

An Interview with
JANE HAUSER PEJSA

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Conducted by Thomas J. Misa

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Abstract

Jane Hauser Pejsa grew up in Minneapolis and graduated from Carleton College in 1951 with a degree in mathematics, then took an engineering position with Northwestern Bell Telephone in downtown Minneapolis. Her supportive math professor, Kenneth O. May, helped her land a position with Remington Rand Univac at the original Engineering Research Associates factory in St. Paul. At Univac she worked with Earl Joseph, then later worked in General Mills' government computing division with Francis Alterman, founder of the short-lived Advanced Scientific Instruments. After briefly working for a book publisher, she took a position as a FORTRAN specialist with Honeywell Systems and Research developing computing and guidance systems for the Space Shuttle. She offers numerous character sketches and anecdotes, which she has written down in an essay entitled *Memoir of a Fortran Queen* (2016).

This material is based on work funded by the Alfred P. Sloan Foundation award B2014-07 "Tripling Women's Participation in Computing (1965-1985)."

Misa: My name is Tom Misa. It's the 28th of January 2016, and this is an interview with Jane Pejsa.

Pejsa: My husband died two years ago. I'd like to get my maiden name back in there, Jane Hauser Pejsa, H-A-U-S-E-R, because I am from Minnesota and people know that name.

Misa: We'll add that to the record. We're doing this as part of a set of interviews for the Sloan Foundation that focuses on trying to understand the experiences and careers of women who worked in the computing industry. Jane, your career really starts in the 1950s, so it's a great pleasure to be able to talk with you today.

Pejsa: I look forward to it and I hope it comes out as worthwhile.

Misa: I wonder if you could take us back to your years growing up, in grade school or high school, were there any special activities, or hobbies, or even classes at school that might have attracted your attention and set you on the path toward a career in computing, as you later took up?

Pejsa: I did well in high school and junior high, and then grade school. I remember my parents asked me what I wanted for Christmas and I said I wanted an Erector Set. That was a big thing for boys at that time. I liked it very much but the boy across the street, his parents gave him the number 6, where I had a number 5 with a motor, and I was happy as

a clam. I never went into engineering or physics, but that was my first engineering experience, perhaps my only one. Mathematics was a game for me. What else in grade school? Not having to do with that but this was World War II and my parents were very much emotionally involved with World War II. That stretched to the children and the neighbors and all, and I feel that's very valuable and have written about that in other venues, if that's the right word.

Misa: Were there other activities, games or hobbies, or things you did as a child in addition to the Erector Set that were maybe math-oriented or, you said, engineering-oriented?

Pejsa: Not saying engineering, that set was kind of an exception. We played a lot of games. We played outside in front of the house and in the alley and everywhere. It was a time before television and it was great play time for children. We had lots of boys in the neighborhood and I was always trying to see if I — not beat them — but at least go where they go, and they tell me afterwards they remember that.

Misa: Okay. And where were your growing up years?

Pejsa: Minneapolis, at Calhoun School, which is now the Lincoln Hennepin hangout for everybody, I guess. The tore it down to build a parking ramp. We had a wonderful education in Minneapolis as children.

Misa: Do you remember any of the classes that attracted your attention or particular interest?

Pejsa: I remember the math just because it was fun.

Misa: Math was fun.

Pejsa: We took geography, of course, part of the curriculum. I remember a wonderful day when I got to push the globe. The globes in the classrooms were all on wheels, three wheels, and the teacher would push them around the room to show how they face the sun and don't face the sun. And the picture that I found — a picture being able to visualize that — has this great big globe that would be spun around the room. I remember that. If I remember that it means it was terribly wrong or terribly right, well this was terribly right.

Misa: When you were finishing up with high school, what kinds of options did you consider for working or going to college?

Pejsa: My mother even went to college, was unusual in her day.

Misa: Yes.

Pejsa: She graduated in 1918. She went to Carleton College and I always knew I wanted to go to Carleton College. So there was never any question, and at that time they were just starting those ASI, what are they? Tests that you take to get into a college you want; and I went through those, of course you had to and everything went fine. Carleton gave me a nice scholarship for an odd reason. Of course they knew my parents because my mother was active in the alumni. I have to think a moment. They had a scholarship designed for the children of World War I veterans. And who was thinking about World War I veterans when I was going off to college? We were a World War away from that.

Misa: Right, World War II was going.

Pejsa: Yes. They were looking for money in their own trough there to match up with scholarship that is given to the college. So I just found that very nice. He was a World War I veteran and that that money went to me because they would've given me a scholarship anyway, just finding money in another pot. I never thought of that until you asked. I always thought that was okay with me, and my father I'm sure was pleased but he was much more sober about things.

Misa: What kind of work did your mom and dad do, may I ask?

Pejsa: My father was an attorney and he had gone through night law school. His father was a minister [with] 10 children, so the boys, the older ones helped put the younger ones through. They all had sterling professions. The father was an immigrant from what's now

a piece of the Czech Republic; no, now is Slovakia. You know after World War I they put the country back together, and after World War II with pressure from the West — yes, after World War I they put it together and then Germany cut it up again.

Misa: Right.

Pejsa: World War II, they had it together with a hyphen, and the Slovaks did not want to see that happen. They wanted to stand alone, and that has since been corrected. They are now [Slovakia] again. Okay, so what are we talking about? [Laughs.]

Misa: I'm trying to get a sense of your background. Did your mother work outside the home?

Pejsa: She did, all through the Depression, because my father's law business, it wasn't as things are now. He said one year he went to work every day — he had an office downtown — and he didn't take in any money. So life was tough but we knew we were okay. My mother's father was a Norwegian immigrant who came over to northern Minnesota, and at one point owned parts or all of eight banks. Good times up there, again until the Depression. So a lot of those dynamics come into the history of both families.

Misa: And your mother worked during the Depression, can you tell us what she worked at?

Pejsa: Yes, she had offer on a newspaper in Mankato, as a writer, and her father, the new immigrant who was riding high then said no, I don't agree to that, you're too far from home. You must stay in school. So she went to California and I think it was the first library school in the country, but I may be wrong, called the Los Angeles Library School, and spent a year there studying library science, or what it was before the computer. And loved it. She always said — she was a catalog librarian — she quit work when her children were born, but then she went back and worked during the whole Depression and ran a WPA project, and cataloging the Minneapolis library. And had a very creative life. And after the war got involved in everybody getting along, and was a co-founder of the International Center at the University of Minnesota. She really was a founder, so they both were involved in community all the time.

Misa: Okay. That sounds like a very supportive and stimulating family background that you came from.

Pejsa: Yes it was. I'm just now reconnected with a classmate that amazingly — lived across the street — was born the same day that I was born, same year, same day. And so we talk about those early times and it's very interesting. Their parents did it a different way, very creative. You had to do things on your own, there wasn't much support outside. Enough of that, I'll write about that another time.

Misa: Okay. Can you talk a bit about your days as a college student at Carleton, please?

Pejsa: Studying was easy, and I always had my lessons on time. Some classes were harder than others; the math was very difficult and very wonderful. I talk about that in my writing here, Professor May. Incidentally, I could say something about him. I heard this in a lecture by the retired president, Larry Gould, who's long dead now, but he lasted long after my time at Carleton.

Misa: This is your professor, Kenneth May.

Pejsa: Yes, Kenneth O. May, professor of mathematics at Carleton College. I like to say that the computers first arrived at Carleton or the idea of computer science, right after I graduated. There was nothing in the curriculum about computer science. I probably said what's that? So that's right on the cusp there. Anyway, he couldn't get a job, this was because remember — oh you're too young probably — but McCarthy?

Misa: Oh, I remember.

Pejsa: Who saw a Communist under every pillow.

Misa: Yes.

Pejsa: Anyway, those were the McCarthy times and Kenneth May would run for treasurer on the Communist ticket in California and was an active Communist, so we were told. [He] couldn't get a job, this outstanding mathematician and teacher. And after

he didn't have a job and all through college and the president Larry Gould saw this, he said I'll take him on, he'll be a bargain. But of course, you know, you negotiate. He hired him for very little money. Then everything turned around and he was the most sought-after professor in town or in the country, but he never left Carleton because Carleton had given him a job when no one else would.

Misa: That's right.

Pejsa: But he was a great man. You can find him in your research. So that's that. And then Professor Lang — I wrote an essay on all of them once — who believed in the concept of Europe. We never talked about Europe at that time. It was different countries — France, England, Germany — we're not in the middle of the war. I graduated in 1947 and the war was over.

Misa: Graduated high school in 1947, I think.

Pejsa: Yes, you're right, high school in 1947.

Misa: And then Carleton in 1951.

Pejsa: That's right. Well anyway, I wanted to finish up at college. I didn't date very much at all, not because I didn't want to but for whatever reason, I guess I wasn't that delectable or something. But I am good looking. There was an International Students

Conference of the World Student Service Fund, which was an organization of many, many colleges, raising money from the students to send to Germany and other countries, to buy new books for their libraries because everything had been destroyed in the war. I went to that conference because Carleton was a member of this World Student Service Fund, and I met a German who was there from Berlin trying to raise money for a student hostel over in Berlin. Again, another story would fill a book, but he long ago died, and we were divorced. Most creative man you could imagine and only wanted to do good in the world, but I think he was bipolar and eventually that knocked him down. His name was Franz Gyal, G-Y-A-L. My first child, my son, has his name. He's not a junior because I, the mother, wanted to simplify it and said we don't want another Franz Joseph Ferdinand Gyal.

Misa: Oh gosh.

Pejsa: Just drop the Ferdinand — Franz Joseph — then you don't have to put Roman numeral II, I guess. That's how that operates. Anyway, he was there. And I guess he did get money, but right away I fell in love the first day, and we were married very soon after I left college in December. I graduated in June or May, and we were married in December. That's in the script that you have.

Misa: Okay, good.

Pejsa: I went to work and he finished up his studies. But that gave us a wonderful richness in our living. His mother came from Germany to live with us and my children are fluent in German.

Misa: Oh splendid.

Pejsa: You asked about college.

Misa: Do you have any memories about Kenneth May in teaching particular subjects? You said there was no computing, but what kind of math subjects attracted your attention?

Pejsa: Calculus. And when you go into first simple calculus — I can't say the right words but we go from calculus to [pause]

Misa: Did you do differential equations?

Pejsa: What do we call those? Tell me what we call when you go into sine, cosine, turning that into useful [pause]

Misa: That could be trigonometry.

Pejsa: Trigonometry, and advanced trigonometry. We had trig in high school.

Misa: Right.

Pejsa: But yes, as I say, I haven't thought about it for a while, except in context with computers because I know I worked on these things. So what happened next? I graduated, did well, and I also worked in the post office at the college. The Carleton scholarship paid half of my whole tuition and living expenses. And let me interject my opinion here. When I went to college, a private college, nothing was out of the ordinary in the costs. You paid your room and board one sum, and the other sum from a scholarship; they usually went together, so it doubled the benefit. Almost everyone worked but they were all college jobs on campus and the most luxurious one or the one that had the most reputation was waiting tables. They turned out to be the leaders of the class, whether which came first, being leaders or waiting tables, I don't know. [Laughs.] But that was where the class leaders went. I didn't have a bad professor there, all of our professors knew us one way or another. And there were a few veterans back from the war, several of them married, who lived up on the hill where Carleton had a farm.

Misa: Right.

Pejsa: And the others who lived in the dorms with the undergraduates. And I think there were issues there because you end up putting these battle scarred, or battle molded men in the same dorms in with young kids. But I don't think that was a problem. I'm saying it was but I don't know if it would work nowadays, but it certainly, I think, worked then.

Misa: Can you tell us, Jane, how you ended up considering these three jobs after you graduated from Carleton in 1951? That's a nice story.

Pejsa: I had to have a job. I wanted to have a job as soon as I left Carleton. I did go the following Monday after graduation, I went to work because I wanted to get my husband — I and he — wanted to get him through school so he could go on with his profession, which was architecture. At any rate, the college had a counseling service for students to use when they were ready to graduate. You go in and talk to the counselor, and she knew our interests, what we could do, she knew our grades, everything. She would write down then representatives of several companies to see if they're interested in interviewing us. The ones she set up for me, one was with Dayton's, now Macy's, of all things, because I'm not a style junkie, I'll tell you. Wonder why I look good but I'm not a junkie on style. With Dayton's, and it was called an assistant buyer. And then she also set me up with the Northwestern National Bank, which was not computerized, of course, and everything much was written by hand, numbers in blocks, and all. And then finally, with Northwestern Bell Telephone Company. I interviewed two of them, and it turned out that there was a clerk in blouses — not my speed — and Northwestern Bank didn't even call me back. The test I took was to copy one column of digits, a page of one column, and then we would copy it on another page, which you could look at the same column. Well I am a bit dyslexic, which turns up in odd places but has never held me back, and they didn't call me back for an interview so I know I failed the test. The third one was Northwestern Bell Telephone, and I took it in the engineering department, I think we

were called assistant engineers if we were anything. But we were three women, all college graduates who sat in a huge floor with telephone engineers. I don't know how many of them were graduate engineers or whether they had moved in and up in the phone company long distance technology, which was the way things used to be. Maybe we should have more of that; you don't always have to have a master's or Ph.D. in the work you do. Just that I don't know much about that field. [Laughs.] But it seems to that not everybody needs a Ph.D.

Misa: Where was this job physically located?

Pejsa: It was the new telephone company building across from the courthouse.

Misa: Downtown Minneapolis?

Pejsa: In Minneapolis. I guess it was the regional office for Northwestern Bell. The head of it was down in Omaha, but they're all part of the AT&T complex, or whatever it was. This was broken up by law and divided into 10 million phone companies.

Misa: Right, much later, that's the 1980s. But when you were there, that was still part of the AT&T integrated system.

Pejsa: Yes. What I wrote, I mention the transistor, the day the transistor was born. Well it was already born, I think, and I learned from a childhood friend that just came here in

Washington, so I met him again after all these years; and he said the transistor was born in [pause]

Misa: Originally, it was 1947 was the original invention but you may have heard about it a little later than that.

Pejsa: Well it's more than heard about it. AT&T or whoever the top — that's something I want to look up because I do mention that. I will look up some things because I kind of guess when I don't know because I can go back to them then. But anyway, the day that AT&T or it was the research center that AT&T had in the East [pause]

Misa: Bell Labs, Bell Laboratories.

Pejsa: That's right. And most of the engineers in long distance had a year or two at Bell Labs, that was part of working at Northwestern Bell. Bell Labs announced that they were giving their patent to the world, the public, or whatever. And I think I write about that in my little write-up, that everybody was standing on their feet and jumping up and down. Everybody, meaning all the men because except for artist, we were three women in this huge floor of men. And we were college graduates. At any rate, I was jumping up and down too. I knew it was something good but I didn't know what a transistor was. [Laughs.] And don't ask me now.

Misa: [Laughing.] Okay.

Pejsa: Did I answer the question?

Misa: You sure did. Can you tell us how you ended up going to work for, I think you ended up going to work for Univac or the Engineering Research Associates, ERA?

Pejsa: Yes, I think that was Engineering Research Associates. Well what happened was that Ken May — he always called me Miss Hauser and I always called him Dr. May — but he got so involved with my parents and everyone that I appointed him the godfather of my daughter, Ilse, my first child. So maybe twice a year we all saw one another. At any rate, he called up one day and he said, ‘Jane, are you still working at that dippy telephone company?’ ‘Yes, I’m still working at the telephone company.’ And in fact, I had had one child and gone right away back to work because my husband wanted to get through the university as fast as he could. Anyway, he said, ‘Get yourself over to St. Paul, there’s a new company.’ And I don’t remember if he used the ERA name or what, I think it was Remington Rand, and I’m not exactly certain how these names flushed around at that time, but right after that Univac bought the whole crowd. ERA was really gone by the time I got there, but Remington Rand was the name of the game, and then Univac bought in.

Misa: When you went to work for them first, Jane, did you actually work in the Minnehaha Avenue, the old plant of ERA?

Pejsa: Yes, that's the description in my write-up that's the most peculiar and wonderful. I thought it was the most exciting world I had ever seen, just the fast way people were moving, nothing matched, no two chairs, no two windows, no two anything. I wasn't there very long, but it was after Jules Mercel, my boss, left for the Rand Corporation. I went from one — we moved along as the technology moved around. Originally, we were just little switches on and off to mimic binary, and then we started reading that. I think as long as we were in the glider plant, well, we all learned immediately — I mean that was part of programming — you learn that binary works nicely in octal.

Misa: In octal, right. I'd like to know about your early work. What kind of work did you do at Remington Rand?

Pejsa: We were learning to write — we weren't up to equations yet — but to write in octal. At first, it was you were almost physically building these little formulae. We had paper tape, which we punched holes in. Binary, but interpreting in our head in octal. But the most wonderful primitive part was we had a pair of scissors and a common table in the midst of this huge computer which overheated all the time in summer. And then once we got past the switching on and off, and got it on paper, we used to paste the tape together with a glue pot. We had one glue pot on that little table. And we gradually put together maybe it could be a formula, or maybe just some simple things like square root, which isn't that simple. [Laughs.] It's not at all. I remember division, particularly, because at one point I was framing the formulas for the addition, subtraction, and division, and division had a life of its own.

Misa: Much harder to do.

Pejsa: I'm just thinking nowadays what reminds me of that. One year — many, many years later — I was doing volunteer teaching over at Emerson School, a Minneapolis school in a neighborhood of mixed families, single parents, Spanish students from South America who so nicely helped each other on first language days. That was moving; I should put that in also. But anyway, I had a boy who was going on to junior high, and he was trying to learn how to do division, the “new math.” Have you ever heard of the new math, or do they still teach it?

Misa: That was one of the fads that came in and went away.

Pejsa: Well you'll find this interesting. So here I am in division, and the boy can't handle it. First, I said let's do it this way, then you can go back to the real way. So I went back to plain old long division and he said that's the way my grandmother does it. I feel you're lucky to have that grandmother. So then I went to the principal and I said this is terrible. I can't even get it. And these kids, who aren't whizzes, because intuitively if you're a whiz you can make believe and all goes well. He said don't feel too bad, I had to go and take a course in it; the principal who is running this school. I'm so glad you told me it went away. When did it go away?

Misa: I couldn't tell you.

Pejsa: Those things that happened in the old time are kind of fun. New math, yes. But it went away. Was there a battle or did it just disappear?

Misa: I think that they had many problems with it. Jane, if we could go back, I think that you wrote that you worked as a systems analyst. Is that a job title that you recall?

Pejsa: Yes, that's exactly, and there's a story on that too, but I didn't want to do it.

Misa: Oh, could you please tell me that story?

Pejsa: Okay. I had a friend that had studied psychology. She may have already been in graduate school, maybe not. And so I, all excited, told her I had found a job. She asked for title, I said systems analyst. And of course, I had no idea what systems analyst meant, but interesting — that was at the very beginning — that was my scale, or whatever, was systems analyst. I tried to explain what I was doing — which was a naïve thing to do — and she said oh, I'm doing the same thing in psychology! I think it had a different meaning in psychology.

Misa: It may well have, hard to imagine someone in psychology doing this very detailed [work].

Pejsa: I know they didn't. No. Well analysis, you can analyze systems in any language you want; you could always be a systems analyst.

Misa: But this was a new profession. It wasn't analyzing systems. This was a job that was something like programming but at the time, my understanding is, that systems analysts did slightly different work than somebody who was a programmer. Does that sound correct to you?

Pejsa: Well, I always said I was a programmer. And I always felt that I was more than that, but I didn't know a name, and systems analysis was the name of a department at Honeywell where I worked. Guess I was a systems analyst. [I] caught on right away, but the first time was telling my friend about my exciting new job. [Laughs.] And she said well I'm doing the same thing. She was working part time also at the university. It's just a funny way that expressions turn up differently in different environments. I'm glad you told me that.

Misa: You worked with Earl Joseph. He was quite a figure within Univac.

Pejsa: Yes he certainly was. He was not a big figure when I worked for him. He probably had his Ph.D. already but who knew what level we were since we were all in kind of a jungle over there. We were no longer in the glider factory; we moved over to that Griggs-Midway building over to the Mississippi, on the way to the new plant that was being built. I never worked in that plant.

Misa: That'd be the Shepard Road plant? That was a big manufacturing facility that was opening up about that time.

Pejsa: But it was research. You're talking about Univac aren't you?

Misa: Still Univac, yes ma'am.

Pejsa: I never worked there because I quit right then with this new baby, so I can't speak to that but the research, all of our funny little offices here, there, and everywhere were going to be united in this new plant. Or maybe it turned into something else.

Misa: That may have been the engineering facility that was built in Eagan, not at Shepard Road.

Pejsa: They were building the Shepard Road one, not Eagan, that's later. I don't know anything about it. I have to get in something about Control Data but I'm not ready yet to do that, because I had one fact wrong, I learned. Earl Joseph, I understood, went with Control Data group and sort of became a futurist through that work. But that's not the case; it was 32 years, I just read, with Univac.

Misa: And you worked with Earl Joseph.

Pejsa: He was my work director. There were two other women — you asked about women — already there was a Carleton woman besides me in the glider plant, but we were good friends. She was a math major, also, but we sort of got separated in the uproar. Yes, he was a very nice work director. He helped us when these two gals were, just as I was, though I'd been out of school longer, but we were all trying to put together infant programs, and then also at the same time building this universal language.

Misa: Can you tell me a bit about your work for Univac? You've written that this was in competition with IBM's FORTRAN.

Pejsa: That's right, we knew that at the time that we were doing something similar, and all I can say is they won because [FORTRAN is] the language. [Laughs.]

Misa: Yes.

Pejsa: I will look into that because I really I hate to have things go into that are half baked. I have a very nice description of Control Data, and how it's flourished and failed. I'm working on that, so no permission yet to release what you're doing, that uses my stuff. Is that okay?

Misa: Absolutely.

Pejsa: I'd be so embarrassed.

Misa: We'll be sure that you have 100 percent satisfaction, Jane, that's honestly, that's very important to us. You worked for a while doing computers with General Mills, can say a bit about that?

Pejsa: [Laughing] Yes, why General Mills got into it, I don't know. And it turns, it got out, eventually. We were at a dinner party with good friends, and another couple there was Pen Alterman. And he heard in conversation that I had worked in computers. I was trying to save the world and although I was at home, rather than working on computers. So I went to work for him and he had a wonderful contract there. He called it ASI, American Scientific Instruments. No, no, this was before Pen's company. General Mills was building a computer to be a drone on a spy plane. The spy plane would be the drone and this would be a plane that flew from Western Europe over the Soviet Union, took pictures, processed the pictures, it turned around and went home again somewhere in Western Europe. Well it all came a year or two — I'm amazed it went so fast — but when the drone accident — it wasn't a drone, it was Gary Powers, a CIA operative was flying this U-2 over Russia and doing such a task, taking pictures and coming back. It didn't work, he was shot down and it was a disaster. I don't know if was a disaster any more than other disasters in the military, but it was considered that and so we must do the same. And suddenly, they're building a drone, which will be computer operated. I think the processing wasn't on the drone, but the software had to include that. And it was free; the flight over Russian, the taking pictures, then processing. I think the processing might have been done after it got back to the mainland or to the West.

Misa: Right.

Pejsa: Three of us, two of the young men and I each had a piece of it. Mine was processing the data, whether it was done in the air or when it came back, I don't know. Anyway, Gary Powers was shot down [and that] created great criticism on the whole project. One person was killed in all this, and that was a poor Russian soldier on another base who watched all the drama of the plane coming down and started shooting at it. Then he was killed. So that's what this project was all about. It was very, very exciting. I almost didn't get to run my part of the test program.

Misa: Could you tell us how you were able to run that?

Pejsa: My boss, that was Pen Alterman, had told me to give my box of cards to one of the other workers or programmers, and he would run it for me. I didn't like that. I'd worked on it hard, tested it and all that, and he said I couldn't go. I went home and told my husband, and said why can't I go? You're going to a meeting and I'll do my thing. So I went back and asked and he said that's fine. I'm sure that will be fine with General Mills. It's only because we don't want to be sending women out alone. Something might happen to them. I can't have that.

I'm really tired now of my speaking. Could we continue this after a week when I can polish this? I mean there's such good stuff I wanted to share.

Misa: Jane, that would be perfectly fine. We also need to talk about your time at Honeywell, as well.

Pejsa: Oh, that's right. That's about FORTRAN and I'm eager to get there.

Misa: Right. So let's go ahead and do a second round in a week or so's time.

[Part Two]

Misa: My name is Tom Misa. It's the 9th of February 2016, and today we're continuing our conversation with Jane Pejsa. We had talked last time on the 28th of January about your work for this General Mills computer and there was a story where you were going to Nutley, New Jersey to do a demonstration. Then there was some question about whether you would be permitted to go yourself. That would be a very nice place to restart our conversation.

Pejsa: Okay. I'll just repeat what was said at the time. General Mills had a policy that women are not permitted to go on these kinds of trips. But I see nothing wrong, since your husband is with you to keep you out of trouble. He was dead serious. Even at the time, I found that quite amusing. Off I went to New York, where we bumped into a terrible snow storm and missed an entire day of testing. Nevertheless, the computer tests were successful. Now, not long thereafter, my boss, Pen or Francis Alterman left General Mills. We all knew he was having terrible disagreements with the top brass. It was never the same after he left [and] I soon decided that raising two children was enough for me,

and quit after just one year. I do not know how long this computer division of General Mills lasted; it seemed so illogical to me with the work with foodstuff, but anyway, did for a while. What did happen is that Francis Alterman founded his own firm, ASI, Advanced Scientific Instruments with great public fanfare. My husband and I even bought some stock in the firm. Eventually, it folded and Francis left for California with his wife. This indeed was the end of my computer life. I would never get mixed up with this world again.

Misa: Which, of course, didn't last for the rest of your life, but you did relate that you took some time off and ended up having some family issues, and a bit of a tumultuous time. You can either say a few words about that, Jane, if you'd like, or just move ahead to where you ended up actually going to work for Honeywell for a dozen years. That's another interesting part of your computer biography.

Pejsa: Yes, and it's by far the longest. I'll just start in there. I never say never; once again I said that. In 1968, my husband and I were divorced. It was a broken time for me and the children, and a destructive time for my ex-husband. This most creative man was diagnosed with a serious bipolar illness. It only got worse as the years went by. I needed a job and was eventually hired as a scout and editor at a small publisher, Dillon Press. You know, it's amazing how things happen; they just do, sometimes.

The author of one of the books in a series I edited [which] was *Careers in Math for Junior High Students*. The author was a computer analyst and Ph.D. mathematician at Honeywell Systems and Research, that was the name of the division.

Misa: That was here in the Twin Cities?

Pejsa: Yes, and there were two research centers. There was one out on the Minnesota River, which was I think all Ph.D.s; it was *research* research. Then the systems and research was put-together more recently because a lot of good things were happening that Honeywell wanted to get into. And there we were up northeast in several different locations but after I had left for the last time some 12 years later, they combined into one.

Misa: Can you describe a bit about the people that you worked with at Honeywell Systems and Research? You said that this was one of two facilities.

Pejsa: I was, but Art Pejsa was the one I later married. I worked with Ph.D.s, with M.I.T. graduates, it was a classy — if you call computers classy — group. Well, I'll just jump to this. Wait a minute. There's something still here but I'm not finding it right away. So now I have a job on *Careers in Math for Junior High Students*. The author was a computer analyst and Ph.D. mathematician at Honeywell Systems and Research. His name is Dr. Peter Rydenfelt from Germany. Thus, with a friendly introduction, I interviewed at S&R, Systems and Research, and was hired. This was after 12 years out of the field. At that time, S&R was totally aerospace. [It] later expanded into energy systems, conservation, alternate fuels, street traffic, and so forth. We did a lot of different stuff, more than build FORTRAN, it was all kind of things. Always my tool was FORTRAN, with which I became very comfortable. And I was good at it. Anyway, I said

I met my second husband, Art Pejsa, an aerospace scientist at S&R. So those were fruitful years in many ways. When introducing me to old friends Arthur would often say Jane and I designed the return shuttle trajectory, which of course wasn't the case. Everyone understood Arthur designed the control model to return from space, and I was his FORTRAN programmer. I believe we were subcontractors to Ramo-Wooldridge who actually built the controls. I have to get more material; I just don't know all this off the top of my head.

Misa: Can I ask you just a couple of questions about FORTRAN? Was it a language that you knew prior to coming to Honeywell?

Pejsa: Say that again?

Misa: Did you know FORTRAN before you came to Honeywell?

Pejsa: No, I sort of grew with the system as it bounced along. This was the first time, but it's so logical with the fact you know the equations that come up, you know that you have to design the trajectory, and that's a big deal. And later, Art transferred that to ballistics studies, small arms ballistics. But look at equations and they look like real equations, when you work with FORTRAN, so it was not that difficult.

Misa: Right. I think when that language was originally being invented they called it literally, Formula Translation, that's where the FOR-TRAN comes from, so it was supposed to be a mathematically accessible computer language.

Pejsa: And it was, that's what made it easy to use. It was stuff you had seen before. Wait a minute, tell me again what those words are?

Misa: I believe it was Formula Translation, so it's very much mathematics. It's translating mathematics into computer code, FOR-TRAN.

Pejsa: That's what makes it easy because you're using things you already know.

Misa: That's right, yes.

Pejsa: And finally, my last line written down here [in the draft of her memoir] is I had only vaguely heard of the word FORTRAN, yet my first task at Honeywell was to make corrections or changes in the FORTRAN model of the Shuttle Return Guidance System. Then I say "to be continued." Now I realize there's a lot of research that still has to be done. I guess my comment on women is that the more things move forward, the more women were involved; it wasn't the exception.

Misa: Can you say a bit about the other women that you worked with? At Honeywell, were there other women [already] there?

Pejsa: On S&R, Systems and Research, there we were I suppose about 40 people in Systems and Research, maybe 50. There were Ph.D.s, not necessarily mostly, but predominantly, and also graduate students, and also people who just caught on nicely. In our group let's say we were 40 people. Then we had a Ph.D. woman — well, she wasn't that young but she certainly looked young — from Cairo. No, from Iran. Very glamorous Ph.D. and everybody gave her honor. She was very much liked and also looked up to, but she was the only other Ph.D. Then one who I befriended earlier when I came. Of course, at that time there was somebody working between Art and me. Later I worked directly for him, but first there was, again, an M.I.T. graduate, just a bright kid you might say. Now they're all younger than I am when I get to Honeywell.

Misa: Okay, right.

Pejsa: [Laughs.] I'm sort of in an age bracket, one of the older ones. Well, let me finish up about the people there. There was another M.I.T. graduate, there was a fellow that I was working directly for — and he was working under Art, who would eventually be my husband — again, on the Return Guidance System for the shuttle. Just a second. There was another one working for him, and she had been a teacher, a very good teacher, I think a high school teacher. And she was the oldest of the women; that's the second one. The third one was again an M.I.T. graduate, Betty Cassillos, with two teenage boys. And she finally left to take care of her two teenage boys because I guess teenage boys sometimes need a little taking care of. [Laughs.]

Misa: I've heard that. [Laughs.]

Pejsa: She was very good in what she did; what we all did there. I think there were no other women in that first year there. Like I say, there were 40, maybe six were women.

Misa: Six were women, but the women had some positions of management or at least some authority?

Pejsa: Say that again.

Misa: The women that you're describing, some of them were in a supervisory position; they were not doing clerical work or technical work.

Pejsa: No, they were programmers.

Misa: Yes.

Pejsa: There were clerical workers, too. I mean we all shared — well the top dogs would have their own secretary, the rest of us shared secretaries. There must have been four or five all together. Yes, that's correct. But that wasn't my world so I didn't really know that.

Now I want to say something [that] I think I maybe told you before, because this is all I have written down but I want to say some editorial. First of all, did I tell you in our previous conversation that when I left Honeywell, the head of our division or subdivision — he told me, because he knew I was going on because I had this grant to write a book and I could take a year off, and I was taking a year off — I didn't go back because in the meantime, the whole division was being rebuilt and they were offering early retirement for anybody who'd been there a certain time. So quite a few people were retiring, and mine turned into a retirement with the benefits. I would have had those same benefits if it had been the grant I had, because I think that was part of the deal.

Misa: How did you obtain this grant, Jane? What was the source of the grant, may I ask?

Pejsa: The Bush Foundation.

Misa: The Bush Foundation. I think you may have mentioned that, yes, but please go ahead and continue the story.

Pejsa: It was in writing, I was going to write a book. But I always have had the Bush Foundation grants for going back to school, and getting maybe a Ph.D., or something. There were several classifications.

But anyway, oh, my daughter, who was now my boss's boss, I guess you'd say. Art had moved on to another division and then took early retirement also. But the one who hired me, who now had risen to a higher level, he said, 'Do you know why I hired you?'

Because I certainly wasn't up to the master's, or even a bachelor from M.I.T., and all these Ph.D.s and never thought I'd be interested in a Ph.D. He said, 'Let's try her. She's a math major from Carleton College.' I'm going to a 65th reunion next month and I'm going to tell him. He took me; I didn't have the qualifications but I'd been a math major from Carleton so you know it makes your college feel good.

Misa: Yes, your college mates will be thrilled to hear that story.

Pejsa: Yes, and write a big check, too, for it. Anyway, I don't have time now to do the kind of research that has to be done. FORTRAN you covered quite easily, but I was going from at what point we went from very early that happened to almost instantaneously we're talking octal, even though the machine is binary. And I have to have that straight, but I can't take that time now, I've got a couple other projects. One of them a writing adventure, so I don't know what to say.

And oh, what's really [going to] take some work, you asked me about Control Data. I have a couple little things, but they don't all agree. There is a whole line of acquisitions and which, in the end, also Eckert-Mauchly — Have you heard of them?

Misa: Yes, I actually know quite a lot about Eckert-Mauchly Computer Corporation.

Pejsa: Oh you do!

Misa: Oh yes.

Pejsa: I would be interested in that also because of the [ENIAC] patent. Do you know the patent story?

Misa: Yes. In fact, Jane, I must get your address so I can send you a book I wrote. It has one chapter on Honeywell, and an important part of that chapter deals exactly with *Honeywell v. Sperry Rand*, the lawsuit that involved the ENIAC patent that Eckert and Mauchly were centrally involved with.

Pejsa: Yes. Of course, it was finally in the news. It was kind of a deep dark secret, I mean, mining its way through federal courts. But I lived on Kenwood Parkway with my children at that time, and Earl Larson, the judge, walked to work about the same time of day that I did — you know, walk around Lake of the Isles.

Misa: Yes.

Pejsa: And I remember asking him about all that and I got very interested in it, and there is a book. Is that your book?

Misa: A chapter in my book deals exactly with Earl Larson and the Honeywell patent suit.

Pejsa: I would like to borrow it, or can I buy it off the internet?

Misa: No, Jane, let me just send you a copy. I'd be thrilled to be able to put that in your hands. I'll mail that book to you in the next day or so.

Pejsa: You wrote a book on it, good. Especially because Eckert-Mauchly, I can't even spell it right. What was it?

Misa: Mauchly was M-A-U-C-H-L-Y. And E-C-K-E-R-T, for J. Presper Eckert.

Pejsa: Well that'll be interesting because it never really was publicized.

Misa: It's a very curious lawsuit, and it's a very charming image because Earl Larson, the judge, was really on a big public stage, and the fact that you talked with him as he was walking around the lake is [laughs] — I have to say that's a —

Pejsa: Many times, also, on busing. That's got to the federal courts, too, busing students. He was a quiet, nice man. [Laughs.] Sometimes the nicest people are quiet, I don't know. But I would very much like to see it. I was surprised to see it way back here, time before, he turns up because he was required by Remington. You see, I'm just am not confident in the ordering of all those companies.

Misa: Without saying you'll find everything in my book, you'll at least find the whole story behind ERA, Remington Rand Univac, and the connection to Control Data and

Honeywell. So it's a history of the computer industry in Minnesota and I'll be very happy to send you a copy.

Pejsa: That would be great. That will be wonderful because I'm just straightening out the Remington Rand Univac, and then ERA. I'm not confident in that I've got the ball in the right court. [Laughs.] Is there a villain in all this?

Misa: A villain? No, I don't think so.

Pejsa: What happened is the inventor or the patent person, he died then, didn't he? So he never got a chance to benefit from it.

Misa: The main result of the lawsuit, *Honeywell v. Sperry Rand*, was that the original patent that Remington Rand held and was using to control, or they hoped to control the computer industry, that patent stretching all the way back to 1946 on the ENIAC machine from Philadelphia, that patent was declared invalid. So Remington Rand's attempt to use that patent to control the whole computer industry — it was kind of a crazy idea to start with — was thrown out.

Pejsa: So everything else under it collapsed too.

Misa: The patent claim at least did. Obviously, the computer industry didn't collapse.

Pejsa: No, but Control Data, I have just a small paragraph here that I won't read because it's different timing than I think is correct from the ones who write on everything, Wikipedia. They're not quite on the same page, I think, or something. Well that is interesting you dug into it and ha! I would think that would be a very interesting [thing] for people who are inventors about what could go wrong and what could go right.

Misa: Well Jane, I've really enjoyed talking with you and if you have additional version of your biography, if you have a chance to work on it some more, I would very much appreciate if you could send that to us because then we can keep that in our file for this oral history project.

Pejsa: Okay. I sent you a biography of me.

Misa: Exactly, I have that document in front of me right now.

Pejsa: How did I title it? I just can't pull it up in my head right now. Is it dated?

Misa: It says "Draft" [pause]

Pejsa: Oh this is just my computer life, isn't it.

Misa: Right, it says January 5, 2016.

Pejsa: Yes, I have it, and right in front of me. There are spaces that I need to fill in more, and it takes a little dating.

Misa: Right.

Pejsa: Sounds so easy, but it's all within so few years. Every time I went back to work it was another step in the development of software, my goodness. Okay, well thank you for calling and I'll look forward to what you send me.

Misa: Okay, Jane, thanks so much for your time.