

An Interview with

MARY HOLT

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Conducted by Thomas J. Misa

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#### Abstract

Mary Holt graduated as a math major from Mount St. Joseph College, an all-women school in Cincinnati Ohio, then received a master's in information science in 1970 from the University of Chicago. There many of her classmates were from Bell Labs; she herself took a position at Bell Labs Naperville IL facility. She describes her engagement with issues of inequality in the workplace and opportunity for women. She describes an important model in the Urban Minorities workshops, started by AT&T Bell Labs management to address racism, and her role in starting the influential Men and Women in the Work Environment workshops. She describes changes in Bell Labs' company culture, through her departure in 1978 for Illinois Bell. She took a second master's degree in Social and Organizational Psychology from the University of Chicago and returned to work in AT&T Corporation's human relations, then took up an external career with ARC International, a training and consulting firm based in Colorado.

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Misa: My name is Tom Misa. It's the 22nd of December 2015, and I'm talking today with Mary Holt. We're doing a set of interviews for the Sloan Foundation to better understand the careers and experiences of women who worked in the computing industry in the 1960s, 1970s, 1980s, and 1990s. Mary, I wonder if you could take us back and say a bit about your grade school years or high school years. Were there any hobbies, or activities, or possibly school subjects that attracted your attention and that may have lead you to consider a technically oriented career?

Holt: Going way back, I was in a Catholic grade school, a Catholic, all-girls high school, [and a] Catholic, all-women college. After that I went to the University of Chicago for a master's in Information Science. The U of Chicago that was a big departure from my previous academic experiences. As far as how I got into the field of computing, I truly did not have a career plan in mind. I fell into it. Math was always easy for me. Those were my top grades and I did well in it. When it finally came time to go to work and get a job, I honestly didn't have any direction, didn't have any counseling. I followed my older sister into the University of Chicago and ended up in a degree program there which was very theoretical — compared to most of what we would call computer science degrees now. Much more about the theory of computing, the underlying math, information theory, coding theory and so on. So it was not terribly “practical” as far as jumping right into a job after that, but it was an extraordinary experience. I met Bell Labs people at U of Chicago who were getting master's degrees under a Bell Labs educational program. The program was pretty amazing—a kind that doesn't much anymore. In those days, they let you join Bell Labs with an undergraduate degree, and

then they supported you in getting a masters [or sometimes a PhD] at certain select colleges and universities, the top technical ones. I chose to interview at Bell Labs because I was encouraged to do so by my classmates at the university. That's really the whole story. I just ended up there through my relationships and being at the right school at the right time.

Misa: Were there any other people in your family, your mom or dad, or people in the community that might've been working as engineers, or accountants, or something that was more technically oriented?

Holt: Not at all. In fact I have three sisters in my family who are library science majors. They were chemistry majors or math majors before that, but then got master's degrees in library science. There was nobody whose path I was following, certainly not my parents. I did not have that exposure or influence.

Misa: You said that you'd gone to an all-women's college. Which one was that?

Holt: It's a small private college, Mount St. Joseph in Cincinnati, Ohio. The vast majority — I don't know, I would be guessing a percentage — but let's say 80 percent of the students there were in three fields: teaching, nursing, and social work—traditional women's fields. There were actually only seven math majors in my class and I was one of seven. So again, I didn't have a lot of exposure to career options, and I was [not] well prepared for jumping [from] there into the University of Chicago. I didn't have any

experience with computers as an undergraduate, so I was doing plenty of catchup at that point. But I knew how to get good grades.

Misa: So you said that at the University of Chicago the program was very theory oriented. Can you describe how it was theory oriented?

Holt: Information theory, the writings of Shannon and Wiener, the formulas that the earliest thinkers developed. The underlying theory of computer science, as opposed to the languages [that] were just beginning to be developed, and so on and so forth. There were brilliant students at the University of Chicago, and most of them, of course, already had an exposure to these topics, whereas I did not. But I was fascinated and intellectually stimulated. Plus, it was 1968 on a hotbed of student protests and sit-in's, with a lot of issues being debated all the time that had nothing to do with computer science, but had to do with questions of social justice and so forth.

Misa: Sure.

Holt: So it was a very exciting and pivotal time in my own personal development on a lot of different levels. But like I said, some of my good friends who I was in school with at Chicago were Bell Labs Members of Technical Staff already, and they suggested I interview with the company and that's how I ended up at Bell Labs.

Misa: Did you have any experience with standard programming languages or an actual computer while at Chicago?

Holt: Oh, at Chicago, I thought you meant before Chicago. Before Chicago, no. And yes, very early on I don't even remember what we did. I know we had to write a compiler. It was just ancient times ago so I really don't remember. Yes of course we did work on some early versions of computers, but it was nothing that would be used today.

Misa: What year, Mary, did you finish your master's at the University of Chicago? You said you were there in 1968.

Holt: I was there in 1969. I think I graduated in 1970 in the first semester. Yes, it was like a year and a half program.

Misa: Were there any other places besides Bell Labs that also attracted your attention, or was the Bell Labs influence really strong?

Holt: I went into the Bell Labs interview thinking it was just going to be a practice interview, to help me get used to interviewing. I really didn't even know much about the company. My family was living in Cincinnati at one point, so I interviewed with Procter & Gamble and a couple other places. I'm telling you, it was ancient times ago so I don't remember the details. But no, like I said — honestly, I'm being as honest as I can — I had no real direction. I had nobody advising me. I was just walking in and seeing what

kind of job I could get. And at Bell Labs, I interviewed with their several of their departments, which was their standard interview process. You typically would interview with several departments doing different kinds of work. I was just so impressed with everyone there and they seemed to want me to come work there. So it just kind of happened. I was not a directed person in terms of my career.

Misa: When you did the Bell Labs interview, was that in the Chicago area or back east in New Jersey?

Holt: Both.

Misa: Both, okay.

Holt: I interviewed both places, yes. I interviewed in Whippany. They were working on military systems, which was definitely not a fit, especially coming out of the University of Chicago campus in 1968. But then, I interviewed where all my U. of Chicago friends worked, which was in Naperville, Illinois, Bell Labs' facility for the development of electronic switching systems. And that's where I ended up.

Misa: So it's 1970 that you started work then?

Holt: I did. In March of 1970 I started at Bell Labs.

Misa: Can you describe what you found when you arrived there? Something about your working group, or the people that you were working with, the number of women who were colleagues?

Holt: Oh gosh, what can I remember from that early stage? Well, I just remember primarily meeting lots of very smart people, and especially all these incredible women. What I remember most are the experiences that eventually [10 years later] led me to leave technical development work and focus on issues of inequality in the workplace. Without knowing how to speak about it at the time, or describe it, or put a title on it, or understand it, women were grappling with issues of not feeling entirely equal, not being treated equally with men at work. So we started meeting on our own to discuss these common experiences. I'm sure some of my friends have already talked to you about that. We called them rap groups, or consciousness raising groups, and we'd meet every now and then in the evenings and just start to compare notes. That really grabbed my interest very strongly and I was very much a participant in that. Those are my strongest memories. And also, finding the technical work interesting, but not feeling like I was up to par with some of my colleagues. I felt I wasn't quite as ready as others were for the project responsibilities that were given me.

Misa: Bell Labs was a pretty high powered place. There were high powered men and women all over the place, I guess.

Holt: There were. And I think a lot of our [the women's] energy and attention was directed towards asking the question, 'What is happening here? How do we make sense out of this experience that we're having?' So that's where the conversation started to go.

Misa: I have one question about the organization of these groups. I've heard that there were some groups that weren't formally recognized but there would be a lunchtime group at Bell Labs; within the space of Bell Labs. But if I understand you correctly, this was something taking place beyond Bell Labs, outside working hours, at peoples' homes.

Holt: Yes, there were both. But the groups I participated in met on our own time. They were private meetings of friends who felt safe in talking in small groups of people we knew, about what they were experiencing, and why was it that we were experiencing this. And finding out they were not alone. It's just kind of a model that was out there in the world already. Being a historian, I'm sure you fully appreciate what was going on in the larger society at that time. And I will say with regard to sexism issues in the work place, I don't know what would've happened had we not been on the coattails of the Urban Minority Workshops that were already going on, and had been for a while in Bell Labs. Have people talked about that with you?

Misa: They've mentioned the Urban Minority Workshops, but I don't have as clear a picture as I might. If you've got some observations on that, I would appreciate them.

Holt: I think that was an extraordinarily unique experience. I don't know what other corporations in America were doing workshops like these at the time, if any. I can't say for sure because I don't know the history, but it was my impression that some top Bell Labs management, whoever they were at the time, and I'm not sure if it was New Jersey Labs or the Bell Labs Naperville, or both, but somebody or some group got very committed to addressing issues of racism inside corporate America and launched these workshops. At some point in time — maybe in the early 1970s—they became required attendance if you were in management. Managers had to attend a session of an Urban Minorities Workshop. It was an extremely hard hitting, deep experience. People were given an opportunity to really, really examine their prejudices and get beyond the objection stage, to understand and confront their own racism. The experience was very hard hitting and very deep. I did get promoted to management at some point, and so I did go to that workshop, and it was life altering. So these workshops became a model of a process, and an approval and permission for having conversations that you would never have if it were not for that workshop. And coming out of the 1960s with all the sit-ins, and the campus protests, and so forth, the country was just ripe for conversations like this, especially with people who were really thinking deeply. You said Bell Labs is a — I don't know what word you used — rarified place? Yes it really was in some ways a rarefied place, in terms of being full of very bright people who were really good at looking at data, understanding facts, drawing logical conclusions, and abstract thinking ... just really smart people. And I think once you get through to an understanding level of something like this, these people could experience in a deep way their own racism, then they understood how important an issue it was. I don't know who it was or how many

were initially involved, but some group of executives decided to launch this Urban Minorities Workshop and it really was quite transformative for the company. And then on the coat tails of these Urban Minorities Workshops, a number of years later, women started to emerge saying you know, we've got to do something about the sexism as well, because racism and sexism are in some ways very alike, and of course in other ways, very different. I became fascinated by the subject of discrimination in the workplace, and took a leave of absence and got degree in Social and Organizational Psychology at the University of Chicago. Then I went back into what was then called the Bell System which was comprised of many companies and over a million employees at the time.

Misa: Oh, it was immense.

Holt: So after getting my Org Psych degree, I re-entered the Bell System but not Bell Labs. It was like night and day in terms of awareness of the issues of discrimination I had become so interested in ... in terms of what was considered to be appalling behavior versus acceptable behavior of men towards women, and everyone towards minorities, etc. These subjects were not even being discussed in the other parts of the Bell System, for the most part. By far the leader in all of this, in my understanding of this history, was Bell Labs. And what they did in this arena did not seem to transfer at all to other Bell System companies. The intelligentsia of Bell Labs decided racism and sexism is serious stuff and important. I'm not saying that everybody got religion or cleaned up their act quickly, but there was a huge investment that the company made towards giving people an opportunity to examine their own racism and sexism and change their behavior. The

standard line was, ‘We can’t make you believe or feel differently about these issues of racism and sexism, but we do insist you BEHAVE in non-discriminatory ways at work.’ And then before I even left Bell Labs— it must’ve been around 1977 — a third issue was added, which was gay rights. At the time the term LGBT didn’t exist, it was called gay rights, and Bell Labs started holding Affirmative Action meetings about that subject as well. I’m sure people have told you about that. And then of course there was the expectation that every department in the company was required to hold two Affirmative Action meetings a year, which everyone was required to attend. They were not just for management level people—they were for all employees, so it was quite an immersion and an ongoing conversation within the company. It was institutionalized corporate conscious raising.

Misa: So you’re talking really about a whole process of cultural change, and organizational change, and what you’re stressing, Mary, is really the connection to the broader society and broader social and cultural changes going on.

Holt: Absolutely, and it wouldn’t have happened without all the turmoil of the 1960s, with the race riots, with what Gloria Steinem was doing with *Ms Magazine*, and all the other early feminists, with what was going on with the students and campus protests, etc. People were getting together and talking about these things on a lot of different levels. But again, I absolutely believe the Urban Minorities Workshop in Bell Labs were a key to the later success we had with introducing workshops on sexism like the Women in the Work Environment. The Urban Minorities Workshops came first and much harder

hitting, and more emotionally tough workshop to get through. People left changed and committed.

Misa: I wonder if we could circle around back to that. I'm not asking for the detailed content because I'd like to focus in on your work on the women's workshop, but I'm just curious. Were the Urban Minorities Workshops done by outside experts or were there people from Bell Labs?

Holt: Yes.

Misa: You said outside experts?

Holt: Absolutely, outside experts. And I don't know if that sort of thing even exists anymore, but they were quite extraordinary facilitators and willing to go — in my view, and this is all obviously just my view, other people might feel very differently about this — but I think they were willing to go harder and deeper at people to crack through this protection that we just don't want to think of ourselves as racist. The whole word institutional racism may have just begun to get into the vocabulary at that point, but I think of it more as it came out of that era of these very difficult workshops.

Misa: Yes.

Holt: It was hard. It was hard.

Misa: Would the workshops would be a day long, or two days long, or what would you say?

Holt: Oh no, five days.

Misa: Five days, so a whole week.

Holt: My recollection was it was Monday to Friday. It might have been four days, but it was not a two-day workshop. And these were only for management. Some of the Urban Minorities Workshops actually included trips into the inner city, for example Newark, I believe. This was almost 50 years ago and I'm not sure what cities were involved, but it was an exposure that was intended to have people feel what it would feel like if you were black. In these workshops, as a white participant, there was nothing you could do that was right. There was nothing you would say that was right. Nothing you did or said went unchallenged because without being on the receiving end of prejudice personally, the belief was you would never get to the level you need to get to in terms of understanding your own racism. So mandating these workshops for all management, followed by requiring two Affirmative Action departmental meetings a year for all employees—that was a huge corporate commitment. I don't know of another company that made that level of commitment. There may well be some—I just don't know them.

Misa: Oh yes.

Holt: I still to this day marvel at whoever it was that had the courage to invest in that, to the level they did. Again, that was all happening when these groups of Bell Labs women, including me, began meeting to talk about sexism at work. We already had a model in our heads from our experience of the Urban Minorities Workshops. We had a template, and a permission of sorts. The Women in the Work Environment Workshops were in some ways emotionally wrenching for some people, but they were not as hard hitting as the Urban Minorities Workshops. And of course, we did employ excellent outside facilitators. And by the way, before I forget, Yvonne [Shepard] asked me to give you the name of the outside facilitator who we hired and used a lot. She was phenomenal, she was outstanding — her name was Eileen Lang. She said she gave you Eileen but couldn't remember her last name.

Misa: And the last name is . . . ?

Holt: Lang. I don't remember if it was L-A-N-G-E or L-A-N-G.

Misa: Lang, okay.

Holt: Eileen and others we hired to do this work were exceptionally talented people who knew how to create a safe container for our people to come together, have a chance to look at their own sexist behaviors and watch their defenses get torn down. Women in these workshops had the courage to say the things that they would never have said out

loud without a very supportive team behind them in the group. So that's what happened. We created these workshops based a bit on the model and the permission given us by the Urban Minorities workshops. I think that's a really important piece of history. We rode on their coattails.

Misa: Yes. So that was a powerful model. Were there other things that were more specific to women's issues that you added to the Urban Minorities Workshop as a model?

Holt: The idea of addressing workplace sexism via a workshop format was similar. But of course the subject matter was specific to sexism. As I recall, each workshop was made up of half women and half men from Bell Labs. That was not the case with Urban Minorities since there weren't enough minorities to do that. What was discussed inside the sexism workshops were example after example of unconscious, stereotypical things men have done or said that are power moves but not intentional, not conscious. Yet they serve to maintain the power structure of men over women. White males in positions of power, they speak and act in a certain way. These were lots of anecdotes the women shared—based on real experiences. A typical example was that one woman was being promoted to technical management early on, at the time when you could count all the female technical managers on the fingers of one hand. And before her supervisor told her of her promotion, he told her husband (who was not a manager yet). Probably assuming it would be difficult for him that his wife would outrank him. Did you hear that one?

Misa: No.

Holt: Before they walked in her office and said I want you to know you've been promoted to manager, they told her husband ... so he would be ready for the news. There were so many silly, ridiculous examples like that that got discussed. Examples of a double standard that never happened in reverse. So all the specific examples of sexist behavior that were brought up in these sessions became the fodder for all the conversations that followed for the duration of the workshop. Another example was around women's dress. Did anyone tell you that Bell Labs women were not allowed to wear pants to work until — I forget the year — maybe 1972 or 1973? [And then, we could only wear pant suits with long enough jackets to cover their rear ends. Meanwhile men could wear jeans, tee-shirts, sandals, whatever they wanted. This was a research environment—not a place that required formal business attire.]

Misa: I heard there was a very specific discussion about pants, which is very difficult for us to connect to today, but that was a deeply symbolic issue.

Holt: It was deeply symbolic. Beautifully put. You already know it so I'll just say we can talk about things like that, and we can't normally say how that makes you feel but you get people in a circle with all those examples — that allowed people to talk about deep feelings and emotions and it was a safe place to do that. And you know that if you got the courage to say something out loud that had been offensive to you, that you'll be supported. [While the subject specifics and examples may have been different, what was similar between the two workshops was permission regarding the difficult subjects and

the depth of the conversation and the safe container in which to speak the unspeakable and believe it won't be career-ending.]

Misa: Right. So the Urban Minorities Workshops were five days in length. Were the Women in the Workplace Workshops also five days?

Holt: I don't believe so. I don't exactly recall but I don't think it was five days. It might've been three. I'd be guessing. It wasn't five, I think it might've been three, or maybe three overnights and an evening, like three and a half days. I believe that's right.

Misa: And then there's one other thing that's puzzling me, with the Urban Minorities Workshop you said people would then take a trip to Newark. That suggests that this is then being done not on a Naperville or Chicago area, but on a companywide level, at least Bell Labs wide level. Newark's not Chicago.

Holt: I used Newark as one example. The title is interesting, I think, in retrospect. We just called it the Urban Minorities Workshop, but there was something in the original design of that thing, perhaps it's because all of Bell Labs are in or close to urban centers, as opposed to minority issues as they manifest in the rural South. I don't know the answer to why they were called "Urban" Minorities Workshops, but I think that would be interesting to find [out]. But I think some of the workshops that were done did not include an experience of an urban center or a ghetto in some urban community. I

shouldn't say a lot about this aspect because I didn't experience it personally, but I do think it was part of the original format and then the workshop format evolved over time.

Misa: Okay.

Holt: It was Bell Labs wide, not one location.

Misa: So not at all unique to Naperville, but Bell Labs wide, that's the key thing.

Holt: It was Bell Labs wide. That's why I said someone at very high level in the company in probably the late 1960s got the religion, you know? Had a personal experience, saw the future before him — I can say "him" safely — and made a commitment, and then it sort of unfolded from there. And then it became a requirement as I said earlier, that anyone in a position of managing people had to have their consciousness raised in this form, by attending a workshop. I think the Urban Minorities Workshop was quite a profound groundbreaker and precursor for the Women in the Work Environment Workshops.

Misa: Right.

Holt: And it didn't trip over the rest of AT&T anytime soon, I can promise you that. I think it must have to some extent, because other parts of AT&T were affected by class action suits and something needed to be done to address those. People had this model in

Bell Labs that was available to copy. But I don't think they did copy it. I just don't think the depth and the commitment was there in a lot of the other Bell System companies. And then, as you brought up earlier, it's so true that the whole telecommunications [industry] was radically changing and competitors entered the mix, and I think less money was available for things like workshops, and there was by necessity more attention to profit and managing costs. So the environment changed radically over time.

Misa: For a long time, Bell Labs had a — well, it's understatement to say unique structure, but they had tremendous resources and relative isolation from the marketplace. But after 1984, my understanding is that many of the managers had to be thinking about profit and loss, and that was a new experience. So then all of a sudden, money spent on a workshop, say, was money that they had to justify in some explicit way. Whereas before you could just say it was important simply to change the company culture and without necessarily saying that of course somewhere it's impinging on profit and loss, that wouldn't be under the direct manager's responsibility. So that's a big structural change.

Holt: That's absolutely correct. And I think perhaps another contributing factor was that after 15 years of all these workshops, and all this consciousness raising, and two or more affirmative action meetings a year that everybody had to attend, people were a little tired and burned out. You know, like what are we going to do for this meeting? What speaker can we bring in? How do we give people a "new" experience? Also, to be fair, there was a lot of progress made in these areas during those intense years. I know there's still a lot left to do, but I do think things have to eventually move on and maybe at some point, all

that came together. The external changes in the business, and people with a little bit of burnout about these issues of discrimination, along with some real progress.

Misa: Before we deal with your external Bell Labs career, it might be helpful just to have your thoughts on any changes or evolution in the structure of the Women in the Work Environment Workshops themselves. Did you see a shift in issues that were pressing? You were talking about the kind of fatigue or something, but just in terms of the topics that people felt important to pick up.

Holt: I really left too soon to answer that. I can't remember the date when they started or when we made the initial proposal that was accepted and we got going on them — must have been the mid-1970s, probably 1974-75. I can't remember. I left in 1978 so I really wasn't there that long while those were going on. But I do think what happened was then other minority groups feeling discrimination started rising up and needing attention, and that gave people new topics to address in these meetings. So it became a broader conversation around discrimination and equal rights, like the gay rights issue, and I believe there was also, even a little bit later than that the handicapped community and accommodations for them. But I was long gone at that time.

Misa: When?

Holt: When I left, there was probably the beginning of some conversations about the gay community, the gay rights issue in the workplace. So you'd have to ask someone who stayed longer than me for that.

Misa: You said you left Bell Labs in 1978, was that when you picked up this degree in behavioral sciences?

Holt: Yes. Social and Organizational Psychology. I went back to the University of Chicago and got a second master's because what I really wanted to do was to take a pivot in my career towards these issues that I cared so much about, and it became a broader interest in how to help people change. But yes, I went back and got a foundation in the theory and practice of org psych — very different from my first career choice. And then I went back into the AT&T System in different capacities, in Human Resources departments. I was part of a group that launched a company down in Jacksonville called American Transtech, formed when the divestiture resulted in the breakup of the Bell System. But those jobs were kind of placeholders for me while I figured out what I really wanted to do ... and I eventually left AT&T to join a training and consulting firm that specialized in large scale change inside corporations. That was their primary mission. By then I felt really prepared for this kind of work. I felt like it would be an excellent fit for me, and it was, as it turned out. At that point, I wasn't specifically focused on minority issues or women's issues. My energies were more around culture change and alignment inside large corporations. As you can [imagine], a lot of the "change" work I had done in the Bell Labs workshops in the 70's was very relevant in my consulting work.

Misa: Exactly, oh yes.

Holt: And also seeing firsthand how people behaved in the other Bell system companies [not Bell Labs]—it was clear that there was still a lot of work to be done out there. That's pretty much what I concluded.

Misa: What was the name of the consulting firm?

Holt: It was ARC International, out of Colorado. Some friends of mine were consultants in that company, and it actually was a former Illinois Bell fellow who I got to know who encouraged me to join that company. So I did and that's where I stayed with for the rest of my career. Well actually at the end, I did my own consulting for a while, outside of the company. Anyway, that was a wonderful part of my career and I really, thoroughly enjoyed that. Once again, our consulting in culture change was largely based on a workshop format, building on the experiences I had had early on in Bell Labs.

Misa: Sounds like a really nice progression.

Holt: Yes.

Misa: Mary, I'm wondering if we could put in slightly sharper relief the differences that you thought existed between Bell Labs and other of the Bell units?

Holt: I think it was like — oh my goodness, this is going to be recorded — well, the move from Bell Labs in 1978 to Illinois Bell in 1979 was like stepping back 10 or 15 years in terms of consciousness about the rights of minorities and women in the corporation, in the company.

Misa: Ten or 15 years.

Holt: It was like stepping back a long time. It was like none of the issues of discrimination had even been addressed. The way managers should or should not treat women and minorities had not been addressed. Managers hadn't had the opportunity to grapple with their own racism and sexism. It was huge. I was constantly appalled at what would come out of people's mouths or at their actions. So that was Illinois Bell. After that I worked for AT&T corporate for a while, and that was bad too, but not quite as bad. Still not on par with Bell Labs. And at American TransTech, there was a lot of that same stuff going on. It just wasn't in the conversation. People weren't aware of what a double standard exists in how you treat, promote, or assign people, or give jobs or opportunities out, or coach or counsel or mentor. All those things were not in place at all. Zero. That was 1979. A lot of the women you may have talked to already never left Bell Labs — well, that's not true, I take that back — some of them did go on to other parts of AT&T and a few left the company. But most stayed put, so did not have these same experiences I had.

Misa: Many of them I think moved to other divisions of Bell Labs, and a few did move to other parts of AT&T. But this is a cluster and to be honest, we have to be careful about a kind of Bell Labs-centric view. But it's useful to be able to document an active corporate culture. You have to be wary of what's on the other side, but what you're saying because your direct experience in moving between Bell Labs, Illinois Bell, AT&T, you got kind of a unique, comparative perspective.

Holt: Yes.

Misa: That's why I wanted to get your thoughts on it.

Holt: American Transtech was the last one. All these Bell System companies were very different from each other, based on their diverse missions and type of work/workers that were needed for the jobs. One was a huge operating company whose mission was to provide service to phone customers in a regional area. [There were] masses and masses of women in certain jobs, like telephone operators in the early days, etc. But all of the management were men of course. That's very different from corporate AT&T, which was full of staffers who established corporate policies and wrote white papers. American Transtech managed shareholder services—and ran massive call centers. Each company was different, and they were all radically less aware about these issues of discrimination than Bell Labs was at that point in time ... in my personal experience.

Misa: Radically less aware.

Holt: Radically. That's my word; I'll stick by it. They had no context. They hadn't been there, done that.

Misa: You're focusing on vocabulary and several specific pieces of language. Several people told me that it took years to banish the patronizing term "girls" at Bell Labs.

Holt: Oh yes.

Misa: But that successfully was done, so women were not termed girls. Would that be an example of a term that might have lingered at Illinois Bell or American Transtech?

Holt: Yes. Lingered?! That's just — they didn't use women. I mean, it was not men and women, which are equivalent. It was men and ladies, or men and girls, most often girls. 'You girls want to get my coffee?' [Laughs.] It was just like stepping back in time, that's all. I'm not saying they were stupid, just unaware. That's where Bell Labs started, too.

Misa: Right, yes.

Holt: Bell Labs invested, made a huge investment and a huge commitment. That's the difference.

Misa: That's right, yes.

Holt: I don't know what happened after I left AT&T, but I can tell you that when I left there, sexist innuendos, comments, and jokes were still common and acceptable—a complete double standard. Racist behavior didn't take that same form. It took a different and probably worse form. But none of these subjects were addressed. It wasn't in their filter, so that came as a surprise to me when I joined those companies. I truly didn't realize how isolated and unique Bell Labs was at that time. I don't know if there's another company — you've interviewed a number of high tech companies with women — I don't know if there's another example of that level of commitment in corporations. That would be interesting to know. [I'll] read your interviews later and then I'll know.

Misa: We're doing some research also in company papers. We have corporate archives here at the Babbage Institute, so we can actually go back and see what people were writing. It's essentially internal company correspondence, and that's been a really rich source, too. So it's not only the interviews that are helpful to try to recreate a sense of how change has occurred, internal company documents can be very revealing, too. What are the concerns that managers have and what are the ways that the company wants to represent itself to the external world. One of the companies that we're doing some research on is Control Data and pretty early on — this is the late 1960s — before 1970, they were very concerned with women's issues, minority issues, and especially making sure that all their external images were not just “white guys.” And that persisted in lots of other places [such as] IBM and Burroughs. Burroughs, especially, it took into the 1970s until they got the idea that they didn't have 100 percent white guys, because that was

their recruitment stuff was all white guys. It's amazing to think of that. And they had African Americans on staff, they just made them invisible, I think. You're familiar with this but it's just very striking to have the evidence in front of your eyes.

Holt: It's been there a lifetime, and I'll tell you that I've just been amazed at the speed with which the issues of gay rights and of the LGBT community have [moved]. Maybe it's due to the social media—the reason why these issues changed so much faster than any of the other, earlier issues. So many people in our younger generation didn't have to go through all these stages of awareness. They just go, 'Well, what's the problem? Of course they can be whatever/whoever they are.'

Misa: Yes.

Holt: Maybe it's just the readiness of the country. Some of these things do take years, like getting 'girls' out of our language. And look at how fast the whole acceptance of gay rights has gone in recent years. I'm astounded by it, in contrast to how racism and sexism issues had to plod along. We had to keep trying, going back to the trough over and over again.

Misa: I suppose there's some gay rights activists that would say it's been a long time coming, but in terms of the public climate, we've seen a huge change the last couple years.

Holt: Oh, totally long time coming — however many centuries and millennia you want to talk about — a long time coming, but once it really started to get in the public conversation, it flipped in ten years or less. I don't know, less than that. But I was going to say one other point about the Women in the Work Environment workshops. The effect of the workshops were not just that they changed the men. They also radicalized the women—women at all levels. Most of the women attending these workshops were in lower level technical jobs and a lot were non-technical people, from the staff side of the house. They included technical people, secretaries, lab assistants, HR folks ... all kinds of positions. These workshops really did radicalize the women because they got to be in these heavy duty experiences where they could look up to a couple of these leadership women you might call them, the leaders of the group, and see how frustrated they were too, and how articulate, and how disheartened, or courageous, or whatever [they were]. So I do think it had this double effect—both the male and female participants left changed and empowered.

Misa: Not just changing the male culture but empowering the female culture.

Holt: Absolutely. Empowering and yes, I say radicalizing them, but empowering is probably a better word. Getting them to the point where they understand what their experience so they could articulate it. And the courage to speak up, knowing you're not alone.

Misa: It must have been a tricky thing to do to establish a safe environment. So for instance, if a woman or a man was in a workshop, you'd be hard pressed if your supervisor was also in the same workshop. You must've paid some close attention to who was there, then how to create different safe groups?

Holt: We did pay close attention. I was part of the group to propose those workshops to start with. But Yvonne, who you talked to earlier, Yvonne Shepard, had a lot to do with selling it to upper management because she's a master salesperson. She's a master marketer. But my role in a lot of these workshops — not all of them, and not most of them — was that I would occasionally take a week off of work and do this work that I loved, which was to be part of a workshop and support the outside facilitators and the participants, help them figure out who was going to be in those chairs and why. I was part of an internal/external team of facilitators. It was so critical, the quality of the facilitators that we hired do these workshops. They were top notch. They were people who had this understanding in their bones about what it looks like, sounds like, and feels like, when you experience racism/sexism in the corporation. They were just outstanding. So when you say create a safe space, they knew how to do it in spades. They knew how to make somebody feel like their contributions, their sharing, their vulnerability, their fears ... it was all a huge contribution and that they're part of making change. They just honored people so much. That is not an easy job, to be really, really good at that, like these Urban Minorities Workshop leaders were also. At my age, I've been in hundreds of workshops at all different levels of organizations, top to bottom. These facilitators were the best of the best, and that was critical to the success.

Misa: You said the best of the best, but this was not an activity that had been going on for like 30 years. This is not the second generation, [it's] the pioneering generation.

Holt: These were ground breaking people. In fact, I suspect that the people who were the facilitators of the Urban Minorities Workshop, wherever they came from, I think they really broke new ground, more than anybody. And how they sold that, don't ask me. It's still a really important piece in my own life. To experience that, like I said it just opened up all kinds of new thinking for me. I learned that whatever misunderstanding you have between people, there is a way to have a conversation that breaks through the block. But you better have people there who know what to do with the pieces, when the pieces fall—how to put people back together again.

Misa: That's right.

Holt: So anyway, it was an exciting time. It was an exciting time at the University of Chicago campus. It was an exciting time in the corporation. And these were the things that I loved and these were, I think, where my interests and talents lie.

Misa: You gained some insight into the processes of cultural change. Was there any connection to the University of Chicago campus in terms of the facilitators of these workshops?

Holt: No, not at all. You know as a student I attended some pretty radical meetings, a couple, not that many because it was too radical for me at the time in 1968. But there was a lot of stuff going on and there were just people who had incredibly passionate beliefs early. They were the pioneers, you know? In that case, students were confronting the university authorities and what they were doing to the surrounding community. There were all kinds of sit-ins, and stuff going on. I wasn't involved personally other than I had my eyes open and my ears open and I was learning about forms of protest and social justice. So it was a good time, it was an interesting time. [Laughs.]

Misa: Mary, can I ask a reflective question? You've already responded to one of my reflective questions, which is the consequences and importance of the women's movement in the 1970s; you've spoken to that quite eloquently. But I wonder if you might address the 1980s and I mentioned this puzzle that at some point in time, this long term — 20 years — of women working in computing and working in the computer industry, it peaks in 1984, 1985, 1986, and then it starts falling. Do you have any reflections, or comments, or observations that might in any way bear on the changes in the climate for women, or changes in anything else that might help better understand this reversal, and then this drop?

Holt: Until I read a couple of articles that my friends were sending around, I didn't even know this drop happened so I had not really reflected on it a great deal. But what I have read, or anything I read about these kinds of things, I think it's extraordinarily complex. So like you said earlier in our conversation, there's no silver bullet. Absolutely not one,

so it's probably a confluence of many things. But as women, young women in the Millennial generation and probably the generation before, feel so much more certain that obviously I'm going to have a career and a job, it's not like can I compete? It's obvious I will. All I have are questions, Tom, so I'll give you some of my questions that I never see answers to, written down answers to. It's very possible I think that as women became much more savvy about careers and what are fulfilling careers, where's the payoff, and stuff, maybe computer science wasn't seen after some time as a high potential career, as much as say, becoming an attorney, or a doctor, or going into some of the other; environmental sciences, or something that's more interested to them. I don't know. It could be that they just [considered], well here's the investment that I need to make and this is going to pay more, and this is going to be more lucrative. I honestly don't have a clue as to what happened and I didn't even know that the numbers were that high in the 1970s and 1980s; I didn't realize there were that many women. I think of them as coming out of the days where all the women were the keypunch operators, and then maybe some of them started to do coding. I'm not going to have anything to offer there. But I don't really buy that it's the choice — I don't really know how important a contributing factor what toys a child is exposed to [is]. I personally, as I said earlier, was not prepared for the University of Chicago, compared to the colleagues that I met there when I walked in the door. I was ill prepared to jump into a computer science degree, but with a lot of hard work you can get through classes and learn to do some things. But I had a lot of catchup work to do. So I don't know, if you have a natural affinity toward solving problems as coding and going into computer science as a field, I think I don't see anything stopping women from doing that. I'm not going to be a good person for you to talk to because I

really haven't thought about it. I don't know what the comparable numbers are for women in some other high-paying fields. I suspect that there might be some things about young women making choices about good careers versus careers that maybe peak out early.

Misa: Yes. The other way of thinking about computing during this time, and ask the question a different way, computing now looks much more like the engineering fields that have been heavily dominated by men, and have seen slow, slow, slow progress toward greater number of women in the field. So what's notable about computing really is this burst of women entering the field in the 1960s, and 1970s, and into the 1980s. That's in part what we're trying to get some data on in this set of interviews, because it may well be the case that computing is simply reverting back to electrical engineering, or mechanical engineering. That still doesn't explain why so many [women] found computing to be attractive for 20 or 25 years.

Holt: Let me just see if I understood what you just said now. Did you say that during the 1960s, 1970s, computing was considered the software development and engineering was separate, and now after that point in time, they are more merged together, like a computing engineer degree would be? Is that what you're saying?

Misa: No. Not quite. When you look at like different disciplines, there's some fields like the traditionally women-friendly fields such as teaching or nursing, or social work, [where] professional jobs in those fields have been solidly dominated by women for a

long time. Biology and chemistry for instance, during this time became more gender balanced. The engineering fields became more gender balanced, but at a glacial pace, very, very, very slow progress. What's notable about computing is there's this big upside that is [unlike] any other field. No other professional technical field resembles this massive increase from about 12 percent of women getting computer science degrees, up to 37 percent in the 1980s. There's just nothing like that. So the upside is just as important to understand as the downside is.

Holt: Yes.

Misa: And there may be some connection between them, we don't know.

Holt: Have you interviewed the primary schools that produced these majors? The primary schools that caught these women, is that part of your research?

Misa: This study is really focusing on women who worked in industry, because we didn't want to go into essentially the creation of computer science, and then interviewing a bunch of people who worked in the academic realm. That would be a useful extension or companion study, but we wanted to have a larger study focusing on the industry experience of women, not the academic experience of women. But obviously, there's some connection. But it's important to remember, too, that there are lots of women that I've talked to, they became programmers without ever getting a computer science degree.

You don't need a computer science degree to be a programmer, or a system analyst, or be a manager, etcetera; you know that, too.

Holt: Yes. This is all very interesting because I didn't know this history and it's just fascinating.

Misa: It is, yes. And you lived through it.

Holt: But I do think that at some point it seems, like you said, very connected. I'll bet you a good percentage of people chose this field because maybe the universities were recruiting. Who would've asked them to recruit other than the people in the industry who need to hire them? So it's going to be an interesting thing to find out why. I agree the upside's as fascinating as the downside.

Misa: Yes, there's something that's important to understand and the intellectual engagement that so many women have tried to explain is really an important thing. I can't tell you how many people [say], 'I majored in math. I was captivated by logic, by problem solving the first time I started programming.' This is a very common story. 'This is the best. This is exciting,' and I've heard that story 10 or 15 times in almost exactly those words so there's this very powerful psychological engagement that many women felt with computing.

Holt: That's awesome, that's really, really interesting.

Misa: It is, yes.

Holt: I totally relate to that because I had a little bit of that. I'm more captivated by how people treated each other inside the institution, but I can totally get that. I really do. Like I said, you get an assignment, you do it right, and the correct answer's going to come out the back end. It's a good kind of feedback [loop].

Misa: That's right.

Holt: Anyway, when you start to get to what happened in the 1980s stuff, I'm really not going to have much to contribute there.

Misa: It's a subtle problem. Mary, is there anything else that we might usefully include in the conversation and interview today? Something that you'd like to speak to that I haven't had a chance to ask you about?

Holt: I think we've covered everything important and I said more than I thought I would say, so there's nothing that comes to mind.

Misa: Okay. Well thank you so much for your time.

Holt: Okay, Tom. I've enjoyed this tremendously, thank you so much. [I] appreciate the opportunity.

Misa: Thank you so much, Mary.