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We recommend that this oral history be cited as follows:

J: No.

B: Tell me more.

J: My father went to Louisiana Tech for one whole week.

B: Oh!!

J: And came home and said, “Well, that’s enough of that. I don’t need any more of that.” And I think he was the only one in his family that went to college out of the four boys — there were four boys in his family. And my mother graduated from high school and was an honor student, but never had an opportunity to go to college. So neither of them did. But they really emphasized study and learning and felt that education was really important and sort of instilled in both me and my sister that we should plan to go to college.

B: Were they interested in mathematics or engineering or related … ?

J: My father was a do-it-all sort of guy, almost, kind of guy … almost like an engineer-type of guy, who worked on cars, automobiles. He ran the farm and could do almost anything. My mother was not. She was more a literature person, more of a social science type; interested in books and reading and radio, which was, at the time I was growing up, was a big deal. And so my … one of my uncles was very good, one of my father’s brothers, was very good in mathematics. And so my dad had been told he was very good mathematically, but he really never had a chance to study it. So he was very interested in the two of us girls, how we reacted to mathematics. And so he kind of had a love for that.

B: So tell me more about your sister and your love for math. Were you … did that start when you were in elementary school? Or were there … ?

J: No, actually we were both rather fortunate in this little country town, Pioneer school had all twelve grades and …

B: This is in Louisiana?

J: In Louisiana. Pioneer, Louisiana, in West Carroll Parish. West Carroll Parish and East Carroll Parish are close to the Mississippi River, just across from Vicksburg, Mississippi, and very heavy cotton country. And both of us were fortunate in that the school had such really, really good teachers and they encouraged students, even in the third, fourth and fifth grades, to excel. And they almost always had opportunities for you to rise to the top of your class and do special projects and special activities. And especially my fifth grade was really a highlight, in that we began to — one of our teachers began to have us competing with each other. And I wound up competing with three or four young boys, who I competed with all the way through twelfth grade. And several of us wound up going on to majoring in mathematics.

But the real motivator was one of our high school teachers, who was an engineer type, who
had not practiced engineering because he had poor eyesight. He came to teach in high school instead. He was constantly pushing us and pushing us and struggling to have us appreciate the value of mathematics and especially what you could do with it. But of course, I didn’t major in mathematics in college at first. I was going to be a basketball coach.

B: Oh!

J: I was going to be a phys ed [physical education] major. My sister and I also learned basketball through our father. He played baseball and also basketball and his friends and colleagues in his era were also athletic. He even wound up building a basketball court in a pasture on our farm. And so all of his basketball buddies came to play at our house. And the two of us little girls wound up playing with the men. And he taught me how to make a left-handed hook shot that I could make even with a man, grown man, guarding me. And so it turns out that both me and my sister wound up being extremely good and on our local high school basketball team. And so we were offered scholarships at places to play basketball. And so, kind of as a result, I majored in physical education when I went to college and I minored in math.

[5:00]

And so … unfortunately, I got an illness in between my sophomore and junior year. And this illness was such that I had to cut back all physical activity. It was a little bit of a shock to everyone on my college campus, because health and physical education teaches health also, and then to discover that one of your basketball people is … has got tuberculosis, was kind of a shock to everyone on campus. It was discovered on one of those mobile buses that comes around to campus. And so I switched. I went into a sanatorium, actually, for 17 months. And when I came back to college after that, I was told I couldn’t play piano anymore, I couldn’t raise windows anymore, I had to be careful with all the motion, so I was not to play tennis anymore — because I had been on the tennis team as well — and not to play basketball anymore. So I majored in mathematics, then, my last two years.

And then I was hired on campus, actually. I was interviewed by a company that came there to interview one of our physics teachers. And he asked this physics professor if he would indicate if there were any women math majors that were recommended, because they were looking, he said, for women math majors. And my physics teacher recommended me to be interviewed. And so I had that interview and I got hired that year, my senior year, to come to San Diego, California, to work in the aerospace industry. And I asked him what I was going to be doing. “Oh, you’re going to be one of our computer gurus! You’re going to be trained how to use computers to do computation for the low speed wind tunnel.” That turns out that was the first job I took.

B: It was the physics teacher that recommended you, but the math teacher is the person who pushed you through?

J: The math teacher in the high school, the 10th grade, and 11th grade, and 12th grade math teacher, was the one who most …
J: Was college, yes. The physics professor was the teacher of my physics class in college.

B: Did you do research with him? Was there any opportunity to do research?

J: No. It wasn’t really … I guess doing research as an undergraduate wasn’t really promoted in those days. And there were so few women in math in those days — and in physics — that when he was asked if he could recommend someone that they could interview in math he recommended quite a few of our people who were graduating, but I guess … I think I was the only woman that was interviewed. And it turns out that, I didn’t realize why at the time, but later after being at Convair for several years, I found out why.

B: Tell us, tell us.

J: Well, it turns out that in the 1940s when the ENIAC was being built at the University of Pennsylvania, for some reason Mauchly and Eckert got women mathematicians to do the programming. And there is of course a lot of talk about whether or not it was because all the men were gone off to war — that was in World War II — or whether it was some other reason, but they consistently hired women to do the programming.

B: I’ve heard that.

J: Yeah, so it turns out the people at Convair had actually done research as to who was going to be active in this new field that was arising — because I was hired in 1957 — and so it turns out that they had read research, psychological findings and workplace findings, that women were supposed to be especially good at detail. And so apparently that’s one of the reasons he had asked my physics teacher, “Do you know any women math majors?” So I guess I was reverse discrimination placed, you know, I didn’t know it at the time.

B: Interesting! What was your sister doing? She was …

J: My sister was two years ahead of me. And she was also very good in math, but she loved biology better. And so she wound up going off to college at McNeese State in Lake Charles, Louisiana, where my mother’s brother lived and his family. And she stayed with them and studied medical technology. So she became a medical technologist. She also had an illness that held her out of school for about a year in the middle of her time. She had been sort of classified as a manic-depressive, bipolar disorder and it became aggravated in some way. And so she had an illness that kept her out a little bit in the middle of her studies as well. So when it came time for me to be graduating, she was already out of school and working. But she said, “I’ve never been to California and Dad says we can take the car if I go with you because he won’t let you drive that far by yourself.” [chuckles] So we took the car — my dad had provided an old used car — and we drove to California together. After we got out here and I started my job, she decided she didn’t want to go home. So she stayed in San Diego and worked for many, many years as a medical technologist. And she married in San Diego and she still lives out here.
B: So this is homecoming.

J: This is homecoming, in a way — for her. She’s … she lives in La Mesa, not far from here, not far from San Diego, and has had two boys and has been doing very well.

B: Good. Let me back up a bit. Because you mentioned that she went to McNeese, but you didn’t say where you went or how you chose it. Could you tell us?

J: Oh, yeah! Well, my sister had gone to McNeese State in Lake Charles, which is, you know, maybe six or seven hours drive away. And I got basketball scholarship offers, all from Mississippi. And my dad said, “No, no, no. You can’t take those. That’s too far, across the River.” And I said, “Well, how about if I go to McNeese State where my sister is?” “No, no, no, that’s too far. You’ve got to go to the closest place.” And so Northeast Louisiana State in Monroe is the closest place. So that’s where I went. Not because I chose it, but because my dad says, “You can’t go any further!” So he was a very protective father.

B: When you went to industry you worked out here in California. When did you decide to go back to school and what propelled you in that direction?

J: Actually, it was almost right away. In 1957 — that’s the year FORTRAN first came out. And we had, of course, been programming in, first of all, machine language, and then we were programming in assembler. I loved it and I just studied it all the time and would sit at that old IBM 650 looking at the console, reading the manuals while I was waiting for it to run. So I had really studied the architecture and the structure and the programming languages. When FORTRAN came out we had training classes in it, in how to use it. And one of the people at Convair Aircraft Corporation — not in our division, not at the wind tunnel, but over in the main … what they now call the information technology division — had done a lot of work in using tools, other kinds of software tools. And he made arrangements with UCLA extension to offer a class. And so I signed up to take his class. And I actually got University of California extension credits. That was the first class I ever took that was an official class that was in computing and it was in assembler, and moving on into how a compiler works.

And then … after that, I discovered that — even as demanding as our work was and all that I was learning involved — that a lot was beginning to happen and they began to have courses at San Diego State. And one of the first courses that was mentioned was a course that was in a book by Dan McCracken. And Dan McCracken’s FORTRAN manual was our bible, I mean … And so I said, “You mean the book is by Dan McCracken?” (It was called Combinatoric Principles for Digital Computers.) “I got to take that.” So I went charging out there to see if I could take it. And in order to take it, I had to get admitted and had to go through some of the other steps. And so they said, “Oh, we’re not sure we can give you credit for this.” “Why not?” “Well, you already know too much, you can probably teach it. But you can sit in, you can audit.” So I wound up auditing Dan McCracken’s book and the teacher of that course. And during the process of getting to know the teacher of that course, I got offered an assistantship to come back to work as a Master’s student, which I did eventually do.
So I had this first course at UCLA Extension. And then I had that second course at San Diego State. And then eventually I entered their Master’s program.

**B:** When you were in college and high school you said there were very few females.

**J:** Yes. In math.

**B:** In math. And they hired you as a female in programming. How about your cohort there? On the wind tunnel project, were there … ?

[14:40]

**J:** There were three people who did computation and computer operations and data collection. Two of us were women; one of us was a man. The other woman was not a programmer. She had been taught how to operate equipment, how to manage equipment, how to collect the data on punch cards and put them in the right sequence, in the right order to get it run. She was the person who first taught me how to operate the IBM 650. But then she had never taken any programming training on the job, so she didn’t do that part of it and she used to say to me, “We brought you in so that we don’t have to rely on the old division over there to write all our programs. We got you now to write our programs for us.”

So we wound up with about ten different kinds of computers. It was amazing. Some of the really large computers were not in our building. And even the IBM 650 was not in our building. We had get over to the other building and bump people off. The queue in those days was humans standing in line. There were no operating systems. So you had to sort of wait your turn and get on. And the minute they saw us coming, they would say, “Oh, no! Here they are again.” Because we had priority to bump everybody off and get our — because the wind tunnel was being held up while we were gone.

That’s when we got the roller skates. You might have heard the story about the roller skates.

**B:** No, I haven’t heard the roller skate story.

**J:** Well, there was a time when Maggie and I were both on day shifts and the young man was on night shifts at that time. And we had this real crisis project that was done for American Airlines. We had to prove that the plane could — the one being tested — could take off in less than a mile and land in less than a mile. And we were going to get this huge contract if we could do that. And so they put us on sort of crisis mode and we had to go back over to the IBM 650 like ten times a shift. They’d do a run and we’d charge over there. They held up while we got back. We’d take another run over. Run back. Take another run over. And so I hit upon the idea of bringing my roller skates to work. So I put my roller skates on and we skated over there through this big, huge model design tunnel place. And we hit the deck in the other building and they’d see us coming and say, “Oh, no, here they are again.” But anyway, we both found out doing roller skates for a while. And so I call that now “on-line real-time” with roller skates, before on-line real-time was really possible.

So that kind of work, though, was exciting and fun because you really had to use all your imagination about how to gather the data. We had not only just some punch card equipment
collecting data from the model as the wind was blowing down the tunnel, but we had little pressure points on the plane where tubes would be there and we’d have oil flowing through the tubes. We would have to photograph the manometer boards, they were called, where we would see how high the pressure got pushed up in the oil. And so we would have to then convert that to numbers and enter that into our programs and build in calculations. So I really needed a lot of help with what formulas to use for all that, because it was kind of beyond me on many occasions. So that was one of the reasons I kind of chose to go back to school. I figured I could learn a lot more about the kinds of computations that are really needed for practical engineering programs.

B: So where did you … did you continue in the airline … in the wind tunnel aircraft industry?

J: Yeah, I was there full-time for three years and then there part-time after that. And there … as you may recall, a lot of the aerospace industry is up, and then down, and then up, and then down. So there were a lot of cycles that occurred. So on a couple of occasions I was laid off. And it was funny because my boss, his name was Gene Dearing, he would say “Well, it’s time to get laid off again because if I don’t I’m going to have to lay off somebody with a family and you’re going to school, so, you know, there you go again!” And so I’d come back on the breaks and come back on part-time jobs. But it was interesting, because I maintained the connection with those people for so long. And I still have friends from those days who live here in San Diego. A couple in other places, too.

But when I finally did stop totally with them and stay in school, I had by that time met John, my husband-to-be — in a class. He was a mathematics major. And he had been in the navy. And he had gotten out of the navy and he had started to college. And so I met him. Actually, I met him and then, in the course using Dan McCracken’s book. And later, it was so gratifying to me eventually to meet Dan McCracken and to get him to autograph my book from those days.

[19:53]

So then after I finished the Master’s degree, I guess that by then it was what? 1963? Yes, 1963. Then John and I had decided to get married. He had a child from his first marriage, John Jr., and he had sent him to Gettysburg, Pennsylvania, to live with John’s parents. And so he wanted us to move to the East Coast — just for a year or two; just for a year or two — until this child could be assimilated into our household. So we moved to the East Coast and John had gotten a job in San Diego with Allied Signal. So we moved to Baltimore just “temporarily.”

B: Where do you live? [laughing]

J: We’ve been there ever since. Where do I live now? It’s funny, because it was really years and years and years later when John retired, I think he was 55. He retired and he said, “OK, we can move back now.” You know, and I almost hit him, because after all these years, and all these roots, and all these … you know. “No, we’re not moving back now.”

B: Was there a gap in your resume, then, when you married and moved back east? Or did
you continue directly in a career?

J: Actually, I continued, because I knew that I was going to be having a stepson come to live with me. So all the applications I had sent ahead of time were all to industry. And so I had to sort of say, “No, no, no, I am not going to do that now. I want to get a job in teaching.” I had been a TA at San Diego State. And so I was … really enjoyed it. I had developed some new courses for them. That was my first hand at developing courses. I developed the first FORTRAN programming class that San Diego State ever offered and I taught it. So, it was really … I even wrote the book and sold it at the bookstore, because we felt that Dan McCracken’s book was part of it but we needed more … custom to our system. So when I got there, I went kind of shopping for which school might need someone. It is ironic that in 1963 I applied to Towson University, which was then Towson State College. And they offered me a job teaching five sections of algebra. And I said, “Don’t you have a computer?” “No, no, no, we don’t have one of those things yet.”

So the only place I found that had a computer was Goucher College, a women’s college. And they didn’t need anyone full-time, but they needed somebody to come and help manage the new machine that they had gotten through the NSF. So I took a job at Goucher College and I was called assistant director of the computer center, even though we didn’t have a center yet. And I taught one course a semester: statistics. The other thing that was really a shock was that they didn’t have any courses for credit, computer courses. And I said, “Well, shouldn’t you be teaching a computer programming class, like FORTRAN programming, for all your math majors?” “Oh, no, that’s not a college subject. That’s a skill and that’s like a trade. And we’d love for you teach that, but we’re going to teach that after school as a club activity.” So they had this different mentality about what was academic and what was not.

It was years later, probably after I had left there — I was only there three years — I got a phone call from a friend at Goucher who said, “You should be interested today because we approved computer science as a major today. And I know how hard you fought to even get a course acknowledged. But we also eliminated Latin as a major, too.”

So I actually wound up three years at Goucher College in more or less an administrative position. And I left there on purpose because by then my stepson had been more or less assimilated into our home and I was getting called in all the time to run administrative work on the computer. And running administrative work on a punch card IBM 1620 system with a collator is not fun, and it takes a lot of time, and they would not allow me to hire any staff. The only workers we had were students. And so if a student was supposed to get there and didn’t get there, I would have to go in and run the work because it was needed the next day. So I finally said, “I’ve got to leave. If you’re not going to hire any staff, you’re not going to set up a decent computer center, then I’m going to leave.”

So I waltzed myself down to the Baltimore Junior College and said “I’m here to see if you need a math teacher” (they didn’t have any computer courses, either; and that was by then … that was 1965, 1966). And so they said, “Well, yes, we do need a math teacher, but didn’t you do computer work for Goucher? We’re getting a new computer. Did you know that? We’re getting a new computer.” And it turns out it was an IBM 1620. And when I told them
that’s what I had been working on for all those years at Convair and then all those years at Goucher, they said, “Oh my gosh, we don’t know what to do with it. Could you start this week?” So I wound up getting placed right away at Baltimore Junior College, which became Community College of Baltimore.

B: Was this a teaching job or an administrative …

J: That was a full-time teaching job. And it was interesting that they had hired someone from business who was in data processing, because by then there were majors in the associate degree level in data processing. And he was kind of hired — and he knew all about unit record equipment, punch card equipment, IBM-type collators, sorters; he knew all about that kind of stuff — and they didn’t have anyone who knew programming. And so they put the two of us together and we became kind of co-chairs in creating a new department at the community college. So it turns out so that as the unit record stuff was being phased out and we were phasing in a lot more programming, we wound up with an associate of arts degree in computer science, which was kind of rare at the time.

B: Hmm. But you didn’t stay there forever.

J: No. I actually stayed there a little more than 15 years.

B: Wow! Did you go back to school during that time?

J: Yes, I started … even when I was at Goucher I started taking classes at Johns Hopkins University. They also did not have any computer courses. But they had a doctorate in operations research, which was very practical, very hands-on type engineering applications. So I took something like 16 credits of coursework there, even while I was at Goucher. And then after I went to the community college, I stopped that for a while and then started shopping around for a place to transfer that work to continue work towards a doctorate. I finally kind of had a compromise solution at the University of Maryland, College Park. Because I didn’t want just straight computer science after talking to some people about it at Delaware and College Park both. I wanted computer science with education and especially with educational administration, computer centers and facilities for universities. And that was kind of out of the element. They said, “You can go to business ed and teach typing. Or you can go to computer science math ed and teach calculation. But we don’t have anything in between.” So it was really fortunate that Dick Austing was there and I had met him. And a couple of other people came together, even Bill Atchison was on my committee. And they convinced the education people, under educational administration, that there should a way to do an interdisciplinary doctorate. So my doctoral program had additional courses, some in math, some in business administration, and some in computer science. But they were all kind of geared towards the administration of college, university computer centers.

B: So who was your … was your advisor … ?

J: My advisor was in the college of education. And he was Robert Stephens. He was
predominantly in educational administration. Most of those people were going to become principals. So I was an oddball in the whole process.

**B:** And you were teaching in the community college while …

**J:** I was already teaching … I was already teaching at the community college. And I had already by then become the department chair, which we called Computer Information Systems. We called our department Computer Information Systems. Because we had this combination of data processing and computer science both, which was when I came together with the fact that you do not only the scientific work, like the wind tunnel work, but the administrative work, like the Goucher College payroll, for example, and scheduling. And all of those are needed in this computer field, so I really wanted to be at a place that would allow those to be. So when I was still working on my doctorate, I had taken a year off to spend pretty much full time on my coursework. And I did an internship for the state of Maryland, which was a statistical study of … it’s called the Governor’s Commission to Restructure Higher Education. And I was assigned to work with one of the contractors to gather data and to do projections and research projections on what are the needs in the higher education system in Maryland. So I did a lot of statistics and a lot of programming. And we used the Delphi technique, mostly for projections. So it was a wonderful experience. [30:10]

But since I had already been teaching in the community colleges, I kind of thought I didn’t need those courses, but they made me take them anyway. And I still hadn’t finished my doctorate! And I taught one semester at College Park, so I had the experience of teaching a huge section, 150 students, with five TAs. And after that semester, when I got very little done on my own degree because I spent so much time teaching the TAs, and then helping the students at other times, that handling that one course — it really taught me how difficult it is to teach large section courses with TAs. I swore that when I took any other job it was always going to be with reasonable size classes.

And so when I was supposed to go back to the community college, after my year off, I was presented with an offer from Towson State (it was still Towson State at the time) to come and teach for them. And I thought, “I’ll do that temporarily,” because there were certain situations that were going on at the community college that were very displeasing to those of us in our little new department. We were very upset at some things that had happened just above us, at the next level up, and some things that had happened in my absence were very disturbing. And so it turns out that five of us went in and submitted our resignations to the Board of Trustees all the same day.

**B:** Oh my!

**J:** It was interesting, because they said, “Well, what are you going to do?” I said, “I don’t have a job, but I got an offer from Towson State. I can come and teach for them if I want to, but if I do, it is definitely temporary because I don’t want to be there permanently.”

**B:** Not you! [chuckles]
And it turns out, because I had memories of that offer to teach five sections of math way back in the 1960s. And I thought, “I got to see what they’ve got!” And sure enough, their equipment and their programs and their initiatives were worse off than the local five or six community colleges. Their equipment was out of date. They were using an old state system that hadn’t been updated in 10 years. And so when I went there, I thought, “I’m never going to stay here.” But they had some new people coming in at a level that had some influence. So they started making changes, enough so that when they suggested forming a department, splitting for math, I was all for it. And I was promoting that and pushing that. And so I became the first department chair of the new department. So that’s when I decided, “I guess I’ll stay.” And they also allowed us to name our department, not just computer science, but computer and information sciences, plural. So that we could bring in other kinds of programs related. So I guess I’ve always been promoting the breadth of the field.

B: So you hadn’t finished your Ph.D. yet?

J: No!

B: And you’re department chair of a new department.

J: That’s right. In fact the new department … I went there in 1981 — temporarily — and in 1983 they decided we were going to have a separate department and I got named. But the department didn’t exist officially until 1984. And it was in the fall of 1984 that I got my doctorate finished and graduated. So I got named department chair as an associate professor and then I got promoted after my doctorate to be full professor.

B: Well, this is a good time to go back into professional service, because the computing community is certainly aware of many, many of your activities that have really helped the computing community. And I know that they started way back before you went to Towson. Do you want to talk a little bit about the professional service and how you got so deeply involved?

J: Well, you know, at San Diego State, when I was a grad student, I attended meetings of the ACM. And I joined as a student member, way back then. But I wasn’t really active and I didn’t do a lot. And then, even in Baltimore in the 1960s, I went to the Fall Joint Computer Conference almost every year — it was in Atlantic City most of the time. It was really invigorating and energizing, in that so much was happening and you met people from all over the country.

But it probably was the first occasion that I really got involved was the year we lived in Boston, when my husband was given a year, called the Government Mid-Management Career Program — by then he was with the Social Security Administration, which is why we didn’t leave to go back to California. It’s because he took this grandiose job at Social Security Administration headquarters. And so the year that he went for his Master’s at Harvard, we lived in Boston, we lived actually in Cambridge. I attended the ACM conference that year and was very active in a lot of the activities that went on that year. And got pretty much involved and found out they had an Education Board and they were doing curriculum...
work and stuff. And even in Boston I taught at Chamberlain Junior College, which is on the
Commonwealth Park, with something like 15 buildings in that area of Boston. I had to
develop syllabi and course outlines and equipment needs and all that for every course that we
were doing at the time. So I really had gotten myself ingrained into course development and
curriculum activity, even at that time.

But it was in 1972 that I went to the Fall Joint Computer Conference. One reason I remember
that date is because it was just about 8 weeks, 7 or 8 weeks, after my son was born. Rob was
And I had gone back to teaching at the community college. There were meetings there about
curriculum and that’s where I met two very influential people in my life, Dick Austing, this
was in 1972 — it was long before I ever had talked to him down in College Park, which was
later on — and Jerry Engle. I had met them at one of the book receptions. We wound up
sitting and talking almost all the evening, just on and on and on. It was so kind of
invigorating about what they were doing at the different places where they had been and
where they were.

They had said that they were active in the ACM SIGCSE. I had been … I think for the first
time, I think I went to one of the first meetings in the late 1970s. And it was 5 years after, I
think it was probably 1978, that I was invited to one of the Ed Board activities. I realized
after listening, and watching, and hearing, that number one, they were promoting computer
science, but nothing broader. And number two is they were being very exclusive, in that they
were not necessarily considering programs except for 4-year and higher — 4-year, Master’s,
and doctorates.

And so I wound up speaking up a few times about it: “But, you know, there’s a lot of other
people doing things in this field. And actually the community colleges were among the first
to ever offer courses. They offered workplace-type need courses.” So I went to meetings
there and then later on worked on some of the SIGCSE activities. And eventually got so
outspoken, I guess, that SIGCSE offered us (I think at the time that Dick Austing was the
chair, I think) that at the next conference they were going to hold, if we really were serious
about doing something at the community college level, that they would provide support
money to get our group started. So I think it was at the — maybe 1975, 1974 or 1975 — that
we started the community college committee of the Education Board. And by 1978 we had
published three curriculum reports, which apparently is the first time that any association had
published curriculum reports for 2-year college associate of arts degree.

B: I’m getting a little bit foggy on the timeline.

J: The timeline.

B: Were you still in the community college at that point or were you in the graduate
program in …?

J: No, I left the … let me think now. I was at the community college from 1965 until 1981.
B: So you were there during this report.

J: So during this time …

B: So during this report period you were there.

J: I was actually from the community college at the time I was speaking up. And then later — I think it was probably 1982, 1983, 1984, after I left the community college and went to the 4-year college — I still remained on that committee for a while. I was the chair of it for about six years. I’ll have to check the dates on that.

B: It’s the flavor that we’re after, not the …

J: Yes. Right. Not the exact times. So I kind of promoted and pushed. And eventually the ACM Education Board set up a community college committee, which still exists today, I’m proud to say. And some of the same people that we had initially worked with have remained leader. And we have a lot of new blood also coming in. But that’s been something I’m really, really proud of, is to break into that mode so that they are more recognized.

In fact, there were some reports that came out about that time. The Manpower Commission is now called the Commission on Professionals in Science and Technology — CPST, Commission on Professionals in Science and Technology — but it was the Manpower Commission, before the Washington Area helping organization. They came out with reports that the whole workforce studies had always ignored — the two-year college graduates — and what they could do and where they were. So I had spent a little time working with Betty Vetter and got some of those quotes and some of that evidence to show ACM, in order to show that this area was not necessarily being recognized. And it turns out that not only did ACM recognize them, but so did the NSF. Because now community college people get invited to be panelists, to review proposals, to recommend. And now even the federal government collects two-year college graduate data. So I think about the same time that I was pushing it within ACM, other people were pushing it in other places, so that it got eventually very well recognized.

B: You were very active at that period of time. You had a young son and you were juggling a lot. Finishing up a degree.

J: Yes. Yes. Right.

B: How did this … how did you juggle it all? How did you do it all?

J: Well, you know, I had a very supportive family, especially my husband. He was very supportive. And I’m sure there were times that he wished I weren’t so involved! But we were in Baltimore and I didn’t have any family there. I didn’t have built-in babysitters. I didn’t have family to help take charge, or to tend to things. I even went on trips; I went to SIGCSE meetings. And yet I had developed this wonderful rapport with a bunch of folks that were so helpful. One of my neighbors had 12 children.
B: Oh, my!

J: And so ... it’s funny, because I had sort of cultivated her friendship long before Rob was born. Rob was kind of a surprise, because we had been married quite a number of years by then and our stepson had grown up to be now 14, 15 years old. He had moved in with us when he was 8; we had gotten married when he was 7. As a result, we thought this wasn’t going to happen. But it turns out he was a wonderful surprise. And so I knew all my neighbors. I knew the family. I had a very active church life by then. The woman who was the church nursery caretaker became Rob’s personal babysitter. The woman who had been my housekeeper became one of Rob’s babysitters. Several of my neighbors had been taking in children for daycare, and so I used them some. And then of course the neighbor with 12 children gave me one and two years later gave me the next one and two years later gave me the next one. I had all kinds of supportive help in doing things around the house. And my husband really had always been the type to take over a lot of the responsibilities. So it was really a lot of help. I had a lot of help.

B: What kinds of ... what was your attitude toward research? The kind of research you did was very practical (is that what I am hearing you say?) through your academic career?

J: Very. In fact I really did not want to be at a Research I university. I did not want to be in a total research setting because I really loved engineering. And even though I did not go to an engineering school, my work in operations research at Hopkins was very practical use of math and use of computing to optimize how you can do things, efficient ways to do things. I loved the application of mathematics to that kind of thing.

[44:54]

And I guess because of my curriculum activity, I got very interested in how do students who go to programs let the workplace know what they can do? Because we didn’t have any real easy way and most people in industry who were doing hiring didn’t know the difference between computer science and several other degree programs that were evolving. And so someone could go to high school and study this or someone could go to practical trade school. So how to have industry be aware of what a student could do, as far as capabilities, was of a lot of interest to me. I kind of got involved in evaluating and looking at certification exams and what kinds of things they could do. And at one particular ACM meeting, Fred Harris was giving a talk on the creation of the ICCP [Institute for Certification of Computing Professionals] and he said that they were going to end this registered business programmer exam, which I had been having my students take because they could show that to the employer, not just with degree, but now they have this certificate thing. So I got up and made some … choice comments about how you are not helping the industry unless you give students ways to show what they can do. And the changes that they were making I didn’t think were so impressive.

So, as a result of speaking up at that meeting, I kind of got invited to attend some meetings that the Institute for Certification was holding. Apparently, the institute had been formed in

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1973 and it had taken over the certification exams of the DPMA [Data Processing Management Association]. So one of my first kinds of research was: What good are they? What are the good things about certification and do you have a viable career path? And it turns out that my doctoral dissertation research was a follow-up study of graduates of two-year colleges and their career paths ten, fifteen years later. And so I had been so proud because I had developed, actually, a mathematical model of career pathing. My education advisor said, “We don’t need that. You need to find out if they’re happy.” So, you know, I wound up doing a lot of things, and questioning … social research and personal things, a lot of things that were kind of unrelated to my mathematical model that I wanted to use. A lot of that was finding out that the kinds of research that people are interested in was different … varying at different places.

So I then began to study workforce trends. I did a study on gender and workforce trends way long ago. I did a study on certifications by the states of their teachers. I did another study on demographics, like where are the … this was an early diversity thing, this followed up on my doctoral dissertation. In fact, I discovered that most are men and most are white and most are WASP — White Anglo-Saxon Protestants. And the next was way down and it was Asian.

And there were no blacks, no minorities. That was one of the other things that I carried with me to the community college, that some of this needs to be promoting. And so as the community college where I was teaching became more interested in attracting minorities, we were certainly there to try to lure them, and get them involved in that. It was interesting, though, that in several of the studies I did, it was the minorities who didn’t want to return their survey forms. In spite of the fact that a few of them were going into the field and they didn’t want to be involved. So, you know, you think, “Well, there’s something else going on here that we need to be interested in.” But a lot of those really never came to too much. I actually probably wrote more about curriculum than I did about anything else.

Then, let me think. What was the other? Oh! I got very interested in promoting the use of software engineering because of government jobs. Government jobs for a time, after a huge workforce study had been done on the federal government workers, and knowing — because my husband was with the federal government as a worker, and I knew a lot of people in the Baltimore-Washington area who were working for the federal government — they did a study and as a result recommended the creation of some institute that would promote education for government workers and would give government a way to determine what are the good practices to be able to be used in software development. And that, of course, became the Software Engineering Institute — that became SEI. So I kind of followed the work that led up to the creation of SEI and then also followed a lot of work that they did and began to attend a lot of the software engineering activities.

B: During this period of time you’ve mentioned some names. It’s an almost symbiotic relationship between you and many of the people that you were professionally involved with. I normally would ask the mentoring question — who were your mentors? But it almost sounds like listening to you that it’s a co-mentoring process. Do you want to talk about mentoring, professional mentoring and as a teacher?

J: That’s an interesting question, because I really am so strongly convinced that mentoring is
important, mentoring is useful, mentoring is very helpful and that we need more role models of people to do mentoring. But I’ve never been really active myself, in considering myself doing it or even in using it. It turns out that in most of my situations it’s almost been a collaborative endeavor, not necessarily a mentoring endeavor. There’ve been several colleagues who I worked with who helped me a lot and then I helped them a lot, but they were in different kinds of things. I don’t have any specific people to name as mentors, unless of course you name some people like the ACM folks — Dick Austing, for example. He really became a mentor to so many people and was encouraging. I think, even though you don’t necessarily consider those people mentors, you consider them influential. They gave influential encouragement at time when it was very important.

At one point in my life I almost stopped my work in completing the doctorate. And it was Dick that stopped me. He said, “That’s not a problem.” I said, “Well, I’ve got this incomplete in this one course and now this professor is leaving the university.” Because of politics they were rearranging the way courses were in Maryland. And that whole department was being shifted and he was leaving. And I wound up being told that he couldn’t finish this project I was working on. I was just beside myself. It was like the last official credit … course I needed. It was at the time, too, when my son was little and I was really busy and I was working. And I was commuting to College Park one day a week and a half a day another week and just the commute itself was tiring. And so I just kind of began to think, you know, “Is this really worth it?” Especially I was older, anyway, to be finishing this. He said, “Of course, it’s worth it!” He said, “You let that incomplete sit on your transcript the rest of your life. You don’t need it. Pick up another project. Do something different.” And he helped me find another project that turned out to be really enlightening, interesting, exciting. It was a study of hospitals implementing one of the Medicare laws.

B: Really?!

J: He sent me, like, a 100-page document to read about it and said, “That’s not enough. We’ll just have you sent over there.” And I learned so much about requirements analysis in that particular task, because being there and watching how things had to happen was a real learning experience. And I went away knowing, “OK, now I know what we’ve got to do.” It was a multi-hospital setting, too, which needed satellite transmission. So it turns out I had to get into that: Costs of satellite transmission, what times are they passing over, when can you transfer your data, and so on. So it turned out to really be a wonderful experience. It wound up I was finishing. So in that sense I guess it’s not a mentor, but it certainly is an influential advisor. And I’ve had several people like that who were helpful and supportive.

B: Now you’re toward the end of your career and you’re a very senior person at the university. What gives you the most joy at the job and in the profession, looking back? Right now. Where you are now. What are your major joys?

[54:43]

J: Well, I’m very … I’m very … gratified, I guess is the right word, gratified to think that that at several points in my career there have been something that I recognized that needed to be done, and by speaking up and by getting some others to speak up, we were able to accomplish something like the community college movement. And there were other things
like that — the information systems movement. They were also not accepted within ACM, or the Education Board. They had not been recognized as one of the disciplines. And a couple of people who spoke up about that, and I certainly jumped on that bandwagon to support it after my management at Goucher College and running the computer system to do practical work. So I think those trends in the field and the changes that occur at certain points in time. It’s interesting to look back at the history and see, like, when did that happen and then be opened up to that.

And especially now that we’re, as a profession, we’re promoting breadth in so many ways. And NSF has a program called Broadening Participation, which predominately they intended to be broadening of the demographics, bringing in minorities and women and so on. But broadening … to realize that computing is everywhere and it is needed in almost all the disciplines, is another part of broadening that I think is really important. And I guess I’ve kind of been pushing that, too, for a long time.

B: And I do want to say, because we don’t have a video going on, that your eyes just began to sparkle. You weren’t looking back, you were looking ahead and just looking at that next challenge.

J: Interesting. So there are several things that I’ve been proud of. I was really also very gratified, and been totally disappointed, at the workforce studies that have been done on academia. And, of course, a lot of those movements have succeeded. I was actually — in the 1960s and early 1970s — I was on an accreditation committee of ACM that resulted in accreditation standards for private institutes teaching computing courses, not degree, but they were kind of called “degree mills,” because they were private and students paid a lot of money and went in for training and then were not sure what they learned. So I worked with some very prestigious people on that early committee.

And then later it turns out that accreditation picked up steam again. Later on, I was not involved in that second wave, but I was certainly supportive of it and was really pleased to see the accreditation movement to accredit computer science programs take off. And that seems to have sort of slowed down, even though they’re now starting to accredit information systems type programs.

But the thing that I have really found gratifying, even though I did not work on it, was when the Education Board finally came out with, like, five reports. And one of the side things that I was really pleased about is that in our early two-year college work, we had one report of those five we did that was called Computing Across the Disciplines. And it’s now called Computing Across the Curriculum. But even now the … all of the reports of ACM have got components about how this program, like software engineering, can be used across disciplines, or how information systems can be used across disciplines, and so on. So that, that whole movement of bringing it across the disciplines, is the kind of breadth that I am pleased about, glad to see happen.

B: I am going to go from breadth down to narrow.
J: Oh! OK.

B: The narrow is: Can you tell me something about your teaching philosophy? You’ve been in the classroom a lot over a long period of time. How has your teaching style changed, do you have a philosophy? One thing I heard you say is you didn’t want another one of those 150-student classes with five TAs to manage.

J: Right.

B: But what kinds of things can you tell us about your attitudes … your ideas about teaching and how they’ve changed or matured?

J: Probably one of the major influences in my teaching was the fact that my first experiences of learning in this field were on the job, were training programs on the job, or self-study on the job. So I really believe in learning by doing, learning by practice, learning by doing. And so I try to bring into the classroom, under the constraints that we have in the classroom, practical experiences. I have always tried to bring in graduates of the program and let them tell about their experiences. I have always included stories, you know, like the story of what happened and what was the moving point that brought that to bear.

[59:55] And so, when the movement came — teaching and learning movement — several organizations of higher education were promoting the teaching and learning movement. Which is more of a constructivist philosophy, that students learn, retain more about what they’ve learned if they themselves have processed it through their own brain, rather than just surface knowledge or listening to somebody or reading about it, that they have to actually do something with it. And so I’ve always tried to have in-class activities that students can participate in. I encourage a lot of discussion. I sometimes have small group discussion — three people talk about this question. It is especially easy to do that in courses of societal and ethical issues, societal and ethical concerns. It seems that in those kinds of courses that’s not only easier to do, but most of the computer science majors don’t know much about it to start with, so there’s a lot to learn.

In regular programming classes — which I haven’t really been teaching for a while — it seems like as you move forward in your field and you’re able to pick and choose more like what you’d like to do — and I’ve sort of co-developed (it was first with Doris Lidtke, before she left), we developed the first courses we had in what we called computer ethics, but they were societal and ethical concerns for computer scientists. In those courses, we didn’t really expect to be so successful or to take off. And we thought we’d run out of material and it turns out they have just really done well, succeeded very well, and students really tend to enjoy them a lot, they say.

And of course when accreditation bodies, ABET and CSAB, when they said that you must include that kind of thing in accredited programs, it kind of gave it a stamp of approval. So we use a lot of in-class exercises in those classes, like debates, you know, you’ve got to argue your way through a point. And even in my other classes, I’ve been teaching several gen ed [general education] classes recently.
And I also teach the undergraduate elective in software engineering, which is, of course, one of my favorites. And people come in thinking, “Oh, this is just another programming class,” but no, it’s not. It’s not another programming class. It’s about computer programming, but it’s not to teach more in computer programming. But we’re using process models from the Software Engineering Institute. We teach process models. We teach estimation. We teach how to better manage a project, what to look for, how to know about … how to manage it. What are all the design alternatives that are there, and what are all the different modeling methods that you can use to do it with. And so students, instead of writing a program, will maybe have to write a test plan for a system or something related to that. That’s really been a joy. Apparently it has been very well received locally. Although there’s no particular standard for that anywhere, not even in the new software engineering curriculum, which would start — the software engineering curriculum model that the ACM developed starts off doing that early on, so it’s a totally different approach. But for computer science majors who have never had any of that, doing that kind of thing is what I would like to think of as a capstone. And having them handle some of it and do some of it has been really gratifying, in that they come back from job interviews saying, “Gee I’m glad I knew what CMM stood for!” And so that’s been one of the things I enjoy the most.

The most recent thing that I’ve been working on is using computer history in advanced composition. We have a general education movement called Writing Across the Curriculum, lots of schools have it. And I started developing this a few years ago and then got interrupted by a leave of absence and so on, but now I am finishing it up. We developed an outline and experiences and some support letters for creating a new advanced composition course, which is called Second Writing. Many institutions only require freshman writing, but if an institution is a member of the Writing Across the Curriculum Consortium, you have to teach advanced composition, which is writing in your major. We currently don’t have writing in our major and our students wind up taking business writing or history of science over in physics or something. But this would be a history of computing and information technology and it would involve a study of our discipline and writing about our discipline. And so that’s one of the newest exciting things I hope to get accomplished before I retire.

[65:03]

B: As we are sort of winding down here, do you have any strong outside interests, outside of computing, that would help us maybe see who you are better?

J: Yes. I have had lots of interests over the years, but it turns out that a great many of them are classified as literature. I read all the time. I have always had a love for science fiction, even though it was not popular when I came up. I have been trying to use movies and science fiction film clips in classes to show points of what might happen in privacy if we aren’t careful.

I really have become a real aficionado, I guess, of film — what do they call them? — film festivals. And institutes. I joined AFI [American Film Institute]. They have a theater in Silver Spring, Maryland, and they often show classics or they often show documentaries and so on. So that’s one of my causes.
The other one is tennis. I’m just wild about tennis. I’ve always played tennis since college.

B: I know, you had a little … you couldn’t play tennis there for a while.

J: That’s right!

B: I remember you saying that. So clearly you got back. I wondered about the roller skates, that they must have allowed you to start doing physical activity again.

J: Yes, they did. In fact, I started doing physical activity again and even played tennis again, not right away but after a couple of years after that illness. I even played on a women’s basketball team for Convair. That was three years after my illness. And, you know, everyone had said, “Oh, you have to be so careful. You don’t want to have another breakdown or have that recur,” which always can happen with tuberculosis. But I’ve been fortunate that I’ve been very healthy.

And my women’s basketball team at Convair, we had some wonderful times. We never entered competitions to try to win a tournament against schools, but we constantly were playing — what you call? — exhibits. We played the Navy one time, the Navy men. We played … the Marines was the one I recall so much. We played the Marines. Convair women’s basketball team played the Marines enough that we got our picture in the paper.

B: Wasn’t women’s basketball in those days 3-3?

J: When I played in college it was 3-3. When I went to Convair and was playing, we played men’s rules: five on a court, all the way up and down. But when I was playing in high school it was 3-3. And you only played half-court. And then, even when I went to college, it was 3-3. I forget what year it changed, frankly.

B: I played 3-3, so I don’t know and I could look up what year.

J: You played 3-3. Then you know. But it turns out that my women’s basketball career in college, in Northeast Louisiana State, was that we were called … we were written up in the campus newspaper as “The team that’s all ready, but never can get to go anywhere,” because many of the schools in Mississippi, the colleges in Mississippi, had women’s basketball teams that traveled everywhere. Our women’s basketball team played mostly intramurals and demonstration exhibit games against people to make money for causes. And we would occasionally get to travel to another place because the men’s basketball team was traveling and we could go with them. But we didn’t really have a competition in college like you would normally today expect. That was before Title IX.

B: So tennis became “The Sport.”

J: Yes. And I still … in fact I discovered several friends in SIGCSE who like tennis and we used to sneak away and go play one tennis afternoon in SIGCSE. And also the NECC conference, the National Educational Computing Conference, I attended for quite a long
time. And there were groups there that would sneak away and go play tennis. And then we
got to …

**B:** Big dark secret: “She sneaks away to play tennis.”

**J:** “Sneaks away to play tennis.” And in fact, now bunches of us meet up at the US Open, we
attend on Labor Day weekend — several of us, there’s sometimes as many as six women
who meet up there — to enjoy the US Open tennis.

**B:** Cool! Well, if you had … at this point, if you had advice that you would give to a young
woman starting out in computing, what would it be?

**J:** Don’t let people hold you back. You know, don’t be shy. Because I was very shy and I was
not necessarily going to speak up until I got angry. And I waited a lot longer than I should
have in many cases to speak up or to say something or to present my opinion. I think that
they should just move on and when they have opinions or attitudes or expressions, they
should express them and find others with common interests and common causes to work
with. Because there’s just a lot of wonderful people out there who need colleagues to work
with. And so try to find them.

**B:** This is a totally different kind of question. If you could change one decision that you
made along your career path, could you think what that might be?

**J:** [long pause – removed about 13 seconds of silence] No, I never thought about that before.
Probably, though, looking back … You see, a lot of times when things happen to you, you
don’t think of it as a blessing until years later. You discover … you thought it was terrible,
but looking back — that illness I had in college was really a blessing. You know, you look
back and you think, “But for that illness, I would have remained a phys ed major, been a
basketball coach in high school, and married … ”

**B:** The little boy in Louisiana …

**J:** … the guy who was the star of our campus basketball team (who I dated for years). But
because of that illness I really had a total turnaround in my life. And I think sometimes you
have to — well, the way we expressed it then is “You have to fight while you’re lying flat on
your back.” And you don’t realize that, in performing that fight, that you are actually
thinking through situations and that you make turns in your life that you would not have
made otherwise.

And so looking back, I think probably the only thing I didn’t do soon enough, I didn’t start
the doctorate soon enough. You know, I waited a lot longer. I just had so many other
interesting things to do with my life, I guess, that I didn’t start that right away. And I
remember when I got married, John said, “Are you done going to school now?” [laughs] So I
probably, you know, I guess I probably would have started it sooner. Even though it was so
difficult to find what I wanted, because I was ahead of my time a bit. So I didn’t find a
program like I really wanted, until I had to design it. And now, young women can find more
that’s available to them now. So I would say that they should be more aggressive and move quicker to check out some of these options for themselves.

B: The final question. If there’s one story (and you’ve already told the roller skates).

J: Yes!

B: If there’s one story that you would like to be sure got in the record, that you wanted to be remembered for, or that you just chuckle about something that happened in the classroom, or any one story that we’d say, “Oh, yeah! That’s a Joyce story.”

J: [whispering] One story. [long pause — removed 6 seconds of silence] That’s a hard question. What one story — like the Grace Murray Hopper and the bug, the moth she collected. What one story? [long pause — removed 4 seconds of silence] I don’t know that I have any except the roller skating story, I guess the roller-skating story.

B: Well, we’ll take the roller-skating story — for real-time computing.

J: Yeah, real-time computing before it was real time. Gee, I don’t know of another.

B: I think we can take that one.

J: You think you can take that one! It’s funny and fits. I mean, some of the biggest influences in my life have been non-professional, so I can think of some stories there.

B: You can tell me a non-professional one, because that was one of the questions. What things keep you ticking on the outside. The football story that isn’t on the record?

J: Oh yeah! The football story of the dinner I prepared. And there was another dinner that I prepared that was also way up there in the competition, which my stepson and my son got into a big debate and wound up ruining Christmas one year. I mean, it was just unbelievable.

B: Do you remember the topic of the debate?

J: Yeah, yeah. The topic of the debate was — the two boys began to compare and one criticized the other about what they were or were not doing for their parents. So it involved us, which made it even worse that they got into this argument. And they didn’t speak for a year after that. And they both left! And one got to the airport and flew back to Texas, you know. And it took a long time for that to be resolved. I mean, that was awful. It ruined that Christmas dinner — that I had cooked already.

The other experience that has definitely changed my life is living in hospice for four months with my son who was dying of melanoma. And yet he was feeling good except that he was paralyzed. He was mentally alert and capable. And you know, it really … it is actually the first time, I guess, that I have ever just dropped everything and left. And it has changed me a lot. And probably for the better. It has in fact brought out the strong need for high touch to be
combined with high tech.

B: I must say that Joyce is very emotionally moved right now. She is in tears, but she is very peaceful about this. And it’s a lovely way to end and say thank you for your time. You’re a beautiful person and I’m glad that you gave me the time. Thank you.

J: Thank you. Thank you. It means a lot to me.

[76:24]