

An Interview with
MARDA HIGDON JONES

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Conducted by Thomas J. Misa

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Marda Higdon Jones Interview

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Abstract

Marda Higdon Jones went to high school in Iowa City and attended Iowa State University, graduating in 1972 with a major in mathematics and minor in computer science, and accepting a job with Bell Labs in Naperville, IL. In 1976, after being promoted to MTS, she completed a master's degree at Northwestern University (and, later, an executive MBA from Columbia University). She discusses the influence on her and her colleagues of the 1970s women's movement and affirmative action programs at AT&T, including the Men and Women in the Work Environment and Urban Minorities workshops. In the 1970s she worked in software development, then after a one-year rotational assignment in New Jersey, she returned to Naperville in a managerial position and then moved to Holmdel, NJ, as department head in systems engineering then division manager for network architecture. In 1988 she was promoted to director at Bell Labs, and the interview relates several instances of managerial and personnel challenges. She joined Lucent Technologies, the Bell Labs spin-off, in 1996 and retired in 2000. She reflects on 1970s-era gendered images of 'electrical engineer' and 'computer scientist'.

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Misa: My name is Tom Misa. It's the 6th of January 2016, and I'm talking today with Marda Higdon Jones. This is part of a Sloan Foundation set of interviews looking at the experiences and careers of women who worked in the computer industry from the 1960s through the 1990s.

Marda, could you describe a bit of your childhood or high school years, were there any activities, or hobbies, or school classes that might have inclined you toward the later pursuit of a technical career?

Jones: I grew up in small towns, and finally a small city in Iowa. I consider Iowa City, Iowa, my home town, which is the seat of the University of Iowa. My family moved there when I was 14 years old and I went to high school in Iowa City, and then later to the University of Iowa in Iowa City. I have one younger sister so I'm the older of two daughters in our family. Some of my propensities kind of follow the oldest child/oldest daughter sort of thing, in terms of pursuing a career. This is not particularly related to computing but I guess I grew up thinking, not really so bound up in some of the — I guess that's not really true — I broke through and did some untypical things for girls in my childhood. Starting when I was in fourth grade, so I think I was nine years old, I had a paper route in our town, a very small town in southwest Iowa. I was the first girl to have a paper route in that town and it was quite novel. I didn't know it at the time, it didn't occur to me that I was breaking any barriers but I was certainly treated very kindly by my customers on my route. They really looked after me and I didn't know if they did the same for boys, but I will say I made a haul at Christmastime as a paper carrier on that paper route. I don't know how [I] came to be that nine-year-old pre-high school sort. In high school, I was a very good student and I particularly enjoyed math. It was like a puzzle to me so I took a lot of, as I

could, math courses and things like that as electives. In fact, in the aptitude tests that we would have, I remember my high school guidance counselor, who was a woman, would review the results of those tests — not the numbers — but you know, particularly what those tests were looking for and what one might expect. She, with small groups of students, say five to 10 students, and when she was talking to the group I was in, one of the things she said was that girls typically do better in the social studies and English and those kinds of fields, and boys typically do better in math and science. And then she turned to me and said ‘except for Marda.’ So I did well on all of them but I did excel particularly well in mathematics. Neither of my parents had gone to college, so this idea of going to college was pretty new. But here we were in a big university town and I had some other influential adults in my life, including a faculty member at the University and his wife. I babysat for their children. I became very close to their family as well. So I had some other influential people, mentor-like people in my life through high school and college and started seriously considering going to college while I was in high school. [I] took the college prep track and all that sort of thing. When I was in ninth grade, I remember being in a class where our teacher — a man — was evidently talking to us about career paths and how — not necessarily career paths — but how we might use high school to prepare for our later life. At the time I told him that I thought my after high school aspiration was to be a secretary; which my mother worked outside the home and she was working as a secretary at that time. He said to me that he thought I had much greater potential than becoming a secretary, and so I guess that was kind of a nudge in that direction. I do remember when I told my parents, particularly my mother about that she was kind of taken aback, like you know, what’s wrong with being a secretary?

[Laughs.]

Misa: Right.

Jones: So that was yet another nudge and I guess since I'm recalling that all these years later, that did kind of move me in that direction. When I was thinking seriously later in high school about going to college [pause]

Misa: What kind of options did you consider?

Jones: Where did I consider going, is that what you're asking?

Misa: Yes, exactly.

Jones: Okay. I looked at some smaller private colleges, like Wheaton College in Wheaton, Illinois, or a couple of others. You know every now and then you got on a mailing list and you heard about them but I didn't really seriously pursue going anywhere else besides the University of Iowa. First of all it's a public university, that meant it was more affordable than any private institution, and my parents actually insisted that I go to the University, in part for financial reasons. I could commute and live at home, and that saved a lot of money on room and board. This whole college thing was quite new to them, they had never been and so they emphasized — and it is true — that they thought if I went to college in Iowa City I could get through and come out debt free, which I did with their help. So three out of the four years of undergraduate I did

live at home. The fourth year, final year, I shared an apartment with two other women near the campus so I was still living in town, but I did do that.

Misa: What years were you at the University of Iowa as a student?

Jones: I entered in the fall of 1968 and I graduated in May of 1972.

Misa: Can you describe your experience taking classes, were there other women or men, for that matter, also with a technical or mathematical bent?

Jones: There were a few women in my math courses. As the math courses became more and more dense, there were fewer and fewer women. I got into computing — first of all I will say that I graduated with a B.A. in mathematics with a minor in computer science. At that time, computer science was a new enough field that the university did not offer a bachelor's degree in computer science.

Misa: Right.

Jones: It did offer graduate degrees. So the most computer science thing I could do was what I did, bachelor's degree in mathematics with a minor in computer science. About half my courses were mathematics, the other half were computing courses.

Misa: What kind of computing courses did you take? Were they programming?

Jones: Many of them were programming. I took courses in various languages. I took FORTRAN, COBOL, PL/1. I took a class I believe in operating systems. As I went on, I moved from a faculty advisor in mathematics to one in computer science and so as I was getting further along in my program, and more advanced, he encouraged me to take a couple of classes in the EE department, which were things like microprogramming, or assembly language programming, and then the basics of the hardware design of a computer and stuff like that. I remember telling him that I couldn't go over there. [Laughs.] It was like women were not allowed in that building, couldn't possibly do that. I did end up taking a microprogramming course, which is a very low level machine programming and I did well in it. That surprised me because I didn't expect it. I think that then in the engineering school, women were less than two percent.

Misa: Two percent.

Jones: Yes, two percent. So it was very extraordinary, and in retrospect, you know, it just wasn't something that I felt I could do. As it turns out that when I went to graduate school later, I took many of those courses and it was just fine. [Laughs.] I did just fine. But at the undergraduate level, or I guess at that early age, I was pretty intimidated by the EE aspects of computing.

Misa: You said something like two percent of the EE students were women. What roughly would have been the proportion for mathematics students? Would you hazard a guess there?

Jones: In the advanced math classes, it's probably more like 10.

Misa: Ten percent.

Jones: Yes, it wasn't huge. It certainly wasn't like 50/50 in the more advanced mathematics classes.

Misa: But it sounds like you wound up getting quite an unusually deep exposure to math, to computer science, and even to EE while as an undergrad.

Jones: I left EE, but I did for computer science and math. And I would say, if I could just backtrack a bit, how did I get interested in computing? Certainly there was nothing in our high school curriculum about computing. I have an uncle who is not very much older than I am, eight years older than I am, and he was finishing his EE degree at Iowa State University, one of the other state universities in Iowa, while I was in high school. And so when I was talking with him and telling him about my interest in math and things like that, he said you might want to check out this field, computer science, they've got programming courses; see what you think about it. As I recall when I entered the university, you had to take some basic level math courses before you could take any of the programming courses. So I did that my first year or so, I don't think I had any programming courses in college until I got the prerequisites out of the way. And then I could take — I think the first course I took was FORTRAN programming.

Misa: Okay.

Jones: And in that course I was then quite taken with the challenge of programming as a puzzle. And so I continued it and that's how I got into the idea of looking at or considering computer science, from this uncle.

Misa: It'd be highly unusual to have any contact with computer programming in high school, but really the uncle sounds like an important influence, and it also sounds like you had pretty supportive faculty at the University of Iowa, your advisor and people who were encouraging you.

Jones: Yes, I did. And in fact when I was graduating, I was a senior in college, when we were interviewing for jobs and things like that, by then — let's see — this is in the era of the IBM 360/65 was the computer we had on campus, and the way you interacted with that computer was punch cards, keypunches. And so there was a building or a room that was filled with these keypunch machines, where we could go, students could go, to create their punch cards, their decks, to get the jobs run to do whatever projects or assignments you were doing. And so there were the usual cast of characters in the keypunch room, and there was maybe a graduate student who was kind of the proctor/advisor or whatever for that room. We didn't know each other well but you knew the faces; you knew who was there and my face was one of those. And so when I was a senior, and a lot of the people in that room were seniors, and we would be talking about jobs, interviews, and who got a job where, and stuff like that. When I was able to say I had

accepted a position at Bell Labs, that was pretty much a show stopper and I remember the proctor, or whoever was this kind of senior guy, he looked at me and he said, ‘Well how do you rate Bell Labs?’ [Laughter.] I don’t know that I had a good answer for that, but I guess that’s a sign of how unexpected it was that because at least none of the men sitting in that room were going to Bell Labs. I don’t remember where they were going or what they were doing, but Bell Labs was a pretty prestigious institution for a technical person.

Misa: Yes. Were there other options, in terms of other companies or further education that you also were considering?

Jones: At the time, I wasn’t seriously considering going to graduate school. That’s something that after I got to Bell Labs that was just kind of an ‘Ah!’ Graduate school came up. I did interview with other companies and as I recall, I had maybe one or two other offers to work in the computer centers of another company. It seems to me one of them was — I don’t recall the name — but it was a food company. Actually, when I was talking to someone in that company and I was talking about career opportunities, and they said something to me that was quite surprising but a good education, and that was if I was going to work in the computing department of a company like a food processing company or something like that, there wasn’t much of a career path. You know, that was a specialty and so there was a computer department but there wasn’t much of a career path to say, marketing, or sales, or production, or any of that other stuff. So that kind of helped me figure out that if I wanted a career path with some potential for

advancement, I needed to be in a technology company not where technology was just a support function.

Misa: Right.

Jones: If that makes sense to you.

Misa: They may not have intended to be quite so honest but that was a useful thing for you to learn, I suppose.

Jones: Yes it was, and not bad for a college senior who didn't know the ways of the world when it came to jobs and things like that. So yes, I do remember that from the interviewing process.

Misa: You started at Bell then soon after, in May 1972?

Jones: Yes. I had accepted the job before graduation and I believe that my report date at Bell Labs in Naperville, Illinois, was June 15. So a few short weeks after graduating I started work.

Misa: It's an important point but do you recall what grade you were hired as?

Jones: Oh, I do. I was hired as a Senior Technical Associate, and that became kind of a hot button issue and I bet you've heard that story from several of the women in our group.

Misa: Yes it is. I'd be happy to hear your individual story, though.

Jones: [Laughs.] Okay. I was hired at that level, which was a lower level than many men would've been hired. The rationale at the time was I was a math major rather than a full computer science major or EE. But in those days, men with bachelor's degrees were hired as a Member of Technical Staff, which was two levels higher than Senior Technical Associate, and sent to graduate school to get a master's degree by Bell Labs, so Bell Labs would pay for their graduate education. However, they were required; part of that deal was for them, they would have to finish the master's degree or they would lose their jobs. So their job as MTS was dependent on them completing their master's degrees successfully. When I was hired, and many other women like me, as Senior Technical Associates, there was no such expectation on the company's part. The company did have a separate tuition reimbursement policy so if we wanted to we could go to graduate school and we would have some time relieved from work to attend class, and our tuition would be covered. And so when I got there and started working — first of all, I did not understand that until after I got there; I did not understand this kind of two-level, two track system. So I started doing my job and then it became pretty clear that if you were going to do anything in this company you needed to have a master's degree. So I worked for — I think I started my graduate school maybe a year, year and a half after I started to work there — and I was doing this tuition reimbursement thing. And I was going to class. There were men who were working at Bell Labs who were taking the same classes but they were working at a higher level, higher salary, and given more generous support, like they could take more classes at the

same time, they were given more time off work to attend class to complete their master's degree. However, if I had decided not to complete a master's degree my job would not have been in jeopardy. So anyway, a number of us kind of looked at that landscape and said hunh, what about that? And I think we became a force for change. I was probably about two-thirds or three-quarters of the way through my master's degree when I was promoted to that MTS level and put on the more generous program to finish my master's degree, which at that point wasn't in doubt because it was almost finished. But I guess a lot of people had to work pretty hard to make that happen. In the larger context of the time — this would've been 1974, 1975, mid-1970s, along in there — I finished my master's degree in 1976. So in that period of time. Now we can maybe move to the women's movement more broadly in the country, and how this was affecting — and not just women's movement, I should say affirmative action as well, because our progress and the progress of black and Asian Americans were all kind of intertwined. So the laws about equal opportunity at work and equal pay for equal work were coming into play at that time and our parent company, AT&T, was under a court consent decree about representation of women and minorities in the workforce at various levels of either professional levels or management levels. And AT&T was a major company in those days, it was the largest corporation in America, not like the AT&T of today.

Misa: I think [AT&T] was seen as a bellwether, as a symbol, but it was also substantive too because if you could change AT&T you were changing hundreds of thousands of people.

Jones: Right. Now, Bell Laboratories, as a subsidiary of AT&T was exempted from that consent decree because of the unique character of its workforce, and the representation of women in the available workforce for work in technical fields was much lower. So the consent decree did not apply specifically to Bell Laboratories, so we didn't have, as other parts of AT&T had, we didn't have the force of the Justice Department behind us. So our group of working women, many of whom you are interviewing, sort of became the I would say — what would I call it — I was going to say the voice of conscience or I suppose in a way at the time we were agitators for change within Bell Laboratories.

Misa: Right.

Jones: And I think we made a difference but it took a lot of personal persuasion. So not only were we doing our jobs, our technical jobs and excelling at that, but we were also cajoling, persuading, and educating, or whatever our colleagues and our management structure about our capabilities and how we thought that we should have an equal shot at some things like these higher level jobs and the higher quality graduate school support, and stuff like that. So we had the burden, I would say, or the additional challenge of not only excelling in that work environment but then persuading and making the leaders of the company take notice that we were excelling and could excel. And so that seemed like an extra set of responsibilities that we had as women, also black engineers had, and Asian engineers had, that the larger set of engineers did not have. When I was in graduate school at Northwestern University, I of course had a faculty advisor there who shared with me — at that point there were several men from Bell

Laboratories in these classes or in the graduate school there — as well as a handful of women. I would say there were probably maybe six or eight women, of which I was one, who were in graduate school at that time at Northwestern. My advisor, who had many of these students, as well as his non-Bell Labs students, said that hands down, women students from Bell Labs were better than the men as students.

Misa: As students.

Jones: Yes, we were better students than the men. So there you have that story. So anyway, I finished my master's in computer science in 1976.

Misa: Marda, you had already been promoted to MTS prior to that point in time, but it was based on the expectation that you would be successfully completing a master's degree. Is that a fair way of putting it?

Jones: It is. In fact, if I had not successfully completed, I would've lost my job once I had been promoted to that level. That is true.

Misa: Some people I've talked to have said that there were not only informal obligations but there was also a formal affirmative action set of meetings and input that a research group, or department, or other unit at Bell Labs may have needed some help or assistance. Did you play any more formal roles like that?

Jones: I did. As part of this persuasion and education process there were a couple of things that went on. One, there was what was called an affirmative action committee and each organization had a representative on that committee. That was kind of an advisory committee to management on matters related to workforce and stuff like that. I was not on that committee, however; then our company also ran these workshops, which tended to be four or five day workshops, which were intended to be training sessions or sensitivity sessions for managers. There were two of those that I can remember the names of: one of them was called Women in the Workplace Environment Workshop, and the other one was Urban Minorities. So the Urban Minorities was addressing issues of race and the Women in the Workplace Environment was addressing women and women's issues in the workplace. Those workshops, the focus as I said was men, they were run by outside consultants who were expert at running both kinds of workshops, and then there were a handful of women who would attend each of these workshops as resource people, right? So that the management team could hear from women who worked at Bell Labs what it was like to be a woman working at Bell Labs, and what did we encounter in our day-to-day experience at the work site. I was one of those resource people any number of times; I couldn't tell you how many of those I attended, but several. And then we also formed an organization — an informal and more formal one — so the informal one, the basis is this group of women that you've been connected with through Carol Miller. We would meet after work at somebody's house or apartment, had wine, and we became a support group for each other. We were widely scattered throughout the organization so for the most part, we did not work together or closely together on projects. We called it being a token — there was a woman here, a woman there, a woman there.

And so as we got together then we could talk with each other about our experiences and our challenges and offer support, suggestions, and a lot of laughs, and out of that came some of these very close long-lasting friendships.

Misa: Right.

Jones: So that was kind of the informal support group. In those days sometimes they were called consciousness raising groups, in the larger women's movement. We also then started, within Bell Labs we had these special interest clubs, there was a chess club, and a travel club, and all kind of opportunities for employees to do things in groups that might be more difficult to do individually.

Misa: Right.

Jones: We formed a women's group that was open to all women employees. They didn't have to join but they could. We usually had lunchtime meetings with speakers, and things like that, and I was the first chairperson of that group. And that was actually quite a large group. That was an interesting thing because we had participants both from the technical work force, which I was in, as well as the administrative workforce, so people from HR, from the business office, or secretaries; any woman could participate in that. It was a much larger group with kind of a broader set of interests and perspectives, so that was interesting as well.

Misa: Can you give us some idea about what your thinking was with that more formal group? The informal group I can see is basically a source of personal support, and motivation, and networking, but this is a bit more formalized and more visible, maybe, with greater impact. Was that some of your thinking?

Jones: It was definitely more visible. I think one of our objectives there, or one of our hopes, was to help the women in the organization be more supportive of each other. So while those of us on a technical track had done a lot of work—we were doing a lot of work with educating and persuading our managers who were men, about creating opportunity, and stuff like that—we wanted to extend our support to the women who worked in a different part of the organization, with a different set of career opportunities. And likewise, we wanted to cultivate their support as well. I can't recall specific events right now, but we wanted to not make it just about the technical women and our success, we wanted opportunities for women in the other field to be available to them as well, and to have the organization support them in their career paths, just as it would for me. One of the other things we did—I don't think through that organization but—one of the impacts that we had collectively in this affirmative action/consciousness raising era is I do think we influenced the work environment in a couple of ways that helped everybody. And that is [that] one of our proposals, since we were trying to increase numbers of women and minorities in the workplace on the technical side, is we came up with a mentoring program so that when there was a new hire that came in, a new woman or a new person of color, they would have a mentor who would help them get to know the ropes of the organization. That seemed to

be quite helpful, and pretty soon that was such a great idea that every new employee had a mentor, right? Like they did.

Misa: And that wasn't something that Bell had been doing earlier?

Jones: I beg your pardon?

Misa: This effort at mentoring was something that was not done at Bell earlier or at least not done on any formal basis. There's informal mentoring.

Jones: Right. And our perception, kind of as outsiders, was that informal mentoring happened amongst the men.

Misa: Right.

Jones: But it didn't happen as freely for women and minorities so we came up with this more formal approach that everybody did. Well, first of all, women and minorities got mentored, [but it was] such a great idea that everybody got mentored. And it was a great idea and it was very helpful, and very successful. I think that was a way that affirmative action, these initiatives helped everybody, didn't just help women and minorities. The second one I think that made a difference was the introduction of flex time. There was in those days, people thought there was a rigorous start time and stop time. Mostly they thought it was a rigid start time [and] you could

stop at a certain time or any time later than that that you wanted. For people with children who had day care responsibilities and stuff like that, or school schedules, finally over time we were able to evolve to more flex time. I think it was a 7½ hour day was our normal work day, and instead of everybody starting at 8:30 there was a window, you could start between 7:30 and 9:00 and then you could work your 7½ hour day. Initially I think that was brought up by working mothers and we were kind of able to experiment with that and see that it worked, and then eventually flex time was broadly available within those parameters to everybody. So I think that beyond our technical contributions, the group that I was with, I think we made a difference. And as I look back on my career that's one of the things I really think about, is we really made a difference during that period. Some of those were pretty hard fought experiences or episodes, and when I look back I think that sometimes we took the stand that we did at considerable risk, professionally, because we really had nothing to lose.

Misa: Can you explain that?

Jones: We didn't have very bright career futures unless we broke through some of these barriers and got people to consider us for things that they wouldn't have normally considered women for. And so by speaking up, yes, there were times that created backlash or hard feelings; on the other hand by not speaking up, we weren't going anywhere either. So that's what I meant.

Misa: So assertiveness, in some ways creating a more solid professional career track than might've been assumed on the part of male management toward the women.

Jones: Right.

Misa: Marda, you said with the more formal lunchtime meetings, that was a very specific initiative to try to extend some of the thinking and practices beyond the technical women.

Jones: Yes.

Misa: And the two points of mentoring and flex time, did that also focus on the technical personnel or did that extend beyond the technical personnel?

Jones: Well certainly the flex time extended beyond the technical personnel. I am not well enough informed. I don't know about mentoring programs on the non-technical side. I honestly just don't know about that.

Misa: Okay. Would you like to talk about your own technical career? The work you [did].

Jones: Okay. I'll just try to run through it chronologically and if you want to come back to something, we'll do that. So I worked in software development from 1972 when I started at Bell Labs as a Senior Technical Associate, and went to working full time and going to graduate school to get my master's degree in 1976. I continued working in the software development field up until 1977. And then I was offered an opportunity for what was in those days called a

rotational assignment. It was supposed to be two years where I would work in a different part of AT&T, and I was going to be working in the network operations center in Bedminster which was the long distance part of the company, long distance phone service part of the company. I was offered that opportunity because I'd been doing software development in that field. I'd been working on network management software and had interfaced with some of my user communities in AT&T Long Lines, at the time. I guess they were impressed with me, and so they approached my management to see if I could come work for them. Now keep in mind, I told you about the consent decree; they had it, we didn't. So they found somebody they thought was competent and would help them in this other arena as well. My management at Bell Labs was not thrilled about it; in fact I think they rejected it at first.

Misa: Because they would be losing you.

Jones: Well I guess. [Laughs.]

Misa: You would be working for somebody else so they're losing you, in a certain sense.

Jones: Yes. But somehow, they persisted and the offer came to me or I became aware of the opportunity and — this is another cultural difference — had the opportunity to consider it and accept it or reject it. For the most part, my Bell Labs management was encouraging me to reject it. They thought it would be, as one of them put it, a two-year hole in my career. They were very focused on technical progress and this would not be a technical assignment. It would be more of

— in those days — a management or an operations assignment. I was kind of intrigued by it, so I finally talked to I think it was my boss' boss, he was probably three levels above me, my boss' boss' boss. And he said something which I appreciated and gave me the flexibility to identify what I wanted, he said he thought that there were good opportunities in both places and so it wouldn't necessarily be a two-year hole in my career. I would not be working at Bell Labs on my technical career development, but I would be gaining other beneficial experience that might also be helpful to me and so he didn't see it as big a loss for me professionally to do this. Where I was — this is a little bit more about me and my interests — I was doing the software development and I was having some success at that, but I had the feeling there must be more out there. I was interested in seeing and doing other things as well. Not that I didn't like software development, it's just that there's a whole other set of stuff out there that I would like to learn about as well. So I ended up taking that opportunity and had transferred to Bedminster, New Jersey, to the network operations center. I worked there for a little over a year, and one year or so into that assignment I got an offer to return to Bell Laboratories in Illinois as a supervisor. So yet another promotion and a promotion into management. I was not the first of the women. I think I was number four or five. We were gradually making at Bell Labs, that great leap from Member of Technical Staff into supervision, management roles. That was a pretty significant step and one of the cultural differences between Bell Labs and Long Lines, or the rest of AT&T was — if you recall when I was considering taking the rotational assignment, I had the opportunity to consider it and accept or reject. When I got the offer from Bell Labs to return as a supervisor, I asked for — because it meant another move and I had just moved a year ago cross country, Illinois to New Jersey, [and this was] another move from New Jersey back to Illinois — so I said to the man offering it to me,

who would be my boss if I accepted it, that I'd like to think it over for a few days. Of course he had already talked to my Long Lines management, so they knew that I was going to be getting this offer, so when my Long Lines boss said, 'What did you tell him?' I said, 'I told him I'd like to think it over,' and my Long Lines manager said, 'You said what?!' [Laughs.] Because in his culture, especially Long Lines, you never hesitated when the boss said — well certainly for a promotion — you just said yes. And so in fact he said, 'You said what?!' I wanted to think it over. And then he said to me, 'and he let you get away with that?!' [Laughing.] I said, 'Well yes, he did.' He was just shaking his head; he couldn't imagine; he had moved eleven times in 13 years.

Misa: Wow.

Jones: And at that time AT&T was sort of like the joke about IBM, I've Been Moved. Well that's how much of AT&T was; Bell Labs not so much. But just this idea that I — or any person — could say I want to think it over. He said, in fact, when they would tell him about a move coming up, he'd go home and tell his wife that they were moving to Atlanta, or someplace like that. He didn't even make a phone call before he said yes, and stuff like that.

Misa: Wow.

Jones: Maybe that's a little bit more like the Mad Men era or something like that, but anyway, that was one of those cultural differences. I accepted the position and moved back to Bell Labs in Illinois in 1978.

Misa: That was back to Naperville?

Jones: Yes, right. And I was again, back to my circle of women friends. In fact, my predecessor in this job was Mary Holt. And we again talked about how we were tokens. I was the only woman supervisor in what's called a lab, or large organization, out of approximately 25-30 supervisors in this group, and five or six departments, I was the only woman. That was true, we were sprinkled like that, one to an organization and throughout the building. So I worked there. We were also typically promoted into a support role as opposed to one of the leading edge technical supervision roles. I did that for I think it was about a year or so, which was management's idea of okay, what they told us was this was a good first step. This is about learning to be a supervisor and what it takes to enter management. So that was their selling point for why women should take this administrative role, or more support function role in the technical field. I believe that I pointed out to my management that you're right, it's a good learning opportunity and stuff like that, and I see that many of the men are doing just fine moving into the leading technical supervision roles without the benefit of this experience.

Misa: Oh, okay. [Laughs.]

Jones: Right. And so that was those kinds of interactions that we were doing all the time. Okay, you're right, I'll learn a lot. I have learned a lot in this job, and I can name seven other colleagues who are doing just fine in their careers without the benefit of this learning experience. So a lot of things like that, just things that happened.

Misa: When I talked with Mary Holt, we ended up talking quite a lot about her experience with the Women in the Work Environment Workshop. It sounds like you had some contact with that activity but not a lot, is that right?

Jones: I would say I had quite a lot. I went through one or two of those a year.

Misa: Oh, one or two a year.

Jones: Yes. I would say I went through at least half a dozen or so of those. I couldn't tell you right now the number but I would say I did that quite a bit. They were very emotionally taxing for me because it was — it just was. We would be telling our stories. In fact, I attended one — there were special sessions held for the most senior high level executives — and I attended one of those shortly after I had received this promotion to MTS, the two-level promotion that put me on an equal entry level footing with men. And I was still in graduate school at the time, so I had not yet finished my master's. I remember probably one of the most difficult moments in all of those workshops for me, is when one of the executive directors — this would be a very, very senior guy — and there was a lot of denial then, in part because they didn't have exposure to

women at my level in the workforce so they didn't know what we were encountering on a day-to-day basis and they had a hard time believing that people would do in the work environment what we said we experienced. And so this guy was a little frustrated and I think that we were talking about performance reviews, how they were handled, and the kind of feedback we got. And this guy said in a very kind of pointed way, it doesn't matter what we tell you, it's what we pay you that counts. And so our salary structure and progression in salaries was very much performance related and tended to reward the people, the top performers with higher salaries than middle performers and lower performers. And that, of course, we all knew because there were published salary ranges so we knew within the range where our salaries stood. And that brought me to tears. That wasn't easy for me. I didn't cry to manipulate, that just went through me like a knife. And what I told him was I was just promoted not one but two levels for the largest corporation in America and I got a \$30/month raise.

Misa: Wow.

Jones: And to coin a phrase, you could've heard a pin drop. And then, as it turns out, one fellow who was in my chain of command, so who was therefore part of the decision making process to promote me, pointed out quickly — which was true — that when I finished the master's degree — and this was true for men, too — then you would get a bigger raise. So the main raise was coming when I finished the master's degree, and that was also true for men. That was also a pretty standard amount and that wasn't going to put me off the chart on salary, either. In those groups, they were not large groups, so I'm going to say they were maybe there were in the

neighborhood of 20-25 total participants. And there were probably, not counting the consultants who were the leaders, let's say there were 20 total participants, there might've been three or four women. So it was heavily loaded with men to women ratio. The person who ran it — actually, there were two people who ran it, I think, who were women — and then there were two or three of us like me, who were there to inject the reality of what women were experiencing in the workplace. So it took a lot of intestinal fortitude to speak up to a group like that, not only in these workshops, but sometimes in the workplace. And there were events that happened in the workplace that were truly educational for them as well. I remember one of the things — you may find this hard to believe, based on our phone conversation — but I was a good speaker, a good presenter. I think us technical people had a hard time relating to non-technical audiences.

Misa: Sure, then today, too.

Jones: That was something that I could do, and so when we would have a group, usually of senior executives come through to visit our laboratory and look at our project, I was sometimes asked to speak about one aspect of it, to present. And one of these groups that came through in the mid-1970s, maybe 1975-ish, was the board of directors of then South Central Bell. There were the Bell operating companies, this was the board of directors of one of them, way, way high level relative to me. So I gave my presentation about the system and the project that I was working on, and at the end, as we always did, I asked if they had any questions. One of the directors, one of the board directors — and I think he might've been either the president of South Central Bell, or the chairman of the board, anyway, one of them — started asking me about my

qualifications. What kind of education did I have, and what kind of work did I really do, and stuff like that. My vice president, who would've been like four levels of management above me, was their host for touring this facility. He saw this and he let them ask two or three questions, and I was politely answering. I was fuming inside [but] I was politely answering.

Misa: Right, as though a man would be grilled about what kind of a degree they had or something.

Jones: Right. So my vice-president said something to him about — I don't remember what he said — and this fellow who was grilling me said, 'Well I just want to find out if women are capable of doing this kind of technical work.' My vice president was really taken aback, and he said yes. He allowed as to how yes we were, and there were a number of women who were working on various aspects of a number of the projects they were viewing today. Two things happened after that. One is the vice president, who was one of these guys that I don't think had really evil intentions but just was not well informed and couldn't really believe people would do this kind of thing in the work environment, saw somebody do that in the work environment. And that was like a huge ah-ha moment for him; that really does happen. I heard later that it became a topic of discussion amongst his peers. I mean he did take it seriously enough to say that I saw that and my take-away was that these women have a point, crazy stuff like that happens to them. The other thing, because at this point was I had a reputation as someone that did speak out and didn't necessarily put up with a lot of — I didn't take these things lying down, shall we say. Immediately after my presentation and after they cleared the area, then my lower levels of

management gathered around me. I think one of them called me into his office and said are you okay? I heard what happened —I don't know who was there and who wasn't there — we heard about it, are you okay? I mean they too saw this and realized how inappropriate and how offensive it could be. So there were a couple of events like that that were quite teachable moments. In some sense I feel like I gave somebody a stage to dance on.

Misa: But then the way they were dancing on you, if I could put it that way. It's a teachable moment but that's to your point that this is also emotionally taxing, that this is not a neutral experience that you're going through when you have some high level executive saying demeaning things. That's a bit tough to take.

Jones: You're right, and that is the extra work, if I could say it that way, that women and minorities were doing in those days and perhaps are still doing today. Over and above just the basic job requirements, in addition to doing your regular job, you get to deal with all this other stuff and you need coping skills to do it.

Misa: Right.

Jones: So we were going through my career when I got sidetracked on that. I back peddled there. So I came back as a supervisor and I continued to participate periodically in these Women in the Work Environment Workshops is, I guess, how we got onto that topic. After being in this support role for a year or so, a job opened up that was one of the best technical supervisor jobs in

our organization. And I expressed interest in it, which surprised a lot of people but it was, we called it a planning job, so instead of just being a leader of a group that was doing software development, now it was looking at the next set of features and doing some planning which required interaction with the user groups, and other parts of AT&T, and Bell Laboratories. I got that job, which surprised some people. In fact, one of the fellows that worked for me later said they were surprised when it was announced that I was going to be the new boss. Then as they found out about my background and the fact that I had had this rotational assignment with the user community, he said to me, 'You actually are well qualified for this position,' with I noted, surprise in his voice. I said, 'Yes, I thought I was and I was interested in doing it.' So we moved on from there.

Misa: I heard that sometimes these rotational assignments were done almost strategically because it was felt that people needed either different experiences or broader experiences. Sometimes if they were involved with a support role then they would be given a rotational environment in a more operating role or something that was connected to something that would broaden and further their career. That seems like that kind of happened for you.

Jones: It did happen for me. It happened in spite of the earlier counseling I got from Bell Labs, absolutely. And later in my career I had another one of those, which was another important step. They appealed to me because as I explained before, I liked having an opportunity to be part of and learn more about the broader picture. As a software developer you work on a system and then you kind of turn it over to the user and you don't really necessarily get to interact that much

with the user community. You kind of move on to the next technical project. And I like the linkage between what I did as a software developer to what it meant to the user community, to what it ultimately meant to our customers. I happen to like that breadth.

Misa: So after coming back in 1978, can you give us a chronology about the different positions? It sounds like you had several distinct positions that involved you in those wider concerns.

Jones: I did. So I came back as a supervisor in 1978, and my next promotion was in 1983. At that point [I] was promoted to department head within Bell Labs and moved to Holmdel, New Jersey. So I went from the software development organization to what they called systems engineer, which was again more in the advanced planning and systems integration aspect of the process, and also put me in New Jersey, which was where AT&T headquarters was. And that particular organization had more interaction with AT&T headquarters, [and] was an interface between the headquarters people representing the user group and the software development. So we were in that and I served as a department head there from 1983 to I'm going to say 1987-ish, or maybe 1986. So one of the things I was interested in as part of this bigger picture [was] how does the business world work? I'd been interested in going to business school, getting an MBA, and while I was in Bell Labs Naperville, I had applied to and been accepted to the University of Chicago executive MBA program. But before I was actually enrolled, I accepted a promotion and transferred to New Jersey so I never was able to enroll in the University of Chicago program. But then a couple of years in New Jersey as a department head and getting my feet under me in that role, I decided I was still interested in the MBA program so I applied and started at

Columbia University in their executive program in New York City, while working at Holmdel. I started that in January of 1986 and it wasn't long after I started that program that I was offered the second one of these rotational assignments, which was more clearly a career path building thing. I went back to Bedminster as the division manager responsible for network architecture for the long distance network of AT&T. Again at AT&T headquarters, this was considered a more technical job but it was a liaison role between the business part of running a long distance network and the laboratory that was developing all of the equipment and systems to operate the long distance network. And that was clearly a stepping stone to a next promotion. My predecessor, who was a friend of mine, had moved as a Bell Labs department head into this division manager role and returned to Bell Laboratories as a director at this level manager. So that was clearly a career path stepping stone. At each of these steps along the way, I was the only woman in the organization at that level. There were a few other women at the same level in different organizations. In fact, when the guy who was going to be my boss in Bedminster, this was the network operations group, he was a very fine guy, I really enjoyed working with him. He said that when I interviewed for the job, we were discussing it and I told him that I just started this executive MBA at Columbia and I really didn't want to stop it, I wanted to continue to do that. So I did tell him that what that meant was I would never be in the office on Friday and it would cost him a fortune because this was a very expensive program. [Laughing.] He kind of laughed and he said well I think we can handle that. He knew it before he was offering my job, but anyway, I wanted to be clear about it. I didn't know if he expected me to drop it or not. I did want to put my stake in the ground that I really didn't want to drop it. He didn't really expect me to, and that was fine. But he was telling his management that he had selected someone to fill the

opening, and they happened to be on a business trip, as they often were. His boss, or boss' boss, who would be the president of the operations group, pretty high level guy, said to the guy who was going to be my boss, 'Oh good, what is *his* name?'

Misa: Ooh.

Jones: And Ken said back to him, 'Well *her* name is Marda Higdon,' and then went on to talk to them about my background. But when Ken told me about this he said, 'I maybe should have done a little bit better job of preparing them.' [Laughs.] So I did accept the position and those levels of management were actually quite supportive of me. Ken did a nice job of preparing them, telling them about my background and stuff like that and so they were quite supportive but it was clearly not their expectation.

Misa: Right.

Jones: That they were going to get a woman in that job. I remember during that period we had a few of these management meetings where all of the managers at my level and above, or maybe one level below, would go to a conference center for a two- or three-day strategy meeting. So in a room of easily 50 or 60 people, I was the only woman.

Misa: The *only*.

Jones: Yes. And that's just how it was. In fact I remember more than once I would say to a group of colleagues, you know it may be new for you to have a woman as a peer in your group but I have to tell you, you are just another group of men. I have been the only woman so many times in my career that you are just another group of men that I worked with. [Laughs.]

Misa: And what would their response be? You've basically trying to be honest about your own experiences.

Jones: They kind of took that in stride, I don't recall any great objection to it or anything like that, it was just a different perspective. I was acknowledging that they were having a new experience, and I was there to do my job and work with them, alongside of them. And yet for me, it wasn't new to be working with a group of men. I'd been there done that. So that was their response. This particular group of men I remember there were I think five of us, four men and me, five altogether. We had been at a staff meeting and this is peers, so we went to lunch afterwards. We were sitting at a lunch table and talking about this and that; and we were talking about not my boss but my boss' boss and everybody had their stories about him. He was quite a character. As they were telling their stories about this vice president who was, shall we say, very outspoken and so when he was not happy, you knew and pretty much everybody around you knew he was not happy. So they were talking about their stories with him, the times when he'd been not happy either with them or in their presence. And I said something like I hadn't experienced that. They turned as though they had rehearsed that and said, 'He treats you differently.' So we all had kind of a laugh about that, and apparently he did treat me differently,

but he was very supportive of me. In fact, he was probably instrumental in my next promotion. When I left that job in 1988, I was promoted to director at Bell Laboratories — going back to Bell Laboratories — and I'm sure that would not have happened without his support. But he was more gentlemanly around me; with the guys, he was not so gentlemanly, coarse language and stuff like that. But I never heard that, never experienced that. But it was kind of funny.

Misa: A little ironic to be treated special but in fact, this was a positive result.

Jones: [Laughs.] Right. In fact, during that time — now I don't remember exactly what happened — but I think I had written a proposal or some work project had gone up the line and had not been accepted. So in not accepting my recommendation, whatever it was, I know my boss Ken said his boss, this guy, had focused in specifically about would I be able to handle this — how would she take the fact that we didn't accept her recommendation? I guess he thought I might cry or something, I don't know. But anyway, Ken was able to tell him I was just fine.

[Laughs.] But it was funny [that] he was more concerned about my delicate nature.

Misa: Right, which of course, if you'd gotten that high within Bell your delicate nature must have been sorely tested by that time.

Jones: [Laughs.] Exactly.

Misa: What kinds of responsibilities did you have then as a director? That's a fairly high level position.

Jones: It was a fairly high level position. I was 37 years old when I became a director. At that point, I was pretty well known in the company and people knew what to expect. I had a great group of director cohorts that I enjoyed working with, and they were very helpful and very supportive to me. I guess in terms of matters related to women, at that point you reach a point where in management where you're at a high enough level that sometimes people think you're not approachable. I recall one incident where a group of women felt that they had been sexually harassed. That came to my attention and, of course, when someone — it wasn't a formal complaint but it kind of bubbled up to me — but you are expected as a manager to take action on that. I recall that at first, I guess I — oh, I don't know what — I didn't think it was as big an infraction as some of them thought it was so when I finally did come around to [realizing that] this really meant a lot to them, I did have a staff meeting. It wasn't my management style, and of course the people in my staff meeting knew that. But I remember saying something pretty close to, because it is 1990 —or whatever year it was — I can't believe I have to say this. And then I said that it has come to my attention that some of the women in our organization feel they have been sexually harassed. Sexual harassment is not acceptable and incidents of harassment will be dealt with. And I direct you — each of them — to relay that message, to talk to their direct reports in their organizations about this. I didn't give direct orders very often but that was one, and they were quite stunned about that. Not only [that] not all of them were aware that some of the women had had this experience, but also they were also quite stunned at I guess my tone of

voice and my approach, because I didn't give direct orders, and that was one. The second one was that I, of all people, had to say that not only because I was a woman, but I had the reputation of standing for women in the workplace, and for opening some doors that hadn't previously been open. So that really troubled me that I had to say that. Then the waters which had been pretty rough, it seemed to me, immediately calmed. It just seemed to me that the tension about that, once they did their part — which they did — things were immediately calmed and there was no formal complaint lodged about it, and as it turns out, the fellow that they were complaining about had left our organization anyway so he wasn't around to continue being a problem. So that had a happy ending, but I still remember — and in fact, it happened within the last year or year-and-a-half to another woman I know in quite a different position — where something happened with sexual harassment and people felt her response was weak. So she came out taking a much stronger stance, which she needed to do, but I fully understood and appreciated her frustration about how could anybody think that I would think it's okay. [Laughs.] You know? Just the idea that I would think that's okay is just ridiculous and offensive.

Misa: Right.

Jones: Working as a director, there was one colleague that was particularly difficult. He was difficult for everybody. I think he thought I was easy perhaps because I was a woman, but he was difficult for everybody so I'm certainly not the only person who had issues with him. Ironically, because I'm five-feet-one, so I'm a pretty small person and he was a big, football player kind of build guy, so there was a size disparity there and we were having a phone conversation. There

was a matter between our organizations that had come up and we were having a phone conversation, and he said to me something about I either needed to do it his way — whatever it was — I needed to do exactly what he requests or else I would regret it. And I said to him, is that a threat?

Misa: Sounds like a threat to me, yes.

Jones: Is that a threat?! And he was backpedaling; you couldn't imagine how hard he was trying to backpedal. He stuttered and he stammered and he finally came around to well no, it wasn't a threat, it was a prediction.

Misa: Prediction. [Laughs.]

Jones: [Laughing.] He might've said that to men, I don't really know, but I did feel like I prevailed, at least when I called him on making a threat. And I was specific to say 'is that a threat,' as opposed to 'are you threatening me.'

Misa: Oh, okay, yes. Not giving an object.

Jones: Right. So I did have that experience, and at that level we went through a series of reorganizations, we went through a series of budget cuts. It was a difficult period in the company as well as a difficult period for me professionally. A couple things happened. One is there was a

large tug-of-war, power struggle, between at that time Bell Labs and AT&T, which manifested itself in budgets and budget cuts; the tug-of-war between technological leadership and marketing-driven leadership. So that caused a lot of discomfort throughout the organization, not just me, not just my organization, but between Bell Labs and the other entity. Because I spent some time in both, I could kind of see both sides. A number of my Bell Labs colleagues had not done that so I think it was a little harder for them to understand not only what was happening, but the whys, and there was a point there. I was acknowledged for bringing my portion of the organization through that more constructively than one of my colleagues did. Nonetheless, there was some career pain associated with that. We were trying to transform one part of our business and that did not work. And for a while, the fact that it didn't work, the failure of that project was attributed to me, and I was the project leader, so that happened. However, within six months I was being cited as a role model for how to lead the next project. I had moved on to another project, smaller in scope, with a mission that was actually achievable whereas the first one was probably a little bit like solving world hunger. And so as we were making progress toward achieving that goal, then I was held up by the same managers who thought I had failed on the first one as this is exemplary leadership for how to run a project later. So there were some bumps along the way professionally, there. I then moved, I guess, went back across the bridge into the operations; I went into the international department, international operations and planning back at headquarters.

Misa: Is this back in New Jersey, then?

Jones: Yes, still in New Jersey. Shortly after I took a position there — I was very excited about it and looking forward to it — and I guess I had been in that position for maybe a couple of months when there was a reorganization. While I was on vacation, actually, a reorganization took place and they basically disbanded my group. So when I returned from vacation, here I was with actually no job left, and so that was not a nice turn of events. And [it] might've happened as much because I was an outsider, a Bell Labs person, as well as a woman. I'm not sure they would've treated an insider the same way, someone who had come up with the colleagues that way. What happened [was] I was selected for that position by the man who was my boss, in that position, and while I was on vacation he was forced to retire and then they disbanded the organization that I was part of. So that was an unhappy period, although out of that I did have a two-month assignment working in Brussels, Belgium, which a team of people from AT&T, and from France Télécom, and from Deutsche Telekom were looking at the potential for a collaboration between the three companies. The team was multifunctional, so we were looking at the marketing aspect, we were looking at the financial aspect, we were looking at the technology aspect — which was the part I was leading — technology integration across the three companies to see if there was potential there for collaboration. And as it turns out, we decided not to pursue it. The three companies decided not to pursue it. But that was a very interesting opportunity to not only work in Europe, but also to work on quite a broad scale international project.

Misa: With several different possible partners that must have taken a good amount to understand their business, too.

Jones: Right. So after that, I returned to New Jersey and took a very different assignment. [I] did this again in AT&T headquarters where we were launching a new initiative to strengthen our business relationship with companies that were owned by women and minorities. So I spearheaded that for one portion of AT&T, the long distance portion of AT&T, and actually we were quite successful. I did that for a little over a year. Then we went through another divestiture where Lucent Technologies spun off from AT&T and that's where most of Bell Laboratories went — software development, systems development, etcetera. I ended up joining Lucent in 1996, I believe [that] is when that spinoff occurred. Right, it was announced in 1995 and the actual spin took place in 1996. So I joined Lucent Technologies and retired from Lucent Technologies, working in the wireless technologies section. Our whole entity was developing equipment for cellular communications companies to use offering cellular service, not handsets but the cell towers and cellular networking systems. That was during the period — especially internationally — when licenses were being offered and the cellular telecommunications industry was becoming more competitive and growing by leaps and bounds. So there I was working with what we called customer solutions, so helping some of these cellular companies — today you would know them as Verizon or AT&T — but there were a number of smaller ones, especially abroad in Europe and Asia, other companies utilized the technology that we had to offer to enhance their service offerings and expand them. So that's what I retired from in 2000.

Misa: In 2000.

Jones: Yes.

Misa: Well, Marda, that's quite a career. Wow. [Laughs.]

Jones: Yes. [Laughing.] I had worked for AT&T I think at that point, 28½ years and that's when I retired.

Misa: You have a very broad perspective on different kinds of organizations, and I suspect also different cultures within the Bell System, and of course with France Télécom and Deutsche Telekom. I wonder if you have any observations or suggestions about maybe the change in the climate. I'm thinking especially for technical women. When we were talking before turning the recording on I said one of the puzzles was this shift in the 1980s and in the 1990s, particularly, that the computing world and companies becomes a tougher place for women. I'm wondering if you have any observations that might bear on that.

Jones: I have some thoughts; I don't know that I have any real insight into why that might be. What I recall, going back to the 1970s when computing was new, and so therefore unlike — as I talked about — electrical engineering that was not new. There was a real clear visual image of what an electrical engineer looked like, and an electrical engineer did not look like a woman, right? Nobody had a picture like that of what a computer scientist looked like or what a computer programmer looked like. And so therefore, I think when women started showing up in software development roles, there wasn't you could say a glass ceiling. There wasn't a glass ceiling to break because there wasn't a ceiling, you know? [Laughs.] Or there wasn't a barrier to entry

there. Now in that early era, though, there was a definite pecking order and so there was a view that electrical engineers or people that worked on hardware were more valued, more skilled, certainly more highly paid than those that were worked on software. And guess what? More women worked in software than worked on the hardware side. So that kind of all aligned. And then even as I thought in my career, the emphasis on software grew and software became more important. And certainly now as we experience life and we run into technical glitches, I think more often they are software glitches than hardware glitches.

Misa: Right.

Jones: And so software became more and more important. And so then I wonder if as software became more and more important, if that doesn't then place subtly and psychologically, well we need big strong men to do software development. It became a more acceptable, or more interesting role, or more lucrative role, which attracted more men to the profession. As for women dropping out or leaving, in a sense I didn't continue to do software development for my whole career. I had, as I said, these broader interests. I liked to think about things differently and I often felt frustrated even in the later years of my career when I was pigeonholed as a technical person. Yes, I'm a technical person but I do have an MBA and I do have some organizational skills beyond technology, and I might even be able to learn something about marketing, or whatever. So I was personally a little frustrated about being "pigeonholed" as a technical person. As for why women wouldn't continue to pursue that, I guess I'm at a loss for explaining that as well. But again, if I'm creating pictures in my brain about who are apps developers, and stuff

like, you know, the Steve Jobs kind of people who are leaders in the technology field and have given us some great technological breakthroughs, you think about guys in their garage or their basement fiddling around with stuff to do that. I just don't see many women in that picture, and I don't know what would be inviting to women.

Misa: Right. Actually, that's an interesting question about how to maybe recode or reset that image. That's an intriguing idea, not easy to do, mind you.

Jones: Yes, it's not easy to do. So I guess that's not terribly helpful but that's kind of the way I see it. I haven't done this for a while, but I do have some contacts still at the University of Iowa and a few years ago I spoke to their Society of Women Engineers. I will say there are more women in engineering now than when I was in school.

Misa: In engineering, right.

Jones: There's certainly more women; I'm amazed just in general at the college/university statistics these days about there are more women enrolled in college than men. That is certainly different than when I enrolled in college in 1968. So they're obviously choosing other fields than computer science, and I suspect it starts earlier than college. It probably starts with an interest in either math, or science, or engineering at a younger age.

Misa: Well, Marda, I appreciate your directing our attention to some of the images that people have of who belongs here, and if software development was a new field, people didn't have the image of either men or women necessarily belonging there. And your story about the two percent engineering niche, you felt that was not a place for women.

Jones: [Laughs.] I remember saying that to my advisor, that I couldn't possibly go in that building, like I wouldn't come out alive or something. [Laughs.]

Misa: Which is not rationally true, but it could still powerfully guide some young person's decision making. It wouldn't even have to be on a conscious level.

Jones: Right.

Misa: That's one of the things that's intriguing to think about: how do you deal with some of those images that are out there?

Jones: Right.

Misa: Well, Marda, this has been so wonderful. Are there any other topics that you'd like to speak to, include as part of the interview?

Jones: I guess I have touched on this before, not necessarily a single story — well, I can tell a single story — but in going through this interview with you, what I'm struck about is, at least in my career and women I know, how we really had to speak up for ourselves. And I don't know, maybe men have to do that also, but I can't tell you what it takes inside to do that. Perhaps raised as girls, you know, we're supposed to be respectful of authority, and looking up to our fathers, and all of that sort of thing. But it took a lot of courage and intestinal fortitude — and risk — to speak up for ourselves. And in doing so, and having at least some success with doing that, it also helped further develop that sense of courage and intestinal fortitude, and what do I really stand for here? So again, it gave me a sense of I guess a sense of self to be able to do that. The second thing that I have wished — I have two nieces who are now young women but as they were growing up young girls when I was in my career phase, what I wanted for them and for my sister, their mother, most was the confidence and the knowledge and the self-assurance that they could take care of themselves, that they could financially support themselves. Not that I in any way object if they marry and however they work out their family business. But just the confidence, and self-assurance, and self-esteem to know that you can take care of yourself I think is probably one of the most valuable life lessons that I have learned.

On the concept of a story, I do recall in the 1970s, in the early days, mid-1970s before I did the first rotational assignment, one of my work colleagues saying to me that because I had the job that I had at Bell Labs, a man didn't have a job, and that I only got this job because I was a woman. And I remember feeling bad about that, the idea that I only got the job because I was a woman. I remember feeling bad or discouraged about that and this was just one of the ways that I learned to reach inside to cope with that. And so as I did on many occasions, I had this talk with

myself and said well, let's take a look at that. Let's suppose they did hire you just because you are a woman, let's look at the work that I'm doing, the role that I'm playing in the organization. At that point, I believe I had been promoted to MTS and finished my master's degree, and was receiving good performance reviews, and things like that. And I decided as I looked through all that data about what I was doing in the organization and how I was doing in the organization, I finally decided that well, even if they did hire me just because I was a woman, they made out okay, I'm holding my own.

Misa: You're holding your own. [Laughter.] However else it happened, you're doing an okay job.

Jones: Yes. They didn't make out so bad. But again, that's one of those extra steps or extra burdens that women and minorities had to deal with in those days, and probably still do. But speaking of such things, I knew when I was promoted to supervisor in 1978 — that's they called me up and asked me to come back to Naperville as a supervisor — I knew that there would be talk about who did I sleep with to get the job. I knew that not because anybody said that to me, but because I had heard that said about the other women.

Misa: Oh my goodness.

Jones: And I thought okay, now the rumor's out, people are talking about who did Marda sleep with to get the job. And so again, I had one of these talks with myself and I said well, they're

going to say I slept with my boss. I thought about this guy, and he is not someone who would be attractive to me, okay? So I kind of said well, nobody in their right mind would say I slept with that guy. So then who would they say? Well, it would be his boss. I went through the same rationale then, his boss was older than my father. Well, nope, nobody in their right mind would think I slept with that guy.

Misa: Getting less and less likely here.

Jones: [Laughs.] So I went to the next one and I said hmm, nobody who knows me would think I slept with that guy. And then after that, it didn't matter. The decision had already been made for my promotion, it didn't matter. But those two stories are I would say characteristic of stuff we had to overcome if not externally, at least internally, that are in addition to us doing a fine job of doing our jobs.

Misa: Which you were supposed to be doing your technical job all the while.

Jones: That's what they were paying us for was the technical job. All this other stuff was, you know nobody paid us extra for doing this other stuff.

Misa: Yes. Well, Marda, I've learned such a lot from our conversation. Thank you so much, it's a very rich interview. Thank you for your time, and thought, and insights, and attention.

Jones: Thank you, I appreciate the opportunity to do this. It's been a trip down memory lane. And I hope it was helpful to you in your research, and I hope it will be helpful to other people out there.

Misa: I'm sure it will be. Thanks so much.