more confident in being able to reach out and help others, and that's where I really started to—. But in the reaching out process, I would go and be in various places giving speeches and I would always

have a line waiting afterwards, and there would always be one person that would be sitting on the side, waiting until everyone was gone. And I knew it was going to be a long evening. (laughs) Because I would sit, and it was always—. I would go back to the hotel room and I would cry because I would be so brokenhearted for the young woman of what she has been through. [30:00]

And so, in some of my students, they had third-world country professors and it was a very difficult road. They would make life very bad for the young women because the young women—. I think, if I could paraphrase that first guy, you're taking the seat that belongs to a man. I mean, I think that's the third-world country approach, actually, is that the women are not qualified and should not be there. And so us women tend to get more overqualified and have to perform at 300% above what the males do, and then we establish ourselves. Otherwise, if you're just at a par, it's like, you know. (groans)

It's better. It is definitely better. You know, they will take your applications. It's wonderful. They come to SWE if they want women engineers, and my heart fills with joy. [31:00] And, in fact, the first SWE conference that I went to was when I was with Aerospace, and they had me go for recruiting. And so I arrived, and I remember it was actually—it was held at the Disneyland Hotel. (laugh) It was in 1981 or something. And I went there and I came down the escalator for the registration area. And I looked down there and I saw women engineers. In tears again. (laughs) Tears start welling in my eyes. I was moved. I did. Tears were streaming down my face. I said, "These are other women engineers." Because

when I was at school, I didn't really see any others. I mean, you know, they dropped out and there wasn't anybody. And so here I was at SWE, looking down the escalator, coming down and seeing this whole world of hundreds of wonderful women engineers that were just like me. [32:00] I finally found somebody just like me. I just was so touched that there were others like me. I had felt so alone. And—.

TE: What was it like at Aerospace? Were there many other women? Or—.

RG: Yeah, technical women. At that time, not that many. And Dr. [Eberhardt] Rechtin was the one that was kind enough to make sure that we got more women engineers because he knew they existed. And so they had a special recruitment, and then when they did the internship, they—fortunately, the women had talked to Dr. Rechtin. He said, "Yes, you can." And so they brought me in as a—. There weren't that many women. In fact, when it was time to accept a salary and be working for them—when he called, when Jerry called me with the offer and I was on the phone—and I didn't know prices or costs or anything. [33:00] And he says, "You know, it's X number of dollars a week," and I said, "Oh, okay. I accept." And he says, "I've got a bridge I could sell you. Would you like to buy a bridge?" (laughs) I said, "Oh, my God. Did I—should I have bargained with you?" He said, "Nope. You already said yes." (laughs) I said, "Oh."

And so then I wondered why this was such a low number. So I asked my husband. He said, "Oh, that's less than my secretary earns." And so things were not that good. And then at that point, in future times, in going through the

company—and I've been there 30 years—my bosses would say, You don't earn enough. And I said, "Fine, give me a raise." They said, Well, I can't. And I said, "Well, this is very interesting. You mean, I have to change companies and come back to get a raise?" And they said, Yeah, you'll come in much higher because you're worth so much more than we pay you. [34:00] And I said, "Well, just give it to me. I don't want to go through this emotional upheaval of leaving the company and coming back again. That's—why can't we do things like just give a raise so I can be with norm?" And they said, We can't do it. So, various aspects of it—one was, actually, from a woman's perspective—. We had one of the vice presidents that was antagonistic, possibly you could say, towards the women engineers, and he would never approve it.

So you run into things. But now it's much better and they're a wonderful company, and I would have left if I'd been that grossly unhappy. It's just the money would have been a lot better. (laughs) But it's a wonderful company. They do treat their women very well now. We have a lot more technical women. Not that many, though, because when I asked the vice presidents, "Well, how many women engineers do we have now?" They don't know. And I think, Oh, you should know that number. (laughs) [35:00] That is a real important number. I think we probably, oh, it has to be—what's it now? Is it 11% [of engineers are women] that I was just reading in the workforce?

TE: That's about right.

RG: Yeah. And it was when I got real active in SWE, when I was national president, it was down around 9% or something like that. And I was trying very hard to—you know, I wanted to see the number beefed up. And it's sort of discouraging that we can't get that number to really go up where it belongs. And it's a matter of being difficult because when young women—they have studies that show when they get to the high school age they have the same courses as the guys do. They have the same grades, if not better. And when it comes down to what they're going to apply to for the university level, they don't put down engineering or math or science. [36:00] It's just that we haven't yet got the world to understand—the whole world to understand—that engineering is a fun area to work and it's really exciting.

And as I told the Girl Scouts when I was doing a Girl Scout fair for the Air Force—because the Air Force asked me if I would represent them, space and missile center. About 5,000 girl scouts were there in the Los Angeles. (laughs) They're all waiting in line. One comes up, says to me, "Wow. Okay, why should I study engineering?" And it was very cute. It was a big girl, too, and I said, "Well, I'll tell you. I think you probably have a real good choice. You could earn a real good salary at a manager at McDonald's. But you'd never earn more than what you do there. But if you get an engineering degree you'll always have a good income and you'll always have fun." [37:00] And so she said, "Oh." I said, "Do you like flippin' burgers?" (laughs) So she was cute. She thought she was going to be saucy about the whole thing. I thought, Well, I'll be saucy back. (laughs) But

the other ones, the younger ones were really, really cute. And oh, they just loved to hear every little story about when I dealt with the astronauts and had all these wonderful—. I said, “That’s what you do when you’re an engineer. You do all sorts of fun things.” (laughs)

TE: Can you tell me about some of the big projects that you have worked on at Aerospace?

RG: I’ve had some really—. The biggest one—and then I’ll go back to some of the, you know, fun, fun things. It wasn’t that it wasn’t fun, it’s just I was in charge of half of a billion dollars worth of software for a satellite. [38:00] And that was interesting in itself, and it has a component of it that relates to specifically being a woman engineer. I, of course, did a little bit of graduate work in computer science. I’m a perennial student. I love to go back and take coursework. So of course, I’m taking coursework. So I had a background in computer science, and I had studied it, you know, to some level. And so when it came time that they were parceling it out, we had a small team working this very, very big contract. And what we do is oversight for the federal government to make sure technical things are being done properly for the government. And specifically the Air Force is the one who is the acquisition people for the—they provide the technical expertise. [39:00] And, so, when it came time to work within the program office for this new satellite, they tapped me to be in charge of the software, which is about a half a billion dollars, which was huge in its value.

And it came out later—in fact, the colonel had come by continually saying, “Roberta, you’re doing a fantastic job. We really appreciate it and we thank you for doing it.” He said, “This software crap”—that’s what he would say. He called it crap. (laughs) He said, “I’ve got to get rid of this software crap.” He said, “Stop bringing it up.” You know, because it was in terrible shape. (laughs) It could be that what they did was—I found out later they gave it to me because they felt it was not as highly valued as other aspects of the satellite. And they gave it to me because I was the only woman engineer. And it ended up that—besides managing that, then they said, Oh, you can do all of the systems engineering, too. [40:00] I said, “You need a staff of 20 to do that. What are you talking about? Me, myself? I’m struggling with my three people helping me with the software and my—." Because we have people who work within specific disciplines, you know, and then are in a different organization than the program office that deals with the top level of it all. And he said, “Oh, well we’ve decided you’re going to do that, too.”

And I recognized later—because I was, like, right away turning my wheels, saying, How can I best do this job and be able to do all the software as well as all the systems engineering. It just blew my mind because I know what’s required of those areas. And I’m thinking, Well, I’ve already got the marching orders. I’d better make sure it happens. So I was busy churning—as women usually do. Women engineers are already—because they’ve got a mandate, they will do it. [41:00] And so yes, I was going to do it despite whatever odds were against me

in that. But I realized when I sat back and thought about it, I thought, They would not have done this to one of the male engineers. They would definitely not have. And the male engineer would have stood up and said, “Are you crazy?” (laughs)

And so women engineers, we tend to be accepting and try to work within the confines of what it is that we are mandated with. There’s a good point and a bad point to it. And, as the years have gone by, and now in my advisory role as I am with another satellite program—GPS, a new build of it (laughs)—I am a lot more outspoken and a lot more candid about the repercussions that you’re going to have from doing various technical aspects that don’t fit within what are the best interests and conservative approach that may be necessary in that instance. [42:00] So now—if that happened to me now I would say, “Uh, no. I think you’ve got it all wrong. You need another team to be working on the systems engineering and, by the way, I need ten more people.” Because I really did. (laughs) In those days software people were really hard to find.

But then I had some projects that were very interesting, where I worked payloads that the Department of Defense—going through, again, we're in this domain of the Air Force acquisition. And these payloads were sensors and things of that nature, and they were on the space shuttle. So we were flying at that time—before we had the major disaster—flying payloads on the space shuttle. So, I was working with the astronauts who were going to be doing the payloads. And I would have to go to Tampa or something like that because of the university there. [43:00] And I would talk with the principal investigator who at the university

level was creating it. And then I would have to make sure it worked well with the DOD, what we wanted, as well as with NASA, with the space shuttle and the astronauts dealing with it. So it was really exciting and fun.

And then I did—because the chemical engineering, every piece of one's background plays in. The broader your aspects are, the more interesting it gets. And my chemical engineering was brought to the fore when I was dealing with monomethylhydrazine and nitrogen tetroxide and unsymmetrical dimethylhydrazine, which are propellants for the space shuttle. So I was very excited that they asked me because they had—. Again, they have trouble, they turn to the woman engineer because no one can figure it out. They had been very unsuccessful at it, and they figure this is better than nothing. [44:00] We'll find out if Roberta Gleiter can come up with something. And sure enough, of course, that's my forte, to find solutions. (laughs) So I say, "Oh, okay." What they were doing was making a propellant handlers ensemble, which is like a spacesuit. It truly is, because it has to be one that these horrible acting chemicals cannot permeate it, and get into the person. And it's a self-breather, and you have to have your air supply with you, and it's—. They are putting together new suits for the propellant handlers.

So I was dealing with the people who actually made these suits for the astronauts in Delaware, because they were doing the propellant handlers ensemble. But we were having difficulty because it was a joint program between the DOD—Department of Defense—and the NASA people. [45:00] And it had to

be joint. So they were—the contracts people were not talking to each other. There was just—they were talking past each other. They just weren't able to just communicate. So I saw that as the first step that I needed to do. Before we did anything else I had to get that resolved. So I did go and take it upon myself to go talk to their contracts people and their legal people. And I had the backing—I told the Department of Defense people that I'm going to do this, and they said, Good luck. (laughs) And so I did. I went over and I worked my way in with these people. They respected what I had to say. And then I went back to the DOD people and I said, "But they said this, so it's okay. You know, we'll listen to them now. This is what they say, and I said what you said—." And I'd go back and forth, back and forth. And I got them to agree, and so then we moved forward. [00:46:00]

And then I did all sorts of fun things again at the Kennedy Space Center and Cape Canaveral Air Force Station—were working with them and it was very successful. And actually I got an achievement award—actually, in those days it was $1,000 and that's a lot of money (laughs)—as recognition for having solved a very difficult and tedious problem and had a successful end. So I had exciting things happen.

TE: Excellent. So, you said that in 1981, you went to go represent Aerospace Corporation—

RG: Yes.

TE: —at the SWE conference.

RG: Yeah.

TE: Was that when you started to get back involved in SWE?

RG: Yes. I had forgotten all about it, to be honest with you, because there was—nothing ever came to me in the mail reminding me about SWE. If they had, I would have been probably absolutely thrilled to tears, and I probably would have broken down in tears. [47:00] Because I get emotional about that women in engineering thing and I felt so alone during those times. But actually that would have been a wonderful thing to have—if they had, like, sent a magazine to me or something. Or, you know, gone back in their old rolls. And that's one of the difficult parts. And I know when I was national president I wanted to make sure that we reach back and find a way to touch back.

And, as a matter of fact, we had a wonderful program that I had laid out but I couldn't find a volunteer to do it. And in those days we didn't have a professional staff that's falling over themselves with nothing to do, so—. (laughs) It's terrible, but that's what it is. (laughs) There's so many people now, and before I couldn't even have anybody that would just pick up the ball and run with it because I had money already donated and everything that they said, once they start the project, to reach out. [48:00] To be able to disperse the magazine in areas that would be reaching high school students as well as being in the public libraries to make

sure that, you know, when I went to the library I could see a women in engineering magazine, and I would have been just out-of-my-mind happy.

So I had a program all laid out, but there were many programs that I had in my mind that I knew would be good. I actually got funding for it, but I couldn't find volunteers because everybody's busy. They're busy working. So I understood that, too. But it would have been nice to do. (laughs)

TE: When you first joined SWE again, did you think that you would get involved in SWE leadership? Did you want to do that from the beginning, or how did—how did your desire—

RG: Ah, to come into leader—

TE: —to come into the SWE leadership come about?

RG: Yeah. [49:00] Back then, we had actually no exposure to—back in the fifties—there was no exposure to the SWE national. I mean, they were struggling to keep their head above water. And so there was no exposure and no understanding that there was really a national thing. We were this little tiny group here and studying hard in all the different disciplines, all the different concentrations, so we weren't even in the same schools or anything. And that was just us, so it was like a little isolated island, so you didn't have visibility. And then when I came and I was so deeply moved by seeing the other women engineers, that I said, "Well, I have to make sure that this is a successful organization and contribute." So then I would do things for the local section. I would be program chair, or I would do

scholarships, or I would try and get corporate members to give things and support different efforts and do roundtables. [50:00] I did all that sort of stuff and then I thought, Well, I can do something at the local level. So then I became president of the local Los Angeles section. And that's when they said, We need people like you in the region, running the region. I said, "Well, we'll see about that." (laughs) So then I did get active in the region, and then I was the region director. And then when I got on the board of directors, I saw that we had some wonderful leaders. I mean, Ruthann Omer, Kathy Cunningham. We had some just marvelous leaders who are now, actually, dear friends still. We always get together. I respect them, and they respect me, and it's great.

But there were some initiatives such as I mentioned. [51:00] There's many others, actually, that came to fruition. There was a program that—I forgot what I called it. But I gave it some name where I would have the corporate people come in and create an—I called it a kind of advisory committee—where they would be able to donate. Because at that time we didn't get big donations. One of the biggest donations we ever got was when I set it up before I left as national president. And that was from Exxon. That was our big grant. That was the very first one. The president after me was—

TE: Sherita Ceasar.

RG: Yeah.

TE: Yeah.

RG: That was my initiative to get that money in, and Felicita Saiez was the one who had been working with Exxon and making sure that we got that money. So I was thrilled. [52:00] With a lot of things, I believe that you need to introduce it to a body three times before it comes into being. That initiative I did because I said it has to be done. Some things had to go through the board, and the board—like I wanted to turn us international. We were going to have an ICWES [International Conference of Women Engineers and Scientists] jointly with them as a feeling so that we could spread our wings. That was turned down by the board of directors when I was national president. We had a lot of people on the board that didn't have a vision and were very young. They really were not steeped in women in engineering and understanding the greater world around us. That got rejected. Later, a couple years later it was brought up again. I think it got—then it happened. So my sense of it is it's a three time thing. My advisory board—now we have that body. They call it a different name. But it was rejected soundly, just absolutely. The board said, "Oh, you can't possibly." [53:00]

So there were certain things I did, though, where as a president you can do things. Such as, I felt very strongly that we needed our president, national president, to have an identification that when you saw something on her you knew she was the national president. So there wasn't any ambiguity when she comes speaking somewhere, and I felt a larger-size pin. So I went and I designed what I thought it should be. I asked Arminta Harness if she would be kind enough to design—, "Arminta, would you design this please? Here's what it

will say." (laughs) I know it's terrible. But, you know, if you're going to do something you've got to hand feed it. So she was just so sweet and she made a cast, a wax casting, you know. [54:00] And it was the little pin, and we discussed the number of emeralds, you know, that we wanted to have on it and things like that. So, that was my design and my creation. But I didn't go to the board and say, "Can I create a gold pin for the president?" This is something I thought the Society needed, so even if I had to pay for it myself, I was going to have the Society have a national president's pin. (laughs) Because you go to Europe and the British women engineers, I mean, they have this humongous thing that they wear, you know. And I thought, Well, our president should have that. So it took a whole year to get it done, so that I wore it for I think one day or two days before I handed it off to the next president. Because I felt very strongly that the president should have this pin. So that's how the president's pin came into being.

So I did things that were, you know—I thought that the major forces that really should be the domain of the board, that stayed there. [55:00] But some of the things for the Society that it needed to grow, such as—you know, we had a Resnik Challenger Award medal. Well, I got a hold of people at NASA and talked to their executive director and I said, "I've been to your facility, your brand new facility with classrooms that you have at the space center, at the NASA center." I said, "I see that there's a corridor where students are walking down this corridor. I want every woman walking past, every woman student, young girls going past there to see the Resnik Challenger with Judy Resnik's picture there and our

medal. The Society of Women Engineers in big letters on it, so that they know that women engineers exist. They've maybe never heard the word. They never thought of it before. But when they walk down this corridor at NASA, they're going to see women engineers, and it's going to say Society of Women Engineers. [56:00] So he agreed with me, bless his heart. (laughs) So I held one of my board meetings there at that time and I had my company—bless their heart for doing this, the Aerospace Corporation—but they made this beautiful, beautiful—. We got the medal and it was photographed, and we had this beautiful card, and we had it framed then, and it had Society of Women Engineers very clearly on there so that the students could see. And at the board meeting—then we held the board meeting at NASA and we made a presentation to them from the Society of Women Engineers, and it's hanging now in their hallway there, for years now. And every young woman that walks past sees Society of Women Engineers.

So when I was president it didn't appear that much was happening. Everything got voted down. But but the things that I said, "It has to be done," I'm doing it. (laughs) [57:00] But there were initiatives like that, that you know—. Like I say, some of the things it just took time, sure. It took three iterations, and then it happened. And thank God we're there. I think we've grown, we've expanded, we truly have achieved so many of the goals that I had for myself. Because in those days, we picked out mantras for ourselves. When you start your presidency, this is your mantra. Well, like Ruthann Omer's was "Back to Business Basics, Baby."

(laughs) The three B's, you know. (laughs) Business—because at that time, we didn't have two nickels to rub together, and we were in the red. So, she got everybody alive with this stop throwing money around thing. Mine was "Reaching Out For Success," because the Society walked around with a bushel basket over their head for years. Everybody was afraid. Oh, we can't go international. [58:00] We can't do this. We can't do that. We can't ask them for that. We can't have an advisory council. We can't—. Well, yeah, you can. And so, mine was "Reaching Out for Success."

And prior to my presidency, none of the presidents really went to any region conferences unless it was theirs, and that was it. There was not an acknowledgement that a national existed, as we had chatted about a bit there. How did I feel about national? I didn't know there was a national. In fact, when I was in the section, national was a thing out there. Who knew? And region meant, now you're a part of the board because you're leading the region and, "Oh, oh well. We've got work to do here." (laughs)

So the thread goes through to the national, and when I was national president my goal was reach out. [59:00] I am going to go to every region conference that the Society has. Well, my company didn't have money to support me, so I took my retirement money out, and I went to every region conference and I gave a speech. And they didn't know national really. They were shocked. They were shocked beyond words. Now they have provisions made. I was just talking with Fran [Stewart?] and she said that they've got provisions made that leadership on

the board, they have to have someone at each one of the regional conferences. And I said, "Ah! Bravo!" We finally got there. I mean, it's 11 years later, but I just think that's wonderful because that's what I was aiming for, to set an example. I figured if I spend my own money and I go do it, maybe next year. And, of course, it didn't quite happen that way, but that's okay. It's grown into it, though. The example was there. Somebody did it. Oh well, maybe we should do it. [01:00:00] So now there is a much better recognition of the national component, and it really is important to the Society's health and future to have that national.

TE: How did these leadership positions in SWE—particularly when you were president—how did that influence or affect your career—

RG: That's a—

TE: —at Aerospace?

RG: That's a very interesting question, and I think it's—. My experience is probably as typical as most, except for some of the bigger companies that—I don't know, I'd have to talk to them individually because then you get the straight scoop. It was very interesting. I was doing it because it was my mission to make sure women knew about SWE and could take advantage of SWE and not go through what I went through. That was my goal. [01:01:00] So I was going to march along that path, and so the company at the very top level was supportive.

But when you got down to the working level it was another story. It was interesting because I'm a workaholic, so it wasn't a problem for me. I mean, I was

traveling on weekends for SWE, doing things for the Society with my own money because the company couldn't provide it. They had restrictions on—because the nature of the (inaudible). But I was going to do it anyhow. My bosses—although I was doing more than any of the other engineers were doing with similar positions doing similar positions. Much more. More responsibility, more travel within the company to go and do the on-sites for the government over the contractors and everything. And yet my bosses would regale me. Why are you doing that dumb SWE thing? [01:02:00] I think he just maybe had a bad experience with his wife or something. (laughs) Because there was no rationale behind it. It was an emotional response.

So, at that time, our management was the older guys who—you were either a wife, a mother, or a sister. That's how they treated you. And so they were very much against my involvement at the lower level. Well, they were actually very much—. (laughs) But the very top was supportive, saying, Oh, how wonderful to go for it. So it impacted my career, unfortunately not positively because of the nature of the management that I had. It wasn't SWE. It wasn't me. It was—they were victims of their own upbringing and their own biases. [01:03:00] And it was their shortcoming, and it was too bad. But, I accepted the negativism because I had this mission. And I was going to do it.

And then it happened that one of my colleagues from my early years who was the next office from me, Dr. Wanda Austin—wonderful, wonderful engineer. She was in ascendancy within the company, and we are—it's a male-dominated

company, needless to say. (laughs) And she spoke up at meetings of the management about SWE and that we should be recruiting, and we have to be going, and (cheering) rah, rah, rah. Bless her heart. Well, Wanda now is the president of the corporation, president/CEO. First woman. She's Dr. Wanda. Yea, team. And, you can believe that people better watch it when they say something that's negative about SWE. (laughs) [01:04:00] There's no way that anybody's going to say anything. Dr. Austin is a recipient of the Upward Mobility Award, when she was just made a vice president or something like that, which was unprecedented in the company. So and then to have made it into the president/CEO was just like, it blew everybody away. So it's wonderful that SWE is just golden because she knows SWE. She's always been a part of SWE. A part of my local section. (laughs)

TE: We've talked about your leadership experiences with SWE. Can you tell me—I know that you're very interested in outreach to younger women. Can you tell me about your experiences with that and why it's important to you?

RG: Yeah. [01:05:00] I always seem to go back to my own grassroots, which are—I don't want any other young women to have to go through what I went through. (laughs) And it is wonderful to be able to help. There is a young woman that sat down next to me and said, "You know, could you help me?" And I said, "Yeah, give it a try, whatever I can do." And then she told me about what was taking place. Oh, she was in Bakersfield area, and a major, major oil company had this young woman engineer, good looking—we're all good looking. (laughs) By

definition, we're women engineers, we're all good looking. And they had her out in the oil field itself. She was new at the job, new at the company, and they stuck her out in the middle of Bakersfield oil fields where there's nothing but little huts where you live in. [01:06:00] Well, they had roughnecks there, which is to be expected because those roughnecks do the hard labor and the work. And she was the one who was supposed to be directing this. I looked at the company and said the company is at fault in this case. It ended up that one of them would get her going when she wasn't in her room, and they would—her little hut—and take her underwear and stuff and they'd be parading around with it and threatening her and saying he was going to get her some night or something. She was petrified.

She was telling me about—that this was happening, what should she do? And I said, "I'll tell you my gut reaction is don't go back there. You go to your management." She said, "I already told my management." I said, "Okay." I said, "Well, you've got to protect yourself. [01:07:00] So, do you have any companies that you've dealt with on the side, so to speak, in this job? You know, the supporting Halliburtons or whoever?" And she said, "Yeah." And I said, "Well, first thing you're going to do on Monday morning is call them, be nice, and say, 'I'm going to provide to you a letter, a recommended letter, or contents that you could use about me. I'd like a letter of recommendation.' And I'd get this to you, and you can have it, you're going to work on it—." I said, "You're going to go home and work on it this weekend and you're going to have it ready, and you're

going to provide it to them. And you're going to get them to sign it and then you're going to—each one, try to find a number of them so that you have letters of recommendation." I said, "Then, now you have letters of recommendation in your portfolio, you are going to now go to the upper management. And you're going to do it in writing, and you may want to even have legal involved with it. But you're going to let them know that they have a bad situation, and you've been subjected to this. [01:08:00] I'm not recommending that you go suing people because it can hurt your career. But, nevertheless, you're going to help other women engineers, that they're not going to put a young engineer there by herself." It ended up that her grandmother came and stayed in this little hut room to protect her.

TE: Oh.

RG: Because it was so frightening and so bad out there. So I felt I helped her and she, of course, (inaudible). So reaching out is just—it's a one-on-one proposition, it really is. People who are in need will usually find you, and you just have to play with your gut feeling. Is this legitimate? Is this good? Can I help with this person? And so reaching out is a very fulfilling and good feeling that you can help somebody. [01:09:00] But it's a woman engineer, fantastic. So the reaching out is a critical component, I think, of an organization. And when I gave my final report—when I finished my presidency—to the membership—. At that time, we had membership meetings where, you know, everybody came and then you brief what you did all year. And when they saw the whole picture, there were a lot of

SWE members that were motivated. I had a lot of SWE members that I didn't even know personally who came up to me and said, I am so inspired. I want to be national president. And I said, "Great, that's what we want. We want a good, broad spectrum of people who want to lead the Society and take it to bigger and better things." [01:10:00]

So reaching out not only goes to the external but internal, to reach and bring people into leadership positions so that they say, Gee, I like what you did. I'd like to do it myself. And that told me I didn't need anybody to say, You were successful, Roberta, because it made no difference. I knew what I had done. It didn't make any difference, with the leadership thing that I designed, and then the next year it was like, this is my leadership pin. Sherita said that, and I thought, Where did she come from? I designed that last year. I had the first leadership conference ever they had for the Society, and I thought—. Because I wanted the leadership for the Society so that they could talk to each other and grow. And so we had the first leadership—it was a conference. We had everybody there, and I designed a pin, and I had them made, and I handed them out. [01:11:00] In fact, I probably have it with me. (laughs) I had it put down 50 years, although it was just prior to—as it was going into the 50th year. We had completed 50 years when I was president.

So it was the reaching out again, but within the Society, and then providing tools for it. And so I wanted everybody to look at the pin and think of leadership and SWE and what they could do. So, actually, if I could put the record straight, the

first leadership was in 1999 when I was there in my national presidency. (laughs) Sorry if I had to get in a plug.

TE: No problem. Now, after you finished your presidency, you started the Global Institute. [01:12:00] Can you talk about that and some of the projects and programs that you worked on through that?

RG: Oh yes. When I was national president, I was watching also—being the systems-type person. I was watching the Society as to how it uses all of its resources. That's an important thing. How you use your resources determines a lot about your organization. And I recognized that we tend not to—we changed a little bit, we started doing a little bit more, and I'm so pleased—pull in our resources of past national presidents, past region directors, past governors, pull them in and keep them involved. In those days, 11 years ago, they didn't do that. [01:13:00] You were expected not to continue being involved because you finished your leadership, now someone else is going to do it. And I thought, Oh, that doesn't make sense to me from a management perspective. But I thought, Well, whatever the Society wants is great with me.

So I had all this energy and all these thoughts still of reaching out, and I recognized that whenever—I'd be standing in line at a hotel, people would laugh at me because—people that knew me, SWE people, they would just be howling. I would be standing behind somebody and then somebody would—even if it was a man or a woman, it made no difference—they would start talking and I would say, "Yes." Well then I would start talking about the Society of Women

Engineers, and I'd say how wonderful it is, and great people and doing great things. And they said, Well, gee, it's a great organization, and I'd join if I were an engineer. And I'd say, "Oh, you don't have to be an engineer, you can become an associate. Here, I've got a form for you." I'd be pulling my pocket, I carried it with me. (laughs) I'd be saying, "Oh you, here, right, fill it out." We got a lot of people to join. [01:14:00] I got a lot of people to join that weren't—. (laughs) I said, "You know, you can't vote, but that's okay. You can support our organization. Your company will—you know, it's a good affiliation to have with the Society of Women Engineers." So I was always proselytizing, saying, "Oh, women!" (laughs)

So I had all this energy and yet I knew that, you know, the culture of SWE was at that time that you were past leadership. You are past, and that's it. And also when I talked to people and they'd say, Roberta, I'll do anything for you but not join. I don't want to join another organization that I'm going to feel guilty about not going to meetings. And I said, "I understand that." So, I put that in the back of my head. Then the other thing that caught my attention, particularly in those days, is that young men were—they were not part of the Society. [01:15:00] So I thought, That's dumb because what we really want to do is have the young men recognize and accept women and see these bright women and say, Oh, we can work together.

So there are a couple components that I looked at, and I said, "Oh, certainly I can do something positive with these disparate pieces." And so that's how the Global

Institute for Technology and Engineering came about. Because my treasurer said that she would join me, and she said, "But I don't have time to do anything." No one ever has time to do anything. (laughs) So, I said "Okay, you know, I'll take care of all the paperwork for the 501(c)(3)." And so actually I did the package myself because a lawyer wanted $5,000 to do it, and we had zero dollars. (laughs) So I said, "I guess I'll do it." So I spent six months of my life writing the 501(c)(3) papers. [01:15:00] And I talked to a lawyer friend who said, "Oh, Roberta, it takes, three/four times. You're going to have to keep on reapplying because they're not going to take what you do. Are you sure you don't want to have a lawyer draw it?" I said, "If I lawyer can do it, I can do it." (laughs) But it was successful. It was six weeks after I applied to the federals with the IRS for the 501(c)(3), I was accepted. My package was perfect. In fact, in retrospect, I gave up six months of my life. (laughs) And I wouldn't pay $5,000 for somebody to do it. (laughs)

So that was the beginning of GIFTE. We opened it up to young men, focusing on young women. It's not membership. It is strictly people who have projects that they would like to do, onesie, twosie things. If they want to do more all the time, great. We support it. [01:17:00] We sponsor little Lego teams—the all-girl class, they don't have any funding, we'll find some funding, and we sponsor them so they can have their Lego contest and then go to FIRST Robotics.

Because I judged at FIRST Robotics from the onset. You know, it was a wonderful experience. I was the woman judge. The only woman engineer judge.

(laughs) As a matter of fact, I'm still up there. The first time there were three astronauts that were there, and I was chitchatting with them because I was familiar with NASA, having had my experience. I was chitchatting with them, and they had us lined up, and then we'd come across the stage. And there would be thousands of high school students sitting out there at Disneyland, because that's where they used to have it all the time.

And so they called one of the astronauts up. (inaudible) [01:18:00] And then they called me up, and I get up there and they introduced me, and this big cheer comes up. And there is just an upwelling, and they're clapping their hands, and they're—and I'm looking around to see who they're clapping for because it sure as heck wasn't for me. (laughs) And then somebody behind me says, "That's for you." And I said, "Oh!" (laughs) So I start waving my hands, big, proudly, to acknowledge the students. And they're standing there cheering and yelling and clapping. And I was floored. And it was because I was a woman engineer. Because they mentioned the Society of Women Engineers and, of course, I was an engineer with the Aerospace Corporation. And they appreciated the fact that I was a woman. I was so touched. And we got done, we got off the stage, and the three astronauts got around and said, Roberta, we're not used to being upstaged" (laughs) [01:19:00] So I said, "Oh, I'm sorry." (laughs) I was so floored. I was so sure they were cheering for somebody else. And then, when it came to me that it was because I was a woman engineer, my heart filled. I was very

touched after all those years of rejection. And then, to have these wonderful high school students cheering at the FIRST Robotics competition—.

So, anyhow, we sponsor things like that, GIFTE does—Global Institute for Technology and Engineering, GIFTE. We had to craft the name. Very difficult to find a name that, when you put it on the Internet, is not going to come up with weirdo stuff. (laughs) Oh, and if you have "women" in it, it's particularly difficult. So that's why it doesn't have "women" in it, because we found that that was an issue with a lot of different organizations. [01:20:00] So when we came up with the Global Institute for Technology and Engineering, it doesn't have "women" in it, but it's focused on women and for the successes of women. We keep on talking about having a special event that would be broad-sweeping and bringing some teachers in as well as then accomplished women engineers and have special awards. We haven't done that yet because we're all working engineers, so it's sort of difficult.

But it's very exciting and very wonderful to reach out in so many different ways, and golf tournaments and stuff where you can have a young woman engineer that's either just starting her engineering career or is a student to go actually on a golf course. Because that's where a lot of business is done, and it'd be nice to be on a golf course one time before you're in a position where you need to be networking. (laughs) So it's things like that. [01:21:00] You know, it's onesie, twosie things. And so we give panels and international things. We give a class in Paris with Virginia Tech and who else? And the other—Embry-Riddle. We did

that. And then ICWES, we give panels, standing-room only panels because we've got some really interesting women engineers that are talking.

So GIFTE has been a delight. It filled a lot of areas that I saw that needed attention. And so that's where GIFTE came out with. We're not a membership, so it's very difficult to—we oftentimes said, Well maybe we should become a membership. Then we'd have a lot of money like SWE. No, we're strictly there to serve. And that's—AAUW will call us and say, Roberta, can you get some engineers? [01:22:00] So I'd get some Air Force officers who are also engineers, who are also women of color. And I have them go and do things for the different classes, for different students, and teach them about aerodynamics or something. Whatever, you know. Fly paper airplanes. We made the headlines in the paper with our paper airplanes that we had, the students with a contest. And I take the stuff from the SWE conference and I carry all the junk home. But that junk is valuable because I give it away to the students. But, it might—AAUW in this case, the Brighter Horizons thing—a huge bag of stuff, and I had the students stick their hand in it. It's all these fun things that you pick up at a conference. So the students just love it. So it's great.

TE: Alright, well, we've been talking for quite a while.

RG: Oh, I'm sorry! (laughs)

TE: So is there anything else that you would like to add before we end our interview?

RG: Oh, well, let's see, I would definitely say that I'm thankful that I had SWE in my life. [01:23:00] I think it's a wonderful organization and I'm just absolutely thrilled. And I often thought, Oh, it would be wonderful if we reach a world that we don't have to have a Society of Women Engineers that was existing so that women engineers would have a place to network. And I have concluded that we always will have a place for the Society of Women Engineers in our society. It's a meeting place, a networking medium. There is a unique aspect to being a woman in engineering. We're never going to make it 50/50. It just isn't coming. I don't see it to be. And so, I think SWE is extremely valuable to our society in general, and that it will always be a valuable tool for all the women out there. And even if they're not women engineers, they can join. (laughs) They just don't vote. It would be good for them. [01:24:00] So yes. And I would like to add that because I believe in my heart that the Society of Women Engineers is something that should go on forever.

TE: Okay. Well, thank you very much for this interview, and this is the end of the interview.

[END OF INTERVIEW]