PROFILES OF SWE PIONEERS

ORAL HISTORY PROJECT

Suzanne Jenniches Interview

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Suzanne Jenniches

Suzanne Jenniches began her career as a high school biology teacher after graduating from Clarion State College in 1970. She transitioned to industry in 1979 when she received a master's degree in environmental engineering from Johns Hopkins University. Jenniches conducted extensive postgraduate work in Defense Decision Making and International Affairs at Catholic University and has attended the Harvard Business School Program for Management Development and Executive Management. A leader in manufacturing innovation and producibility engineering for Northrup Grumman Corp. for more than 35 years, establishing many "firsts" for women within the company and receiving several patents. She retired in 2010 as the vice president and general manager of government systems division of the electronic systems sector. A Fellow of the Society of Women Engineers, Jenniches served as its national president from 1988 to 1989 and is a recipient of the Society's Distinguished New Engineer Award and Achievement Award.

In her 2003 Profiles of SWE Pioneers Oral History Project interview, Jenniches discussed her early education and introduction to engineering; her career working on numerous projects at Westinghouse and Northrup Grumman; her philosophies regarding career planning, guidance, and work ethic; and her involvement in SWE since 1978.

- July 2016

INTERVIEW WITH SUZANNE JENNICHES, MAY 29, 2003

LAUREN KATA: This is Thursday, May 29th, 2003. This is an interview with Suzanne Jenniches, past president of the Society of Women Engineers, and Vice President and General Manager of Northrop Grumman Corporation, Government Systems Division. This is an interview with Lauren Kata, for the Society of Women Engineers. We're in Baltimore, Maryland. And I would like to start first by thanking you for participating.

SUZANNE JENNICHES: Oh, thank you for selecting me. It's a pleasure to be able to share my varied experiences, good and bad, with women who are interested in engineering so that hopefully they'll be able to have a smoother path to success than some of us who started out in the beginning did.

LK: Can you begin by talking about your early childhood and family background a bit?

SJ: Yes. I'm the oldest child of three children. I have a brother and a sister. My parents had their own business. They both graduated from high school, but did not have a college degree. My father had done studies through a correspondence trade school and my mother had done some -- what now is called administrative assistant, you know, secretarial kinds of studies. But they had their own business, and they worked seven days a week, and long, long days, twelve, fourteen-hour days. So work

ethic was very much a part of my early childhood. We all had jobs to do. And we lived in the country, so we had to create our own excitement, our own diversions. And we were used to just being serious kind of people.

I was thinking about my childhood the other day, in preparation for this, and I remembered that every Christmas I would get a power tool as a present from my father. And he was a mechanic, and he had a service station garage, and my mother worked there supporting the garage and doing the books, and keeping like a little store that they had in the service station. And when I went to college and then got married, I brought, you know, sanders, circular power saws, miter boxes, you know, drills, you know, all kinds of electronic power tool equipment to the marriage, and my husband did not, because that was not his experience in his childhood. So I grew up being very hands-on, somewhat mechanically inclined, although I'm not a mechanical engineer, but expected to fend for myself. It was a great childhood. I didn't, of course, know anything different at the time, so I didn't realize how formative it was.

In school I was always very technically oriented, but I say to people, I don't think I ever heard the word "engineer" until I was age twenty-three. I already had a bachelor's by that time. I went to a relatively small country school, public school. My

guidance counselors did not mention engineering to me. Now, I know that there were other boys in my class that did go on to study engineering at the undergraduate level. I don't know whether they just stumbled upon that on their own, or whether they were given some guidance. But because I was technically oriented, my teachers and guidance counselors encouraged me to go to college, which was not the tradition in my family. You know, my mother and father had not gone to college. And you know, I sort of dismissed it.

And in fact, it was interesting, I was in my senior year, it was actually the spring of my senior year, and I hadn't selected a college. And so I did have a guidance counselor who was a little concerned about that. So they made me go and take a scholarship like exam, you know, one Saturday. And then when a small state school from Pennsylvania came to the high school to interview prospective students, they pulled me out of math class to go down and interview with this state school. And so at the end of the interview, the college recruiter said, "Well, would you be interested in coming to Clarion [University]?" And I said, "Well, sure." (Laughs) And so that's how I decided on my college.

Now, they didn't have engineering at Clarion. I was technically oriented, so the two choices that were sort of open to me as a young person was to be a nurse or to be a teacher. And so

this was a teacher's college, so I went to study biology, which was a technical subject, and to become a teacher. Now, as it turns out, one day I was home and I picked up the mail, and lo and behold, I got a full scholarship as a result of this guidance counselor sending me off to take that exam. So I got a full state scholarship. So then there was no question but that I would go to college, and I would go to Clarion, because quite frankly, I hadn't filled out any application forms anywhere, so they would take me. And I was ecstatic. And I can remember as a child when I got that notification of a full scholarship, so I knew, you know, my parents didn't have to pay, I danced in the front yard, I was so excited! And my expectations were that I would be a beautician, which is a very honorable vocation in Western Pennsylvania, but never did I ever think of becoming a teacher or becoming an engineer or becoming a vice president and general manager. So my whole childhood was a series of bumping into fortunate experiences. And so that's why I'm so active in the Society of Women Engineers, is I really want young people not to have to bump along, but to have people that help them along the way.

So I would say my early childhood was a wonderful childhood, but from an engineering education and career planning point of view, it's one of those things that you would label "Don't let

this happen to you." There's easier ways to make this happen than the path that I chose.

LK: Your family must have been very excited.

SJ: Oh, yes. Well, no one actually quite understood what that meant to go to school, because we really -- like I said, no one had done that in my family. And so I showed up the first day of college, and that's the first day I saw the campus. And I get a charge now out of parents that are taking their children around to look at seven and eight and nine different campuses, to look at what it's like. And I thought, you know what, I just showed up, and there I was. And I did okay. Nevertheless, I do think there's value and merit in planning, (Laughs) so I wouldn't suggest my path, but it also works.

And one thing about engineering is you have to be creative, innovative, flexible, adaptable, and certainly all of that occurred in my past.

LK: When you were young, did you have any role models, either in the sciences or in a general area?

SJ: Well, I think my role models -- because, like I said, I lived in the country, and so there weren't a lot of people around -- my role models were really my mother and father. My mother was a very strong woman, and sort of ran the finances of the family, and participated in all of the business decisions with my father.

My father was sort of a technical genius, and really had a very special skill in terms of mechanical and auto -- kinds of auto repairs and things like that.

And then teachers, a lot of teachers were a role model for me. Once again, not as engineers, but as -- everyone seemed to have good expectations. And my parents used to say if there was a problem at school, then I must have contributed to it, because your teachers -- why would they set out to do something that would hurt you? And so I learned early on to sort of take responsibility for myself and what happened to me, not to find other reasons outside of myself for not succeeding, but realizing that my success depended upon myself and the participation and contribution that I made.

And I think that's an important language to -- or lesson to have people understand is you know, you don't really have anyone but yourself to worry about, in terms of whether things are happening well for you. And sometimes today I find people looking for societal reasons or external reasons why things aren't going well. And I'm not saying that those issues don't exist, but I'm saying they exist for everyone, so you've got to learn to deal with them and take control of your life. And so I did learn that very early on.

LK: Were there many women at Clarion who were majoring in

science at the time you were there?

SJ: There was a fair number of women majoring in science because it was a state teachers college. And so consequently, you know, teaching was a very good profession for women. I would say that there tended to be more women in some of the non-technical curricula. But still, there were some women in biology and chemistry and physics and those kinds of classes that I took. But clearly, it was somewhat male dominated.

Now, when I went to get my engineering degree, and I got a masters in environmental science from Johns Hopkins University -- actually not too long after I graduated and started teaching I went back to Hopkins. And I went actually to an evening school, so I went four nights a week for seven years (Laughs) (Sighs) to get the engineering degree, because I had a lot of undergraduate engineering and mathematics to make up. But there I was the only woman, and for a number of years was the only woman.

And so I had a friend who went to apply to John's Hopkins probably almost a decade after I had graduated and said -- and the admissions officer said, "How did you hear about this program?" And he said, "Well, I had a friend, and she"... And he said, "Never mind. I know who it is." (Laughs) "There's only ever been one she in the Masters of Environmental Engineering Program." So for a while I was the only woman. But now, of course, there are a

number of women that have graduated from John's Hopkins in that program, and of course, a number of the other programs as well.

LK: Can you talk about how you made a decision to enter engineering?

SJ: Well, once again, this falls under the category, "Don't let this happen to you." I had graduated with a bachelor's in biology, and I started to teach in Westminster, Maryland. I was teaching high school. And I got a magazine in the mail from the National Education Association, which is an association of teachers, you know. And on the back cover was an ad from Johns Hopkins University. And it had a sort of rip-out post card that you could fill out and send in to apply to go to graduate school at Johns Hopkins. And one of the items on the back cover flyer was the environmental engineering.

Well, this was 1970, and this was the first year of Earth Day. I was a biology teacher, I was teaching ecology, I saw this masters of environmental engineering. I thought, "Oh, perfect. Environmental engineering, ecology, boy that makes sense. I'll go off and get this advanced degree," because I knew they liked teachers to have advanced degrees. So I filled out the postcard and mailed it in, and I was accepted.

And when I went down to sort of officially fill out the paperwork on campus, they said, "Oh, by the way, in order to be

admitted into the masters program here at Johns Hopkins, you will have to take forty-eight undergraduate credits in engineering and math. So I said, "Well, fine." So that's why it took me seven years, you know, because I -- well, I got so involved in the undergraduate -- I took mainly electrical engineering.

I got so involved in that, I just kept taking more and more undergraduate courses, because I found it fascinating. And as a child or as a teenager, I thought that I hated math. And that's why I studied biology as opposed to physics or something like that when I got the bachelor's. But as it turns out, when I got there and actually took advanced mathematics like calculus, and I found it wasn't math that I hated, it was arithmetic that I hated. So I found math to be very interesting, problem solving, and things made sense. It was the arithmetic of adding up the numbers or doing -- and this was before calculators, you know. And so on the slide rule or, you know, adding up columns of numbers and multiplying, and long division, that I didn't like. The math I liked a lot.

So one day the dean of engineering called me in and he said, "Are you ever going to take a course in the program that you've been admitted to here at Johns Hopkins? All you do a keep taking all these electrical engineering undergraduate courses." And I said, "Ah, well, yes, yes, I will do that." So off I went to

take, finally, the environmental engineering classes.

And what I discovered is, it wasn't ecology at all. It had nothing to do with Earth Day; it had nothing to do with biology, ecology. It was hardcore, heavy-duty engineering. You know, fluid mechanics, storm drain design, you know, all of this, which I did, and I did well. And I finished all the classes, but I wasn't interested in the environmental engineering part of it at all. I really, however, had gotten the bug for the electrical engineering. And so in my classes I met a number of people who were also in the evening college but working during the day, and they happened to be working at Westinghouse. And so they kept saying, "Oh, you ought to come to Westinghouse. You really ought to come and work as an engineer at Westinghouse." And I said, "Well, this is the dumbest thing I've ever heard. What would a defense contractor want with a schoolteacher? And what could a schoolteacher do for a defense contractor? It doesn't make any sense to me."

Well, they just kept after and after. And so finally one Christmas when the schools were closed but the company, Westinghouse, was open, I went and worked for two weeks, no pay, just went to work, to see what it was -- what was it that an engineer did. Well, at the end of two weeks, I had not a clue as to what an engineer did. However, I knew that there were people

who really enjoyed what they were doing. They were very committed and passionate about what they were doing. They seemed to feel energized by doing -- and they were test engineers, was actually where I was working.

And so I made the decision to leave teaching after four and a half years and to become an associate engineer with Westinghouse because I didn't have an engineering degree at that time, I was still in the process. And so I started out as the lowest of the low. I used to keypunch digital tapes to program read-only memories. So I was a PROM programmer (Laughs), you know, for my first job. And then I just kept moving my way up.

And what I discovered to this day is: People love working here, they feel very passionate and committed about what we're doing, we really feel we make a difference, that the skills that I had as a teacher, as a communicator, organizer, the skills that I got from my engineering education were fundamental basic skills that help me have the flexibility and the confidence to go out and tackle problems. And I just have found that no matter what people throw at me, I'm willing to step up and try it and sensible enough to ask for help when I need it. And it's been just -- I've been here, now, twenty-nine years, and I still say, "What a wonderful career."

Not that I didn't love teaching, because I really did love

teaching in the classroom. But I knew that I probably would not be satisfied for a lifetime doing just that, plus financially it just -- I think it's appalling what we as a society pay teachers. And so I thought, "Well, here is something that I feel equally excited about, and gee, the pay is like so much better."

(Laughter)

SJ: I remember that to become an associate engineer they paid me twice as much as they were paying me for an experienced teacher. And I just thought that was amazing. That's another day that I did a dance--

(Laughter)

SJ: -- because I said after I left and they had made the offer, I thought, "Ahh! They have no idea that I only make $6,000 as a teacher for a year, but they're paying me $12,000." $12,000, to me, was extraordinary. And so I thought, "Boy, oh, boy, it's a good thing they didn't ask me what I expected for a salary, because I probably would have said I'd do it for less than $6,000.

(Laughter)

SJ: And so it was just another one of those happy days. But clearly, not the path that one would choose. That's why I go out and talk in middle schools and high schools and say, "Consider engineering. It's a wonderful career. And it's a great teamwork kind of environment. You can make a real difference. And

financially, it's a very rewarding career."

LK: It's interesting that with just a little engineering background you went and did like a two-week internship, what they would call it today?

SJ: Yes, exactly.

LK: Did someone encourage you to do that, or was that something you thought you needed?

SJ: Well, that was employees of Westinghouse who were taking classes with me, and they were actually the undergraduate classes that I was taking. And there were a number of people in those classes that I would work labs with. And I had a microprocessor class, which was a big deal, you know, in the early '70s, to work with microprocessors and PDP-11 computers, you know. And so I'd be there late at night -- you know, like I said, four nights a week, in there with them working. And that's when I think they thought, well, if she can do this, then she'd fit in perfectly at Westinghouse, because everybody works long hours and rolls up their sleeves and does whatever it takes. And so I think they saw in me characteristics that they thought would make a good employee for Westinghouse. And so they were the ones that invited me.

And I kept say, "No, no, no. It doesn't make any sense. I'm a teacher. I'm going to get an environmental engineering degree. You guys don't need environmental engineers, because you don't

design storm drains." And so finally they said, "Hey, listen, come and try it out. It's a free lunch, for goodness sakes. Just try it out and see what you think." So I did do that.

It was the first time that Westinghouse Electronic Systems, at least, and I think probably Westinghouse Corporation had ever done anything like that.

So they created sort of a special opportunity for me, which of course caused all kinds of ripples, because they thought, "Here you are bringing a person in for two weeks. They're in the plant. You're not paying them. They don't have a security clearance," you know, all these kinds of things. But somehow those people made it happen. I was fortunate that the manager of the test department was a very enlightened person, and he was interested in having women join his organization, just for the skill set -- you know, this was long before diversity and EEO [Equal Employment Opportunities] was anything. And he thought -- he was actually a great mentor, and he was interested in people who were really committed to working hard. (Laughs) So a little selfish in some regards, but very good boss characteristics, you know. And so he created this special program at the request of some of these employees who were students.

And I went in, and I was the only woman there, and the only person that had ever had an internship. We didn't know what to

call it at the time. And it did convince me that this was a good company to work for. So I joined a company rather than taking a specific job, because like I said, I didn't have a clue as to what the job was. But I saw the culture and the environment, the caring, and the belief that what they were doing was vitally important, and that's what I joined.

LK: That's wonderful. You joined Westinghouse in 1974?

SJ: That's correct.

LK: And we don't have to go into too much detail, but can you summarize your work history during that -- you know, through the company, and maybe what you've enjoyed most about working as an engineer here?

SJ: I've had a series of jobs inside the corporation. And that's why I guess I like big corporations. I think that you can have a wide variety of experiences and still keep the network of colleagues. So I, in essence, changed jobs every eighteen months to two years in the beginning of my career, without ever having to change my telephone number.

(Laughter)

SJ: I just carried the phone with me wherever I went. I started out, as I mentioned earlier, as the lowest of the low. I was an associate engineer, not a full-fledged engineer. And I did PROM programming, which sometimes meant -- we were launching a

major radar system at that time called AWACS [Airborne Warning and Control System], which many people have heard about AWACS, because it's that surveillance plane that circles over, you know, when there are world situations. And so it was a very high priority program.

I would sometimes get a call at 3:00 in the morning at home. They had a new set of data that they needed to have burned into these read-only memories, these PROMs. And they needed it now, because they were on the antenna range that night, and they wanted to try it out. So I'd get a call at home at 3:00 in the morning. I would throw on clothes, drive into work, and sit down, punch up the code, program the PROM, run it up to the engineering range, you know, the antenna range, give it to the engineers, go back home and go to bed.

And so people started to say, "Give it to Suzanne, because no matter what it takes, she'll do it." And so attitude I think is very important in the beginning in an engineering career. You need to be able to have a can-do attitude. You need not to see obstacles, but rather to see opportunities. And if they call you at 3:00 in the morning, it makes you a very important part of the team. And so I did that.

Well, then, they were deciding to buy a high-speed memory tester. And no one in the company had experience in this because

it was brand new, but they wanted to test random access memories at speed, because there were known phenomena where memories would develop sort of a pattern, and you would think you were writing new data in, but you weren't, it was retaining the old data. And so you had to figure out whether these devices had the propensity to retain old data or whether they were really random access memories that you could read right into at will.

And so we were buying a serial number one first off the end of the line of a brand new company on a high-speed memory tester. And they asked me to lead that project. Well, this was ridiculous. I mean, I was a brand new employee, the only woman in the department. This was a high priority program, critical to the success of AWACS, and they gave it to me. And people said, "Why not?" She knows as much as about it as anybody, because nobody knows anything about it, (Laughs) so give it to her, because you know what, she has the tenacity to push it through. So I got a major high visibility program simply because of my attitude, not necessarily because of my engineering skills, although I did use my engineering skills to execute the program. So that was the next thing.

I then went to become a supervisor of technicians. And these are union employees. And that was very important, because it put me as one of the people, if you will. I mean, I rolled up my

sleeves and just worked. And I ran a computerized test area. I learned how to work in a union environment. And I also -- I ran first-shift operations, but I was there to see second shift through because it was a critical time. I was there to see third shift start, and I came in the morning before the third shift left, and I started the day all over again. So I learned a lot at that time.

I then went into manufacturing; I went into robotics development; I went into program management. I was the first operations manager for the B1B Offensive Radar System, which was very important.

Sort of an unusual situation there. The company had won three major programs in 1981 -- well, actually, 1980, I guess. And so all of the logical people to run programs had been selected for these three major programs. We were surprised to have won B1B. We had a proposal in. I was not part of that. But another company had had the radar on the B1A, and then President Carter had put that on hold. And then when Reagan was elected, he re-energized the B1 program, called it B1B, and they decided to select a new radar manufacturer. Well, we were shocked we won. No one expected us to win.

So we found out in December of 1981, now that I think about it. And so I was selected to be the operations manager. I was

highly skeptical of that selection. I said, "Why are you choosing me? I know nothing about running a program or running operations. What's more, I'm building robots, which is really fun, and we're just getting them to the point where we're ready to introduce them into the factory. And I want to see that project through, so I would really like to stay with my robotics group." And they said, "Well, we want you to go run (Laughs) this program because it's critical. We have to get a radar in nine months. It's a very important program. We think that you can drive it through. What's more, the factory that the robots are going in, you will have to build your product in that factory, so you'll be the user of the robotics system, so who better to make sure that those robotic systems work and that the first customer, if you will, of the robotic systems is happy, than the person who designed it? So therefore, go off and do this new job." So off I went.

And every month, Caspar Weinberger, who was the Secretary of Defense, was briefed B1B Offensive Radar because it was critical path on the program. And it was highly concurrent; in other words, I had a production readiness review before we had had a preliminary design review. Which is, how can you explain how you're going to produce something if the design isn't even defined? Well, we found a way to do that by talking about processes and knowing how to control processes. Regardless of

what the printed circuit board ultimate design is, we know that we have to place components; we know we have to solder.

So we took a real process orientation, which was very new at the time. That's where some of the innovation of thinking outside the box that engineering teaches you was applied. At the time, just like with the internship, we didn't realize we were creating something new. We didn't realize that process engineering was something new, but we did that. So it turned out to be an incredibly important program. We built the first phased ray electronically scanned antenna to go into the field in the world, very exciting, pushing the edge.

From there I went on to do classified programs, special access programs, all of them very small, high technology, pushing the edge of technology once again. By that time, I actually had my engineering degree. (Laughs) But it was, once again, an engineering degree in environmental engineering, and I was pushing the edge of the envelope in manufacturing in RF Technology. So it was the fundamentals that I learned and not the specifics that enabled me to go off and do these kinds of things.

I also learned that engineering very much is a teamwork. You don't have to have all the answers yourself, you don't have to do everything yourself. In fact, you're probably far worse if you try to approach life that way. And so I learned to very much pool

information from all of my colleagues. I learned clearly there is no such thing as a dumb question. Ask every question. Learn, be a sponge, absorb, create an environment where people feel good about what they're doing, and they feel that they can make a difference, listen to what people have to say. So I learned engineering management, team building, through those special access programs as well as the Offensive Radar.

And then I went on to -- actually, I was sent away to school again, this time paid by Westinghouse, to Harvard Business School to get a business education. And when I came back, they asked me to start up a new business. And it was for the U.S. Postal Service, which was, once again, very unusual, no experience in doing high-speed optical character recognition or mail sorting.

But my whole career has been new things, taking on high-risk, high visibility programs, for which I was as qualified as anyone else because no one had experience. That I think is what helped me move fairly rapidly through the ranks technically as well as managerially. I just didn't see obstacles. I didn't complain.

I failed many times, but they were small enough failures detected early enough that everybody scrambled (Laughs), you know, to make them right. And so I think, you know, if you're taking risks, you've got to expect that there will be some failures. And if there are no failures, maybe you're not really pushing the

envelope hard enough. But I admitted when things went wrong, and people bailed in to help because they were important and critical projects. And I was willing to accept their help, and so it created an environment where I could succeed. But succeeding didn't always mean always being successful. It meant a whole series of stumbles and various alternative paths.

I started a postal business with a team of people, and I stayed there, actually, for ten years, which is the longest time I was in any assignment in the company. And over that ten-year period we did almost a billion dollars worth of business. So we started from nothing and built it up. It's still active today. They do about 300 million dollars worth of business every single year in postal automation, so a terrific thing. I look at that group and I think, what a wonderful thing to have been a part of.

And the people who were part of that business have all gone off to do great things and it's built their career because they were willing to take a risk and they were willing to do something new and apply their basic engineering knowledge to a field that was really very foreign for the organization.

Under Northrop Grumman, who acquired Westinghouse, I still have the same phone number.

(Laughter)

SJ: I have done defense communications now, so back to the

defense side. And now just recently I have taken on a new business area, a new division, government systems, that has the old postal business, so back to my roots, the defense communications business and a new business for homeland security. So once again, starting something brand new, high risk, no one quite knows what it is, highly technical, so the engineering is extremely important, but it's a blank sheet of paper. And we will make it be what it will be. So I'm very excited.

So I've always been challenged. I've always found that the jobs that have been offered to me have been interesting and very important to the overall success of the corporation, not necessarily obvious jobs to start with, though.

And I will say this: I've never chosen a job for myself. In fact, when offered the jobs, the first one just to come for the internship and then the whole series of jobs I just talked about here, I always said, "Oh, no, no, no. That's not right for me. I don't want to do that. I'm too involved in what I'm doing now, and I need to see it through, I need to finish it." And the executives would say, "Well, nevertheless, we're moving you." (Laughs) "So you have to do this new job anyway, whether you want to or not." And I'd say, "Oh, why me? Why me?" You know, and I did the same thing just in November where I said, "Why me? Why do I have to start a new division? Why not somebody else?" And they

would say, "Because you'll go off and make it happen." And so I still am succeeding because of my attitude, I guess, even though initially my attitude is, "I don't want to do this, you know, it's too hard." And I think that I probably am one of the few people in your SWE project that will say that it's okay to go where people ask you to go, that if you have a good relationship with your company, and you are a good employee, that they will in fact offer you good opportunities. And so you don't have to work hard at your career. Most people will say you have to take control of your career and you have to go out and manage an interview. My experience has been if you are the kind of employee that generates success, executives will move you because they will want you to take on increasing responsibility and take on more success. If, however, an individual finds that that is not the case, or if they don't have mentors who are looking out for them, then you do have to take control of your career. But if somebody is doing that for you, then just take their advice and follow them. Because what I found was, the executives had a much better vision of my career than I ever did. I would never have predicted this career. I would never have signed up for this career. I'd probably still be back programming PROMs, you know, at 3:00 in the morning. And so that there is value to getting career advice and taking advantage of people who want to help you.

LK: It sounds like you've had a lot of support.

SJ: Yes, very much so, yeah.

LK: Can we shift gears and talk about how you first heard about the Society of Women Engineers?

SJ: Oh, my, that's another embarrassing story. I was working at Westinghouse, and one of the people who was helpful to me was Naomi McAfee, who was a past national president of SWE. And we had a Baltimore/Washington Section that was dominated by Westinghouse women. And over the years the section had atrophied. And in fact, the current local president of the Baltimore/Washington Section had filed a paper with National Headquarters to disband (Laughs) the Baltimore/Washington Section. And we were one of the founding sections. And so when Naomi found that out, she said, "Oh, my goodness! You can't disband this!" You know, "We can't give up." And the person who was the local president at the time said, "Well, you know, people aren't that interested. There doesn't seem to be a need for SWE, and so we just decided we'd do away with it." And so Naomi came to me and said, "Look, you need to get in there and sort of get this section re-energized and make it be relevant, make people want to come to the meetings and participate in SWE. And so will you go in and do that?" And I said, "Well, okay, I'll go."

And so off I went, (Laughs) and we got things organized. And

we got a lot of activities where people could make a difference and put their time in and feel like they were really helping the field of engineering and young women in engineering. And so everything sort of picked up again. And so they wrote to National and said, "Never mind. We're not going to disband after all, and here's our list of new officers." And there it was, "Suzanne Jenniches, President." And headquarters wrote back and said -- or called and said, "Wait a minute. We don't have a Suzanne Jenniches as a member."

(Laughter)

SJ: "How can you elect someone president who doesn't even belong to the organization?" (Laughs) They said, "You can't do that! She has to join," you know. So Naomi said, "Oh, my goodness," you know, "you have to join. Fill out this form, and if you don't fill it out, I will, and I'll tell stories about you. So you fill it out and write your check and send it in." And so that's what I did. And so lo and behold, I was elected president before being a member. Once again, don't do it this way.

But that's how I heard about it, and that's how I got involved. And I've been involved ever since. It's been a terrific society to be a part of. And pretty much, in this society as well as at work, it's what you make it. You can do as much or as little, you can be as involved and make as huge

difference if you choose to.

LK: The time period that you were involved with SWE and the Baltimore/Washington Section was revived was also an exciting time for women just in society in general.

SJ: Yes, yes.

LK: Did you feel that impact within SWE, or do you remember feeling that impact?

SJ: Well, I often say that maybe one of the reasons why I moved along and did okay is I was unaware of any problems. I didn't see discrimination. I didn't see issues. I just had my nose to the grindstone trying to do my job and do whatever it took to make sure that these radars got out, you know. And so when I talk with young women today, I often say, "You need to have rhino hide." And by that I mean thick skin.

You know, people -- when I look back on when I started in 1974 and when I joined SWE, which was 1978, when I look back on it I realize there actually was a lot going on, and not all of it was good. And there were people trying to throw arrows in my back and things like that. But because I was oblivious to it all, they just sort of bounced off. And so I think after awhile people just got tired of trying to do me in, because they said -- one time somebody described me as "That little Eveready bunny," I just keep going. And so I realized, you know, there were plenty of

circumstances and people that had I dwelled on it or had I allowed them to detract me from my objective, which was building radars, they could have easily derailed me.

Ironically, I was oblivious to it all. That's not necessarily a good thing, because it also means you're insensitive to a lot of things. So probably there were a lot of people that needed help or whatever, and I was oblivious to that as well. So I'm not saying that it's good, maybe, to block out the world and things that are happening around you. But I think there is a value to blocking out the bad stuff -- rhino hide -- just letting it bounce off, because don't use your energy to fight that. Use your energy instead to do good things for your career and for your company. And in the long run, that so overwhelms the small people, because it's their problem, not yours. The small people are throwing this stuff at you, and you just pass them by. But that's easier said than done. And there have been times, I will admit, that people did things that really hurt me. And I would go home -- and I have a very supportive husband. I would go home, and I would say, "Oh, God, I can't believe" -- you know, "this happened or that happened," or that sometimes I did things that weren't such nice things. I would say something sharp, you know, and I would go home and I would say, "I don't know even why I did that. What a waste of time and energy. I feel horrible that I

did it." So there were times when I would take off the rhino hide when I was home in a very nurturing environment.

And I think you can also do that inside SWE, by the way. I think it's a very nurturing and caring environment, with people who can relate and understand. So that's a real value of SWE, -- you can be yourself. But when you go back to work, zip back on that rhino hide suit and go in and remember why you go to work, and it's not to get distracted by pettiness, but it is to do a very professional high quality career. And so that's, I think, the value of SWE. It gives you a place to practice some leadership skills, but it also gives you a nurturing environment. But nevertheless, I still -- a lesson I learned from my parents -- you still have to take care of yourself, and so you've got to keep your eye on the ball when you go to work every day and make every day count.

LK: Would you say that that SWE value is why you continued with the organization and even on a national level?

SJ: I do. I will say this, I don't have children, so I have my career and then I have volunteer activities. And I feel as if some of these volunteer activities are like my children, you know, I put a lot of time and caring into them. And SWE is certainly one of those, because, as I related earlier, I had such a hard time finding engineering that I don't want young women to have to

stumble upon it as I did. So I feel that this is my way of paying back for those who have helped me along the way. And so I have stayed involved with SWE because I personally believe that creating a good work environment will benefit women and men as well.

And I believe that it's hard to do it at an entry level or mid-level engineering profession. I believe that most of those kinds of decisions and creating the kind of environment is done at an executive level. And so I feel that more executive women should be involved in SWE. But generally, either their career or their family takes up all of their time, and they don't have time to give to SWE. So when I was national president, I created with the Society an award called Upward Mobility, to try to attract more executive level technical women from industry, government and academia, into the Society to serve as role models. And so the major criteria for that award is a woman at a significant level of responsibility who has made a difference for the engineering environment. And so I would like to see more executive women involved, because I think they will make a difference for the profession. Therefore, if I think that's important, then I believe I should also be making that commitment and that contribution, and that's why I've stayed so involved in SWE over the years.

LK: Okay. Looking back on your career, can you pick what you would say would be your greatest technical contribution?

SJ: I have a patent, but I don't think that's necessarily my greatest technical contribution. I think that my -- it's a little bit like that Chinese proverb about death by a thousand cuts, you know. I think my technical contribution is done through a thousand small things. Clearly, I introduced robotics into manufacturing, and Westinghouse won a Factory of the Year Award as a result of doing that. I introduced the first electronically scanned antenna into production and into field deployment, a major change in the way radar technology was done. My contributions there were mainly in the area of producibility. I had been more on the manufacturing, test, producibility side than the design side.

I created an environment where design engineers can dream of something, and we see that it gets produced and put in the field, which, to me, is what engineering is all about, it's the application of science to practical solutions that get introduced into society. So I've been sort of on that practical application introduction, you know, side of engineering.

I have done a great deal of process engineering, reducing what was a sort of complex magic into a process science to get things producible, to get things affordable, to be able to get

things repeatable, such that you can have interoperate-ability. I know within the postal service that was a huge contribution that we made, was the concept that you ought to be able to switch parts in any machine and have the machine work. Prior to that time, they had all been sort of customized, and each machine had to stand on its own, and if something failed, then it was a big deal to put a spare part in.

And so I've done a number of those kinds of process improvements working in robotics, electronically scanned antennas, and also just overall in engineering analysis and engineering management, in terms of how to get multidisciplined teams working together to solve problems, because all the easy problems have been solved. You know, all the easy guys were done, you know. (Laughs) Now it's only really tough problems that have to be solved.

And they generally are multidiscipline problems, and so therefore you do need to have electricals, mechanicals, quality, reliability, manufacturing tests, all of these different engineering disciplines working together, each of whom may not exactly see the problem in the same way, which is a plus, but can also be a negative in terms of trying to quickly and efficiently solve a problem.

So those are sort of my technical contributions. Not

anything that would make a headline, necessarily, but a lifetime of making a difference. And I think that's really -- you know, there are very few engineers who can say, "I invented this, the world's first" -- and there's a handful of them. However, society as a whole has benefited so much from the huge body of engineers that have each made a difference each day in what they do at work. And that, to me, is the real technical achievement of engineers, is that they're able to, in many, many, many small ways, create a better work or product or society, as a result of their skills.

LK: Do you think that there's a need for a Society of Women Engineers, even today?

SJ: Oh, absolutely. And like I said, it's not because I think that there are overwhelming gender issues, although others I think would disagree with me and say that there are. I don't think they're overwhelming because I think you can, in fact, rise above them. And I'll be damned if I don't try to do that and have my colleagues do that, and tackle them the way you would any tough problem.

But I think that the beauty of the Society of Women Engineers is it is multidisciplined. And I think the work environment that we're in today is very multidisciplined. So you get to mingle, if you will, with colleagues from all different kinds of engineering backgrounds, from all different kinds of companies, large and

small. And I think it's a very valuable environment.

I also mentioned that I think it's a nurturing environment. And you know, I think there is value for that. I think there is value for men to have a nurturing environment as well. And they do, and they tend to have them in sort of their golf outings and their technical societies. We just choose to have them with SWE. That doesn't mean that we don't golf or that we don't belong to IEEE [Institute of Electrical and Electronics Engineers], but it just means that this is another outlet that provides a wonderful environment for technical women to interact.

I hope that there's always a Society of Women Engineers, because I think it provides such value. When gender bias is gone, when there's equal pay for everyone, when there's not an issue at all about gender, I still think there'll be a need to the Society of Women Engineers, because it's just a great place to network with technical women, and I thoroughly enjoy doing that-- all ages, from the youngest to the most senior. And I will continue to be very active in the Society for that reason.

LK: Do you have any final thoughts?

SJ: I think it's odd that I've been asked to be interviewed as a pioneer, because I don't consider myself a pioneer. I joined the Society under unusual circumstances in the late '70s. There's certainly many pioneers from the '50s and earlier that went ahead

of us. I, however, do believe that each of us, even a new engineer in the 2000s, is breaking new ground. And so if a pioneer is somebody who breaks new ground and makes it easier for others to go ahead, then I'm proud to be called a pioneer.

But I think that I had much help along the way from women and men who've gone before me. And I feel it's my obligation and my pleasure to pay those people back by helping others go along the way now. And so that's what I think is so wonderful about this continuity of engineering and the profession.

LK: Well, thank you very much.

SJ: Thank you.

END OF INTERVIEW