PROFILES OF SWE PIONEERS

ORAL HISTORY PROJECT

Lois Bey Interview

April 16, 2003

Las Vegas, Nevada

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Lois Bey

Lois Bey was the first woman graduate in chemical engineering from the Illinois Institute of Chicago, where she graduated in 1950. She worked for a succession of companies, including Ewald Laboratories and the Armour Research Institute (now IIT Research Institute), with responsibilities ranging from lab technician to assistant engineer. From 1956 through 1960, Bey was employed as a sales engineer for F.M. De Beers Associates, where she sold and maintained equipment. In 1960 she hired into Baxter Laboratories, after which she earned a master's degree in library and information science. She successfully combined her degrees toward a career as an information specialist in chemical company research and development departments at Baxter and later at Stepan Chemical Company. Bey retired in 1993. She joined the Society of Women Engineers in 1953 and was also an active member of the American Institute of Chemical Engineers and the American Society of Information Science.

In her 2003 Profiles of SWE Pioneers Oral History Project interview, Bey discussed her childhood; her experiences in college; her professional experiences as a chemical engineer, technical writer, and sales representative; gender discrimination; workplace accidents; and her involvement in SWE and the American Institute of Chemical Engineers.

- July 2016

INTERVIEW OF LOIS BEY, APRIL 16, 2003

LAUREN KATA: Good morning. It's Wednesday, April 16th, 2003. This is an interview with Lois Bey, of the Society of Women Engineers, for the SWE Oral History Project. The interviewer is Lauren Kata, and we're in Las Vegas.

Let's begin by establishing your date of birth.

LOIS BEY: I was born May 8th, 1929.

LK: Can you describe your family background?

LB: Of course. My father's side, the Bey side, was German. But Bey is not a German name. The letter "y" was never in the German alphabet. I have no idea where the name came from, except doing a little -- tracing some of the history, a lot of Germans by the name of Bey came over in the 19th Century. I have no idea what my Grandfather Bey did. I know my father had to drop out of high school after his first year, when his father became ill with heart and kidney problems. At the time of my grandfather's death, it was recorded he was a night watchman. I don't know what he did before that time, and he died about five years later.

My father became involved in the construction business, and he was successful because he had an unusually good long-term memory. He was an estimator. And my brother and I inherited that memory from my father. In fact, we inherited our physical build from the German side of the family, not the Swedish side, my mother's side. He could, before computers, if he was given a bid to make an estimate on, he could recall that may have built

something in the past, and go to the file, and he knew how much steel, iron and concrete was used. He was self-taught. And he became, well, associated with a large firm in Chicago, and was in the thing-to-be upper management. Unfortunately, an incident occurred that killed his chances there.

My mother's side was pure Swedish. Her father came from Sweden. Her mother was born here. And my Grandfather Johnson was a janitor in an upscale apartment building in the near north side of Chicago. And as part of his salary, the family lived in a house on the grounds of this deluxe apartment building. But the house had no electricity, no indoor plumbing. But the children were affiliated with very wealthy people, millionaires. And my Grandfather Johnson, I understand, had an ability to make friends from the millionaires down to their servants.

And one story is that -- I don't know if you're familiar with the Potter Palmers, or Palmer House in Chicago?

LK: Oh, okay.

LB: They were that that when the Palmer Potters went to the opera on Thursday night, their limousine and chauffeur stopped at the Johnson house and took all four Johnson children out for a ride in Lincoln Park.

So my mother had an older sister, two younger brothers. She also, I understand -- I should say, my grandfather was strict, but fair with the children, and they had chores. The only thing, my mother did not fall in that category because my mother had a

bleeding condition, which she did not understand. She had an abnormally low platelet count. Normal platelet count is 150,000 to 400,000. My mother was usually 90,000. She had a prolonged bleeding time and she bruised very easily, so my mother didn't have the chores. She was often a playmate and a companion for daughters of millionaires.

And she also loved playing jokes on other children, because her sister would be punished for letting my mother do the jokes. But my mother was a fun-loving person. She had an ability to -- if you met her today, you might say, oh, she's wonderful! She's delightful! She made friends very easily. So I can say this, that I honor my mother and respect her, but I was never her best friend, and she wasn't mine.

So anyway, my mother -- she had to drop out of -- well, she finished grammar school. Her father died when she was fifteen. He died from pneumonia. And she had to find work, and the family had to give up the house to the new employee for this apartment building. But my mother developed from that a desire that she wanted to be a very important person with status. She wanted to have money. She wanted to own a house, preferably in Park Ridge, Illinois, which was then an upper middle-class neighborhood, own a Buick car -- not a Cadillac -- Buick was the status symbol -- and be married, and have one child, a son.

Now, as I said, she was a party girl. She loved fun. She went out dancing every night of the week. And she had many

boyfriends. She was extremely popular. So on her 21st birthday, she realized she was not married, and she wasn't even engaged. She was horrified. That was serious. She was not going to be a spinster. So she told me years later she made a list of what she wanted in a husband, a written list, and attached certain points to each one of those on the list. And she then rated her boyfriends against this list. And the one with the top score, she would see if she couldn't get him to propose in six months. If he didn't, she would drop him and go to the next one. It was strictly a business thing.

LK: Wow.

LB: Now, the most important things on the list: "Was he a good dancer? Could he play a musical instrument?" -- because she planned to entertain and be entertained, and her husband should provide entertainment for the guests and herself.

My dad, I understand, originally had trained to become a concert pianist. And he played all types of music. And before-- of course, he was on the top of the list, because he was tall, and he also would probably end up being a white-collar worker, versus some of the others who were blue-collar workers. And he played, as they say, in professional bands before he married my mother. And his one claim to fame was that Sophie Tucker -- again, I don't know if you've ever heard of Sophie Tucker?

LK: I'm sorry, I haven't.

LB: Have you heard of Ethel Merman?

LK: Oh, yes.

LB: Well, both singers were the type of women singers that could belt out a song on a stage and be heard at the back of the auditorium without a microphone. And Sophie Tucker was one of [those] singers -- jazz and blues. She came to Chicago, and her pianist became suddenly ill. She needed someone to fill in for her engagement in Chicago, and my dad was recommended. And he did a marvelous job, so great, that when Sophie Tucker came back a second time to Chicago, she asked for my dad to play for her. So this made him of top rating. At the time when mother made this list at her twenty-first birthday, my dad was eighteen going on nineteen. Yes, she got him to propose within six months, and they were married the following year.

Then two years later, after they had saved up enough money, my brother was born. And she had at least one miscarriage, she told me, before that. Now, there was a problem with my brother. He was a ten-pound boy baby.

LK: What was his name?

LB: Roy. My father's name was Leroy Karl Bey. He didn't like Leroy. He was going always as Roy K. Bey, so they named my brother Roy. And they couldn't decide whether his middle name should be Karl or Kenneth, so they just gave him the initial K., which he never added to his name, so his entire name was seven letters.

Anyway, at that time, they didn't know the problem between Rh

factors. My brother was Rh negative; my mother was Rh positive. I said she had at least one miscarriage. And she was nursing him. He was crying and crying constantly. So she was trying to settle him down. She originally did not go to an obstetrician. They charged more. She went to a GP [General Practioner] when she was pregnant. She took my brother to the GP when he was crying. The GP said he had colic, and that was all. The house became a mess. She couldn't clean or anything else.

And a neighbor finally came in -- and they never weighed my brother at the doctor's office, or my mother didn't. This neighbor wanted to help. She had raised two children. My brother was down to six pounds. He was being starved to death. So the woman said, "Take him to a pediatrician." My mother said, "They cost too much money." So she eventually found a free medical clinic in the Park District. The pediatrician said, "Bring him to my office tomorrow." And my mother said, "You charge too much. Tell me what to do." And he says, "Bring him to my office." And she said, "You charge too much." And he said, "What's more important, madam, money or your son's life?" So she went.

My mother told me these stories, because she didn't -- it took her years to realize my long-term memory and my brother's long-term memory -- which she lacked -- and I don't know if she told any of this. So anyway, it took over a year for her to get my brother back on his feet. But again, she then set up a rigid schedule. My mother was one of these that you wash on Monday, you

iron on Tuesday, you shop and do this, and everything is done at a certain time of the day.

So she didn't want anyone to walk -- she hated housework, but she didn't want anyone to walk into her house with a messy house -- was when he was first born, so certain things were that, so she didn't watch my brother. And he had two life-threatening episodes, one of which ended up in a skull fracture. Then she decided that there was a possibility my brother would not grow up to an adult. She would have another son. So she decided to become pregnant. Now, she used the fact that she had this bleeding condition to govern when she would become pregnant, because she told everyone -- my mother didn't understand it, she thought she was a female hemophiliac, but she didn't know what it was. In my lifetime, my mother never ever read a book, never did any research work, never read any magazines, only the newspaper. So she had no idea that if he was, she passed down this bleeding condition to my brother, he would have died from bleeding, if he was a hemophiliac. He was not. So I was conceived, and as she said, she was extremely disappointed she got a girl.

LK: She told you that?

LB: Yeah. She didn't get the son. So immediately she put me on the schedule, that I wouldn't turn out to be my brother. And so I was fed at certain times, my diaper was changed at certain times, and so forth. And I had to learn that crying would not get her attention. And what she told me is that when I cried

and there was, she thought, no reason, she left the apartment so she couldn't hear me, and not pick me up. So we did not bond when I was a baby.

LK: How old were you when she told you these stories?

LB: Oh, probably I was in grammar school and so forth -- as a teaching thing. So anyway, the one thing that sort of saved me from my mother, I must say -- excuse me -- I was born just before the Depression. And my dad lost the job at one company, but a few years later, he got the job of supervising the building of a large racetrack in Houston, Texas. So we moved down to Texas to stay two years. I was three years old at the time. And a few days after we were in this rented, furnished apartment, a black woman named Hemmie came to the door and offered child care, day child care for me and my brother. My mother didn't know her; she didn't know any of the neighbors. But she saw that there was a group of white children on the sidewalk. So my mother said, "Sure, take my daughter."

I later asked her why Roy couldn't go, my brother, and my mother simply said, "I wouldn't trust my son to strangers." So anyway, I went with Hemmie. And I was with Hemmie and the group of other children five days a week from 8:00 in the morning until 6:00 o'clock at night. Charge: five cents a day.

LK: Wow.

LB: But being with the other children, we saw zoos and parks, and they read stories. Because my mother and father --

there was no books at home, so we were never read stories, bedtime stories. We were not told, "I love you," there was no hugs or anything else. So anyway, I got all of this from Hemmie and the other children. And some of the older children taught us younger ones -- how to read there. And then on weekends, I would flee the house and go back with the same children, but without Hemmie's attention. My mother didn't care. She didn't watch us that much. My brother played with other friends, and he was gone.

And one time I came home at 6:00 o'clock at night, and the apartment was dark. It was locked. The car was gone. I panicked. I thought, in some sense, that maybe they went back to Chicago without me and left me there. So I ran to my brother's school, grammar school, thinking maybe there was a PTA meeting and I forgot it. No, the school was dark. And I was coming home, and I was crying because I thought I'd been deserted.

And a woman was walking along the street, and she asked me if I was lost. Now, I'm four years old at this time, and I guess developed a logical mind at that time, and I told the woman I was not lost, because, I said, "To be lost you don't know where you are and where you're going." I says, "I know where I am, and I know where I'm going." So she said, "Can I walk along with you?" I said, "Sure, but don't touch."

So I walked her to my house. When I got back there, the apartment was lit. Apparently what happened, my brother was to take some papers to my father at his office, and he got lost. And

he called home, and my mother ran to pick him up and forgot to tell any neighbors to watch for me.

The next day this woman came back. She was a kindergarten teacher. She talked to the principal of the high school and said, "I found a very bright four-year-old, I think should be entered in school." And he agreed. So she came, and my mother said, "Take her." So I entered kindergarten at four years old, and had fun there. But as I said, I became quite independent. And my mother often said that my first logical sentences were, "What are you doing? Show me how."

So anyway, when I was five years old, my -- the job was completed. I guess I understand the racetrack is still there. It was a horse racing track, but now automobile racing. I assume it's still there. And my dad thought Houston had a great future, and wanted to stay there permanently. But my mother said, "You stay. I'm going home to be with my family and friends, and I'm taking the children." So we all traipsed back to Chicago.

And of course, she tried to enter me in first grade, except in Chicago schools, "She's five years old, she goes into kindergarten." So when I was a kid, I flunked kindergarten.

LK: You had two kindergartens.

LB: I had two kindergartens, and the kindergarten teacher was amazed. I organized the kindergarten kids. I went around to one redhead boy, Ralph, crying away because he was being left alone. I said, "Stop crying. You're going to have fun, and I'll

show you how."

(Laughter)

LB: So they found out I was a leader, and very independent. And I starred in a couple of plays at that time. And I also -- they allowed boys and girls to play together, and I was leader of a boy's gang in second grade.

LK: Oh, my gosh.

LB: At that time, my parents bought a house in their old neighborhood. It wasn't in Park Ridge, but it was Chicago, seven blocks from Wrigley Field, in between where my Grandma Johnson now lived, and in between Grandma Bey's family home. Grandma Bey died when I was three, so I wasn't able to ask anything about history of the family.

And it was a brownstone, a townhouse, which more people associate with condominium associations. No, this was a brownstone, like you find in New York City, at that time, all built together, and built from bricks from the 1898 Columbia Exposition there. And it was a very expensive home, only on a twenty-foot wide lot, but large rooms. And it was very rundown. The woman who had owned it rented it out, so it was strictly a do-it-yourself. And my father, who was in the construction field, loved to fix it up, and it was something they could afford at the time. And the house was in his name.

So we started trying to fix it up. And one of the things he had to do -- in the older homes, the dining room was larger than

the living room, or parlor, because family didn't sit in the parlor; that was for entertainment. You sat in the dining room. But my father had a baby grand piano, because he and mother went we out frequently, being entertained, and they had guests over. And before we bought the house, he got a baby grand piano.

She also got an Oriental rug that was there, that as far as my brother and I knew we could never play on, because we might damage it -- or the dining room Oriental rug. She had Irish linen tablecloths, Bavarian china and stem ware for all of her guests to ooh and ahh over, because they should realize she was a very important person.

So anyway, we had a lot of fixing to do. My dad pulled out the gas fixtures, rewired the house, removed the transoms, lowered the ceilings.

LK: Were you with him when he would do this work?

LB: Yes. And the construction -- and the people he got in -- oh, I had to nail lath on the wall when I was eight years old. I knew all the names of the tools and the nails. I had to get them from the basement. I knew how to remove wallpaper from the walls, and all of that work, I knew how to do -- and remove paint. I was expected to do that.

LK: You were expected to do that?

LB: Oh, yeah.

LK: Wow. And your brother was, too?

LB: Oh, yes. My brother did that too. And so anyway, when

he did a certain amount of work himself, but working for a general contractor, at that time, there, you didn't work in the wintertime. And so the company wanted to retain its best carpenters, its best plasterers, best wallpaperers and painters, and so forth, so they allowed the staff to hire these men to do work at a minimum salary to keep the men busy during the wintertime.

So while my brother was out playing, I sat and watched the men and what they did on their work, and quietly asked questions. My mother offered to throw me out, and the men said, "She's not bothering us. In fact, we're enjoying it." To see them do a plaster ceiling, and to see them do handmade plaster molding all around that. The ceiling was twenty-four feet long. My father had jacked up the house, put new footings in it. And in the forty-one years I lived there, not a crack in that ceiling, because it floated. And it was just marvelous. I watched the electricians. I knew how to rewire, although I had a bad experience. I put a pair of tweezers in the baseboard outlet and shocked myself and blew every fuse in the house.

LK: Oh, no.

LB: So I left the electricity pretty much alone. But I tell you, I know how to do it. And again, my mother had one brother who was a carpenter who didn't believe women should not know certain things. So when I was ten and I asked my uncle to hang a picture, he said, "What's the matter? You crippled?" I said,

"No. I don't know how." He said, "I'll show you how." So he taught me, and other things. So I got, in this sense, a technical background early in my life.

Then, this is the first time all of us had separate bedrooms. And my mother wanted a platonic marriage. My dad told my mother, in front of us, "Our marriage is in trouble. We need to talk." My mother, who was a controller, said, "There's nothing wrong with our marriage as long as you do what you're told." They argued every night for two years straight. My father tried to save the marriage. He left once when I was ten.

And my mother then put me in the hospital and said I was ill, because from a child, she wanted -- she believed fat children were healthy children. So she would heap food -- because my brother was so thin, and she got severe criticism from family and friends about my brother, the condition of the house, and so forth, that I wasn't going to have that. I had to sit at the dinner -- at the table and eat my complete meal, even if it meant I stayed three hours there, because I was going to be a fat child. Of course, I was served beans, cabbage, turnips, Brussel sprouts, all the gas producing foods. We didn't have fresh fruits. We didn't have salads. That was too expensive, money was important, and children would waste food.

Well, all of this, plus I have an allergy to a chemical, methyl salicylate, which you probably know or heard of as wintergreen oil, which is used as flavoring in children's medicine

and also in gum, peppermint, candies, all of this. So I would frequently have bouts of gastric enteritis, vomiting for twenty-four hours. Being, as I say, a logical child, I tried to tell my mother it was food. "No one else got ill. You're lying." So I had to eat it, and I got sick. And she said I was making myself ill.

So at the time my father left, she decided to find out what was causing it. Of course, I was not permitted to talk to the doctors. And what she described, they couldn't find out what was wrong with me, except possibly I was a hyperactive child. So they prescribed Phenobarbital for me.

LK: Oh, my gosh.

LB: And I wasn't that way. So my dad did come home, but again, he left. He stayed about a year more, and he left shortly after my eleventh birthday. Went to work on July 5th, never came home. My mother, at the time, refused any monetary support for herself or child support. She thought that would bring him home, because he had to come crawling back home. That did not work, so she told him if he tried to contact my brother or myself without him coming home, she would have the brother who was a carpenter beat him up. So he didn't contact us.

And he made a good salary as -- in anything. So she decided she was going to punish him. She wrote poison pen letters to his boss, his co-workers, his business associates, the clients, and he got fired. We -- later on, meeting his former boss, said, "If

your dad could only have stopped your mother from writing those letters." And I had found one in the wastebasket and I had taped it together, and it was horrible. So my father left the state.

But the house was in his name. He made no attempt to sell it. He made no attempt to sell the car, which was in his name. But we were left with the responsibility of the mortgage, taxes, the utilities. Possibly there was some money in the bank. And my mother had never really worked at any skillful jobs. She couldn't even use a typewriter. Her older sister had two years of business college and worked as a secretary. And we got no help from any of the family members. So my mother won't even accept what was called welfare. We would starve to death before that occurred.

I started working when I was twelve. And I have worked as a chambermaid, a waitress. I've done factory work. If they taught me anything, I didn't want a boring job. My brother was going to follow in his father's steps; he wanted to become an architect. My father could have passed the exam for being a licensed architect, but was not permitted to take it because he didn't have a college degree, or even a high school diploma.

LK: Oh, that's right.

LB: So my brother went to a technical high school in Chicago, Lane Technical, and majored in architectural, drafting, and all that work. I, however, couldn't go to a technical school, and went to a local high school.

And I should backtrack slightly. When we moved to the house

in Chicago, I went to a small public grammar school where boys played in one yard and girls in another. But it only had 500 students in the entire eight grades. Most of the school was occupied by the freshmen class of Lakeview High School, the one I went to. And they used this small school as a test school, having a full-time psychologist there every day, giving tests to all the students. And I'm telling you, I got sort of uptight about taking tests. If I've had one IQ test, I've probably had fifty or more in that school.

But one of the things they were teaching -- or they thought a new method of teaching grammar -- or English grammar, by having the students read well-written stories, and then take comprehension tests and so forth. Well, by the time I was about eleven years old, another girl and myself in this class were tested as first-year college comprehension.

LK: Wow.

LB: And also, I spent a lot of time in the library, because I never owned roller skates, a bicycle or any of those things. About the only thing that was free to me was a library. And I read. And I asked a lot of questions. Well, we moved to the house -- and I should say it was on Eddy Street. My brother got a bike, and my parents bought me a used set of encyclopedias, a ten-volume set of Compton's Encyclopedias, published in 1930. They were only a year younger than me. (Laughs) But I read them cover to cover, because I was the one who asked questions.

Now, my father had patience. He taught me to read a blueprint before I could read a book, really. He answered my questions. He tried. My mother simply said, "The sky is blue. It's blue because I say so. The grass is green because it's green, and I say so." I wanted to know why, so I spent a lot of time in the public library branch in Chicago. And yes, I went there every Saturday on my own, crossing major streets, from the time I was nine years old on up.

Now, I couldn't take out any adult books until I was thirteen. However, the librarians got used to me and allowed me to read the reference material in the adult section there. And even startled me once when the one librarian asked me to help an adult patron find a book, and did they have anything on the subject? And I say, "Yes, you do, and it's over there." (Laughter)

LB: So I got used to using my brain. And I actually did a lot of work there, checking up on professional women. And I found out about women engineers. And unfortunately, I can't locate an autograph book signed by my seventh grade teacher, who wished me luck in my career choice of chemical engineering.

LK: Oh, my gosh.

LB: That far back. Yes, for a short time I was considering being a mechanical engineer. But no, I sort of analyzed what I could and my abilities. I admired Amelia Earhart, but I realized I had a divergent right eye, and if I tried to fly a plane I would

crash it on landing. So that was kind of out. And a few other things -- I did not have the drafting skills of my father or my brother. And most of the women mechanical engineers at that time ended up on the drafting board only.

LK: Right.

LB: And I thought I wouldn't like that. So I did a lot of reference work trying to find out what it was. Now, when I entered high school, I chose a college preparatory course. No, my mother did not counsel on it, she let me select what I want. And all she told me at the time, I should realize that since I was an ugly child and not very bright, that the best I could hope for -- that everyone made lists like she did -- would be for a poorly educated beer drinking truck driver for a husband. So I said, "No, I must be able to do better than that." But I realized in my reference work on women engineers that only about ten percent of them got married at the time, and often they ended up in divorce. That didn't bother me.

Anyway, I was taking college preparatory, because I wanted to go into research work, primarily. I took drafting courses because I might end up doing drafting work. And I got to a point in drafting that I had the design fixtures and so forth for machine shop tools. I had no experience in that. So my drafting teacher was also the shop teacher. And I asked permission to sign up for a shop course, a machine shop course. They didn't allow women to take that course.

So anyway, the next thing I knew, I was in a study hall. I was in Lakeview High School, which was, we were told, the oldest township high school in Chicago, five stories high, a full block long. And it was crowded with possibly 4,000 or 5,000 students or more. My name was called on the public address system for me to report to a certain room because the city psychologist was there to examine me.

LK: This is because you asked to take shop?

LB: Of course, my students, my fellow -- some of my fellow students stood up for me. A lot of them, thought, "She's crazy." They're going to commit her to a mental institution. They didn't know my choice. No one knew in the class except the shop teacher, and maybe some classmates. And, "Why was I to report to the city psychologist for examination?" So I reported there and found out it was because of this teacher. He'd never talked to me. He never talked to my mother.

LK: That must have been humiliating.

LB: Oh, was it humiliating with fellow students and everything else, because, boy, if I wasn't popular then, it was, "Stay away from her, she's crazy." So anyway, he told me it was a test for my mechanical ability. And I was to take written tests, aptitude tests, and go through some others. So I was telling some others, and one of the women in my class -- and I'll call her a woman rather than a girl, was one of the popular girls. She came from a well-to-do family. She said she thought she'd like to

become an aeronautical engineer, but she didn't know if she'd have the ability. So she asked if she could take the same test I did. So I asked the city psychologist, and he said, "Sure. Bring her in." So she did take them. I did far better than Joan did on the tests. But it convinced her. She did get an aeronautical engineering degree, and did attend some SWE meetings. She went to Purdue [University].

So anyway, I passed that. And one of -- I always tell of this -- one test, he had a three-dimensional jigsaw puzzle, blocks of wood to put together. You were to turn your back, and he would separate them, and then you were to turn around and put them together as fast as you could. So I did that, and the first time I did it, I was probably done in about sixty-seven seconds. So he asked he to try it again. And I said, "Okay." And I thought, "Oh, I really messed up on that." So I tried harder the next time, and put it together in about sixty-two seconds. And he said, "Do it again." So I did it again, and I put it together in fifty-eight seconds. And he says, "I guess it's right."

LK: And I said, "What's the problem?" He says, "The average time is ten minutes. The best I have ever gotten from anyone is three minutes."

LK: Wow.

LB: "You have done the best I've ever seen." So he reported back to this man, my drafting instructor, that I was highly qualified, better qualified than a lot of men, to study

engineering. Did I -- was I able to take the shop course? No. It was voted down.

But I did major in math, and I had done a lot of studying. And I knew my mother was not going to help me financially. So I was an honor student through high school, and I thought I would try for a scholarship in college. I could not afford to go away out of Chicago to a college. I happened to meet -- when my brother was drafted into service during World War II, and he came back after being ill, he met with the head of the construction firm my father had worked for. And he was president of the Alumni Association at Purdue, and said he would get me in Purdue on a full scholarship, except I couldn't afford room and board.

LK: Right.

LB: I had to live at home because my mother was -- I had skipped a year in grammar school. I graduated grammar school one month after I turned thirteen. I graduated high school one month after I turned seventeen. So I planned to try and take a scholarship. And I had researched things. IIT, Illinois Institute of Technology was the most convenient to go to, and was the cheapest tuition. Northwestern [University] had the only other engineering school in Chicago. Of course, the University of the Illinois had one down in Urbana; again: room and board. And I was working. And I opened my first bank account when I was fifteen. But when I worked, I had to give half my salary to my mother for room and board.

So when you make -- I worked in the factory because I could get paid sixty-five cents an hour, as versus a department store clerk, which I had worked, which was forty-five cents an hour. I had made it up to eighty-five cents an hour in the factory. And I couldn't understand why the women were willing to do that same work day in and day out.

LK: What factory?

LB: It was -- made coil -- it was a coil-winding factory, soldering coils for electrical equipment.

LK: There were other women there?

LB: Oh, most of the factory itself, for making the coils, was all women.

LK: This was during World War II, wasn't it?

LB: Yes.

LK: And they let you work when you were a teenager?

LB: Well, the owner of the factory was a friend of a cousin of my mother's, and they looked the other way. By the time I was eight years old, I was out of the children's department. When I was eleven, I was five-foot-seven and a half inches tall, and everyone thought I was much older than what I was. But I did take out a Social Security card when I was fifteen. So I had a bank account, which didn't pay interest until I had $100 in it, and ohhhh. So here I was, seventeen, and wanting to get into college, and only had -- I didn't have enough money.

So I took the -- went to IIT. Now, Illinois Institute of

Technology was a formation of Lewis Institute and Armour College of Engineering, both of which were sort of going downhill, and thought they would go together. At the time, Armour College of Engineering was for male students only, no women. But Lewis Institute, the old provision was "women allowed," so they had to open it up -- both to women there.

And I took the scholarship exam, and I took the entrance exam, which was a four or five-hour math exam only, no other subject. About eleven of my classmates, men, took the same exam. I was the only woman in the group. All of a sudden, we received the -- the men in class, of those eleven men, ten were turned down. One fellow was accepted. I received no notification whether -- if I was getting a scholarship or whether I even passed the entrance exam.

So my mother was kind enough to call the school to find out why I wasn't notified. A woman called her -- my mother worked for the Railway Express Company as a payroll clerk. She got a decent salary. They paid above average, union workers. And so anyway, it finally came back, a word I've heard many times, "Clerical error. In fact, her scholarship exam was never graded. Clerical error." I found out that IIT was not going to give scholarship money to a woman who selected engineering because they knew she would never finish engineering, and she was only probably going to school to find a husband.

LK: That's what they told you?

LB: Yeah. So about the entrance -- I passed the entrance exam. But the reason I wasn't notified was because it was misfiled. How common is a name like Lois Bey? So anyway, the woman clerk was furious, and she did send me notification I had been accepted. She slipped it under and got it signed. But by this time, I didn't have money. And believe it or not, tuition at that time was $235 a semester.

LK: Wow.

LB: It's no better today. So it was plan B I had to fall back on, which was: go to a junior college in Chicago, and get as much as I could there, then get a job and go to night school to get my engineering degree. So this is what I was doing, and had entered a junior college.

Now, World War II, at this time, was over. And my brother had to change his field because he was injured. He was an electrician in the Navy, and he was injured by live steam, shipboard, on his right side, which so severely damaged his right arm he couldn't hold a pencil for more than two hours to do any drafting work. So when he came back -- and he was in a naval hospital for plastic surgery and everything else -- came back to Chicago -- well, before he came back to Chicago, and he was in the naval hospital, my mother received papers from Reno, Nevada, that my father was filing for a divorce.

Now, he wanted to divorce when he first moved out, but my mother refused it because she didn't want to be a divorcee. That

was like saying she was a prostitute or whore. That was a bad word, so she would not. So she went to her attorney and found out she couldn't stop it. So she came out to Reno to see if she couldn't stop it, or get some more -- something from him.

Now, I had graduated school at this time, and I was working. And I had registered -- it was too late to register for IIT, and of course, I didn't know anything until she came back -- that during this divorce -- and I had read the papers before, and she let me read them to her, and I would explain them to her. She, by that time, knew my memory and my ability to understand some of the technical wording. Although my mother was, I would say, clever, she was not knowledgeable. She could think fast on her feet.

LK: But you were reading your own parents' divorce papers?

LB: Oh, yeah. So anyway, before that, she went out there. And they were amended. She wanted his insurance, which he didn't have much life insurance, but he said he would be willing to name my brother and myself as his beneficiaries, because he had not given -- contributed a nickel toward us at this time. But then he volunteered something. Then my mother came back. She was very tired because she'd left Reno, went down to visit my brother in the naval hospital in California, and came back via trains, because she got free train passes. But she got to ride the, as we call them, "deadheads," take the slowest train, et cetera, tired, and let me read them.

My dad proposed he'd pay my college tuition. I had no idea

until that time, even though he didn't contact us, he sent us, for Christmas and birthdays, government bonds, for that -- you know, twenty-five dollar bonds, but no return address -- that he, through his family member, one Great Uncle Bob, kept him apprised of what was happening, because Great Uncle Bob only lived a block from us. And he stopped -- I wondered why he visited us so frequently. And my dad found out I wanted to go to college, which was against Great Uncle Bob's -- he was an old man. Women don't do it. And as far as my mother was concerned, women only get married, and a woman didn't need much of an education as long as she knew how to cook and clean. I could have dropped out of school at grammar school, and it would have been fine with her.

So anyway, my father proposed he'd pay my tuition. My mother told me she screamed at him, "Your son is more important than your daughter." Now my father had always tried to protect me from my mother when he lived with us. And he said, "My son is over twenty-one, he's covered by the GI bill. He's an adult, and he's fully covered. I would like both of my children to go to college. I can only afford to pay for one," because he was going to remarry a woman who had a son by her first marriage. And he said, "I can -- I have obligations to my new family in the future." So Mother still screamed at him.

So when she came home, she let me read the divorce papers. And of course, I was delighted to find out my tuition -- that although I would have to go one year to a junior college, I was

going to be able to go to IIT without any trouble. And of course, IIT raised their tuition fee, then, from $235 to $275.

LK: Oh, my gosh.

LB: But my dad agreed to pay that. So my mother wanted me to refuse the money or turn it over to my brother. And I said, "No." Also what was very hurting, the final hurt with my mother, when I read the divorce papers -- I'm seventeen. You know who had custody? State of Nevada, with the provision that if my mother didn't want me they'd find a foster home.

So anyway, I was delighted, and I wasn't going to do it. Of course, when my brother came home, then, that summer, he didn't want to go back to college. He wanted to have fun. And I started college. Well, my mother nagged my brother. He got a job designing laundromats and realized by that time the injury to his right arm. And he was covered by Public Loss 16 for Disabled Veterans. He was getting a disability pension, too. And they tested him and said he'd make a great industrial engineer -- except for not time motion studies, but the fact that he was good with people -- he was great with people -- and get into that field. Well, he still didn't want to do it, but Mother nagged him so much that he agreed to enter -- he wanted to try electrical engineering and IIT was too booked, a two-year wait there -- the junior college. So he was a semester behind me, half a year behind me. And I tell you, I had to -- and they were packed with veterans. My so-called day courses ran from 2:00 or 3:00 pm to

10:00 pm at night. And I would go in, do my homework, get up and find my brother's wastebasket full with paper, and saying, "I can't do it." And I would sit and tutor him. I got -- when he found his grades at the end of that semester, he got two As, two Bs and two Cs, he was willing to go on.

But I was exhausted, because Mother would let me go to college -- I should say that when my dad left, Mother turned over the cooking, the cleaning, the washing, the shopping, the ironing, everything was turned over to me, and I had to continue doing that. And when I went to college, as far as lieu of room and board, I still had to do the cooking and the cleaning, the shopping, and work. So I never got to bed until about 3:00 am in the morning, and had to get up about 6:00 am, because I had to make breakfast and serve my mother coffee in bed, and wake her up so she could go to her job. I often said I couldn't have done it again if I was older. I had to be -- Saturday, I literally collapsed. But anyway, I went through, I transferred to IIT.

LK: You were the only women?

LB: In chemical engineering. There was a woman who was an army vet a semester ahead of me. I saw her, but I was never able to meet with her. And I found out -- I was a sophomore, she was a junior -- that all of a sudden, she dropped out, so I never saw her again.

So then, I registered. And my next confrontation was the fact that I went through a semester of organic chemistry, or -- a

semester there, and the former head of the chemistry department, Benjamin B. Freud, as we called "B. B. Freud," talked to me, and said to me he didn't see me in the office to sign up for courses that had to be approved by the department head. And I looked at him, because that wasn't even done in the chemical engineering department. I just signed -- put it down and got it back. I had no mentor in college. I had no faculty advisor in chemical engineering.

So I told him I was not a chemistry major, although I was taking the chemistry courses that only were designed for chemistry majors and chemical engineering majors. I was chemical engineering. So Dr. Freud told me to switch fields. He says, "You're going to make a great research chemist." And I said, "Dr. Freud, I can only afford to get a bachelor's degree. And women chemists with bachelor's degrees end up in the analytical lab. I've got a divergent right eye. I couldn't work there, and I can't afford [not] to work."

LK: How did you know that?

LB: Research. I had to write a paper in high school about women engineering and the profession. And I had to write a similar type paper in college, when they found out what I was doing. And as I said, I looked and found as many papers written by women engineers as I could and all their troubles, and that.

I read one paper I remember -- I don't know who wrote it, and I no longer have that work -- who said that she was an

aeronautical engineer. She graduated college before World War II, and said that she wrote hundreds and hundreds of letters to companies all over the United States, and was unable to get a job as an engineer. She said she only got a couple replies, which said, “Thank you for your letter. We have no offering for you.” So she ended up drafting. She says, “Believe it or not, when World War II started,” she said, “I started being inundated with letters offering -- come in for interviews, and offering me jobs, because the men -- male engineers were drafted, and now there were positions open for women.” So I thought, "Good." Maybe her going into the field and working during this time and finding out that women could be good engineers may create an opening for me. This encouraged me.

So anyway, Dr. Freud told me that if I didn’t change my major, no matter how well I did in second semester organic chemistry I was going to get a C. If I change my major, I’d get an A. I didn’t change my major; he gave me a C. But I went on through the courses.

And my fellow classmates were good. They accepted me. I dated a fellow who taught me how to play bridge, and found out later he was only interested in me with -- he had an ambition to be a tournament bridge player with a wife. All our dates were bridge games. I said, “Get lost.”

(Laughter)

LB: So the fellows found out I could play bridge and was a

good bridge player, and knew what was being played. So none of the fellows had any trouble with me. Although one time I got a postcard from the dean of students at IIT, arrived on a Friday afternoon, telling me to report and see him on a very serious matter. Well, I went there -- I fretted all weekend, wondering what did I do wrong? You know, am I going to be suspended, or what? So I showed up at his office on Monday at the first break I had and asked him. And he said, "Oh, yes. He said, "It's been reported that one of the male students used language unfitting to be used in the presence of a woman."

(Laughter)

LB: I knew who he was talking about. It was one of the engineering students who didn't get along with most of the people, who you would say was raised on the other side of the tracks, who every other word was dirty.

LK: Yeah.

LB: Every other word, and so forth. He did not have many friends. But I simply said to him, "Gee, I'm so busy studying, I didn't hear." So anyway, he laughed and he said, "Well, if you know the name of the person, tell me." I knew it. So I went back and told the fellows, "You'd better behave, or I'll have you suspended."

(Laughter)

LB: They roared with me, because they knew I wouldn't do it, because I sometimes had to use the language.

(INTERRUPTION IN RECORDING)

LK: This is tape two of our interview with Lois Bey. And you were talking about how you got along with the other students at Illinois.

LB: Yes. As I said, my classmates -- there were ninety-four of us in my particular chemical engineering class. I was the only woman. And I studied in the basement of what was known as the M. C. Building, which was Metallurgical and Chemical Engineering Building. It is now the Environmental and Chemical Engineering Building. It's called C.E.E.B. -- whatever it is, I don't know.

But anyway, I had a locker in the basement, which I shared with a fellow student, because we were crowded. They no longer study in that basement. I don't know where the students study. But I found out that's area is closed off to students. But anyway, I studied down there. I played bridge with the other students. And it was in my senior year when I was in the ring committee, and that some of the women who were graduating that year found out about my existence, because the woman's lounge was at the other end of campus. There was little more than ninety women students of a student body of over 6,000, most of whom were in the liberal college there, Lewis Liberal College. Only two of us were in the Armour College of Engineering, that I knew of, and the other one was a woman civil engineer, Shirley Shultz who unfortunately never attended SWE. She told me -- she came from a well-to-do family, and she was going on to Law School to become a

patent attorney.

So anyway, the women wanted to know where I studied, and I said, "The basement of the M.C. Building." And they said -- I was quite shocked at their appearance. And they said, "How could you?" And I said, "What's the matter? I've had that." Well, the story had gone around that any woman who would study in the basement of the M.C. Building, which was next door to the chemistry building would probably be raped by the men studying down there.

(Laughter)

LB: And I roared with laughter, because I said, "No. That will not occur. They're a nice bunch of fellows. They're returning veterans who are married, et cetera, et cetera." So all of a sudden the women started showing up in the basement of the M.C. Building to study. And so one of my fellow students says, "How come we're getting women here all of a sudden?" So I told the men the story. And they said, "We wouldn't have hurt them. We're delightful that we have women." And someone said, "It may stop some of our language."

LK: Yeah.

LB: Because the engineering field, you do use what a lot of people term bad language. At the time you'd have some pictures taken when I was graduating college, when the college -- IIT was trying to get some publicity, and one photographer, one of the ones could not -- didn't like the fact that the chemical engineers

used “Field erection,” “building a plant,” or “laying pipe.”

LK: You’re kidding.

LB: Which are, if you use them, I said, “They’re just words.” But he said, “They bother me.” And he says, “Particularly when a woman uses them.”

LK: Oh, my god.

LB: And I said, “I’m sorry.”

LK: But did that ever happen -- never happen within the field, it was someone from the outside who--

LB: Right. A photographer from a newspaper, who, when interviewing me, was -- and came to the school and heard these words being used, felt--

LK: Can you talk about how the university arranged for these publicity--

LB: Well, they thought it would be something -- they contacted the local newspapers. But to backtrack a little bit about that, I should tell you about some more discrimination I faced. I was in my final semester at IIT, when I was informed I would not be graduating in June because I lacked one hour of liberal studies. Now, at the time, chemical engineering required 144 hours for graduation. I had 154. I could not see where they were doing -- except they were claiming that one of my liberal arts courses transferred from junior college they were not accepting at face value. And I was carrying nineteen hours in my final semester. I could not sign up for a three-hour liberal arts

course -- too much.

So I did some thinking. And at the time I went to college, I had gotten a job with a chemical firm, Edwal Laboratories. They made fine organic chemicals and photographic chemicals. And I started out the first year working in their technical library cleaning out their files. And they offered me a job during the winter to work in the library, but the following summers I worked in the lab as a research chemist there. But since I spent so much time in the libraries, I enjoyed working in the library and doing research work, because I saw how the chemists did research work on their projects.

So I was working with a fellow student on a senior research project, so I went to my advisors -- advisor, I should say, who wanted to develop this project. He was Jewish, and wanted to return to Israel. And it was a very prolific raw material over there that he had hoped to make into a more expensive thing. And I asked him since chemistry was a liberal arts course, if I could not do a literature search on the research project, which had been going on for two years at IIT, as a substitute for my one hour missing of liberal arts course. He said he'd think about it, and then came back and said, "Yes, we'll agree to that." So I did a library -- or technical literature search on the project, and found out that it was impossible to accomplish what he wanted done. Engineers are not known for using libraries. I, however, was quite different.

Anyway, so he looked at it and said, "Tear down the project," and then gave me an A. Of course my fellow worker on that, he did most of the work, because the senior research project was in the graduate lab where the faculty played bridge. And when they were short a bridge player I was drafted.

(Laughter)

LB: So my partner did the lab work, I played bridge with the professors, and got along. I didn't know until the day I graduated and one of my instructors, Louis Smith, had received his Ph.D., and I was meeting with my mother and my brother -- my brother, I also should say, went to IIT in industrial engineering and got his degree there -- that introducing Mr. Smith to my family, and I said, "Oh, it's Dr. Smith." And he says, "Now it's Louie to you." And he said, "Also, thank you." And I said, "Thank you for what?" He said -- I found out from him that the faculty -- chemical engineering faculty had a bet that I would never receive my degree.

LK: Oh, my gosh.

LB: And he was one who bet I would. He was one of the winners. So that's why I was missing one hour of liberal studies, put out by one of the professors to prevent my graduation. That's what we got for that. But at least I always had the students, my fellow students, because some of those who are members of Tau Beta Pi pushed through. It took them about three semesters, got me elected -- or to receive the women's badge to Tau Beta Pi. I was

the second woman engineer at the Illinois Institute of Technology to receive the woman's badge.

LK: Wow.

LB: They also tried to change the chemical engineering honorary fraternity to accept women, but they refused. And they told me -- they do now, of course.

LK: Right.

LB: But at the time, I was -- it pleased me to no end that these men tried to get me that award, too -- and did not succeed. But they tried.

Now, when I graduated, the Korean War had not started. Jobs were scarce, because with all the returning veterans, they figured only ten percent of the class would receive jobs. And of course, being the only woman, I thought, uuhh. So we were only allowed six interviews for getting jobs. And I tried to be very careful where I signed up. And yes, I went into an interview and I was ordered out because they don't hire women, and they refused to even talk to me or look at the fact I was an honor student. They didn't, as they said, "I don't give a damn. Get out of here! Send in a man."

So I would go back to the placement office with no success. Then the placement office called me and said a Curtis Welborn wants to talk to you about a job. He saw the newspaper articles. And I thought, my goodness. She said, "He's affiliated with Underwriters Laboratories. So I called from a public telephone

booth. And Mr. Welborn was a southerner who called me "darling." If I wasn't desperate for a job, I wouldn't want to go there for talking to a man who was calling me "honey" and "darling."

LK: Right.

LB: But I agreed to go to Underwriters and go for an interview. So I went to Underwriters, and the substitute receptionist was on duty. I later became friends with her, good friends. And I started -- she pointed me down what they call peacock alley, which was management row. So I stopped and came back, and I said, "Could you please tell me what Mr. Welborn's title is?" Because this was, you know, only a couple days there. And she looked at me strangely and she said, "He's president of Underwriters."

(Laughter)

LB: Oh, good heavens. So I went to see Mr. Welborn in his magnificent humongous office. And he explained that during World War II he -- since they have a large number of engineers -- in fact, at that facility they had 200 engineers, at their Chicago facility -- that they lost a lot of their men -- were drafted into the Army or the services, I should say. So he said, "We were struggling." He said, "We have a typing pool. And the supervisor of the typing pool came because the women weren't busy, and said the women got together and asked if they could not go into the labs, and under supervision, run some routine tests and collect data for the male engineers who were still there, to write their

reports." And he said, "During World War II, it was the typing pool who saved this company and kept it going strong. So when I saw the articles about you, and knew you would have a tough time getting a job, I thought I should return the favor the women did for me."

LK: Wow.

LB: So he offered me a job, which I accepted, because I knew a lot of my fellow students were going in as insurance agents, salesmen here and there. Unfortunately, I was put in the fire extinguishing department, so I was literally working more or less as a mechanical engineer in a sense, which was a small department, which was headed by a twenty-seven year-old engineer, who inherited his position because the head of the department was an alcoholic. And he didn't want to have the first woman engineer of Underwriters working under him. So to say my life was pretty miserable. He found fault in everything I did, particularly the reports.

Now, the fire extinguisher division had been sued a number of years ago by Pyrene Manufacturing [Corporation] because their carbon tetrachloride fire extinguishers were corroding. And Dow Chemical had found a newer method of making carbon tetrachloride, which was pure, without carbon disulfide impurity, and they made it for the dry cleaning industry, because carbon disulfide left an order in dry cleaned clothes. Except that impurity prevented corrosion of the one-quart brass fire extinguishers. So they sued

Underwriters and Dow Chemical.

Underwriters, through their reports, were able to be exonerated because they did discover it. But by the time they did discover it at the same time Pyrene did, and notified Pyrene about it, they were not at fault for doing this. Dow was, and had to pay. But Underwriters was very careful about what type of reports they wrote and the language they used. That's where I learned the terminology of writing weasel-word reports, say a lot and mean nothing. And the word "approval" is forbidden at Underwriters. Nothing is approved. It meets standards, established industry standards. And nothing is fireproof -- fire resistant, burglar resistant.

LK: So this was your first experience with that strategy?

LB: Yes. And of course, they criticized my reports, my boss did. We had to circulate your reports amongst all the members and go through them, and catch one another's errors or question something, because they didn't want to be sued again.

LK: Right.

LB: So he would criticize my reports. And I could not use my full name; I had to use the initials L. A. Bey. Now, you introduced me as Lois Bey. My mother believed that if initials spelled something it was lucky. And she decided after she picked the name Lois -- and could not understand why her German in-laws couldn't -- didn't like it, the Germans cannot pronounce Lois. Louis or Louise, but not Lois. She didn't want a name there. It

had to be an A. And she at one time had met a woman when she went to Southern Illinois to see a football game with some fellow women office workers. And one of the women who came from the area had a friend named Aileen Thompson, who must have impressed my mother, because she was a college graduate or a college student. So Mother felt any woman who could afford a college must be in an upper-class status, and Aileen must be an upper-class name, and it was uncommon, so she named me Aileen. But she didn't spell it the way that Aileen Thompson did. I didn't know that until years later, strictly by accident. And the way she spelled it -- most people with that spelling would pronounce as Eileen, like Aileen Cavanagh, past president of SWE?

LK: Oh, right, right.

LB: A-i-l-e-e-n. I should have had it changed legally. I know a lot of people say you should pronounce it Aileen. By accident, in writing a college paper, I happened to, doing research, I found an Aileen Thompson as a co-author. Now, I was surprised. I couldn't believe there was two Aileen Thompsons in this world. And she was the chief librarian, technical librarian at General Electric. And she was a co-author. And she spelled it A-l-e-e-n, Aleen, which was the way, if in the future, someone sees it spelled the way it is on everything else, I still insist that it be pronounced Aileen, because I figured any woman must be special to impress my mother, and I felt I wanted to be special. And yes, I have the initials -- my mother had no idea I'd get in

the chemical field with the initials LAB.

(Laughter)

LB: So anyway, I managed to get out of that problem with my boss, because I was doing some test work, pulled the back files, and found out he had written a report on basically about the same results I got. You dictate it. Everything had to be dictated at Underwriters. It was difficult answering phones because you wanted to talk and say, "period," "punctuation mark," "stop," and a few other things.

LK: Oh, yeah.

LB: So anyway, I copied -- dictated his report word for word and substituted my data. It came back to me with the notation, "This is the worst report you have ever written. See me immediately." So I went over with the file and he said, "Where did you ever get the idea to do it?" I said, "I'm sorry. You told me to improve it." Then I flipped it open and I say -- and he started comparing it and saw his signature on it. And at this time, I had signed up for a writing class at Northwestern University downtown, because Underwriters was on Ohio Street, which was across from National SWE Headquarters now.

LK: Oh, yeah.

LB: And he read it. He says, "Rewrite it your own words." But he says, "Could I get in that course?" He signed up for the same course.

LK: Was this a technical writing course?

LB: A technical writing course. And I don't think he was happy I got a higher grade than he did, but he did well. But I left Underwriters when I found out after working there two years that they were hiring men straight out of school for more money a month than I was making after two years. And I went to him and asked for a raise, not more than the men were doing, but to bring me up to what the men -- they were new hires.

LK: You went to the president?

LB: No. I went to my boss. The president said I could come to him at any time, if any of the men were giving me trouble. I had no desire to give any of my coworkers trouble.

LK: Right.

LB: I didn't want to be a tattletale. So my boss said to me, "What do you want to do, make the same money as a man?" I said, "Yes. I'm doing the same work as a man."

LK: Right.

LB: In fact, I was handling their toughest clients and doing it well. I had impressed, amongst -- one, where the president was out in California and was -- came up, you know, self-educated man, used bad language. And my boss didn't like bad language, so he figured if he talked to me, he'd clean it up. And he was changing things, this money. And I wouldn't allow the label inspector to label his equipment.

He once sent an engineer -- a chief engineer of this California company to see me, and on a new extinguisher dry

chemical one, which were a problem. And he showed up at the last day -- I was going on a three-week vacation, when I was going looking for another job. Anyway, I told him I was going on vacation and wouldn't be back for three weeks, and to see one of the other men in the department. And he said, okay, he would contact the guys.

So I went on three weeks vacation. I came back. And the Monday I came become, shortly after I started work, the receptionist called me to say this man was there. And he came up. And I said, "Oh, I didn't expect to see you back." He said, "I was not permitted to go home. I've been here for three weeks." And he said, "I've been working at our Chicago plant." So they had plants in Chicago and Detroit.

And so he said, "I want to know the problem." So I called up the file. He was amazed when I went over their files of drawings and told him what was wrong without having a single note in front of me. And he said, "I can understand why my boss is impressed with you." And he says, "You're right." I said, "This shows right-hand threads. This is left-hand threads. You can't put them together. This doesn't agree, doesn't agree with that." And I went through every single thing. I say, "Go back and send the right drawings or correct your things." And he says, "I'm flabbergasted how you can do that without notes." I said, "I just do, on my memory. I don't have a photographic memory. I have a visual memory."

So anyway, I found another job. And I should say at this time that I also wanted to get my own apartment, and was tempted -- my mother had told me when I was speaking about this, "Good girls only leave home to get married." If I left home it was because I wanted to become a prostitute. And if I did get my own apartment, I could no longer see any member of the family, and she would let everyone know I was a prostitute.

Now, I knew what she did with my father. She didn't know I knew what she did with my father. And I thought, I'm having a hard time getting a job as is without my mother writing to people saying I was a prostitute. So my brother also said, "Don't leave me alone with Mom." He was more supportive of her. He was her favorite child, always. He got everything. He got the bike, he got the roller skates, he got the lessons, and blah, blah, blah. So anyway, I decided I didn't like what she was doing with him, so I stuck it out with her.

And I had gotten a job offer from a research company in Madison, Wisconsin, which I thought would settle this. I had a job offer for research in Madison. My mother went through a pseudo nervous breakdown. Her poor baby was leaving home, and she didn't want -- blah, blah, blah, blah. I had all the family on my back, and my brother.

And then I got a job offer for Armour Research Foundation, which is now IITRF, Illinois Institute of Technology Research Foundation, for the same amount of money. It was in town, so I

accepted the one at IITRF, in the chemical engineering department. And I was earning more money than I'd asked for at Underwriters. And I stayed there for four years.

Now, I had problems. Yes, I had discrimination. Also I had in the thing, between projects, I -- and they worked on government projects -- being a woman, I said, "Don't send me to analytical chemistry." I was sent to the technical information department. Now, I'm sorry if my cold is causing some problems.

LK: Oh, don't apologize.

LB: So anyway, I worked there doing research work, which I was familiar with, since I had worked for -- at Edwal, which had to move out of town. In my senior year I lost my job there because they had an explosion. The Chicago Fire Department was on their back. They moved out to the Ringwood plant. And Edwal Laboratory, it was too far to commute. Edwal became the basis of Morton Chemical Company, which you should have heard of.

Anyway, I got a job at IIT my final year for the math department. I was what was known as a reader and grader. Edwal was paying me a dollar an hour, and I was getting sixty-five cents, but I had a job. So anyway, I knew the technical information, so it was fine to go back.

And I was transferred temporarily to one project. They had a supervisor and his engineer working on it. It was a six months project I worked on two weeks. The sponsor wasn't happy. Lo and behold, the project manager blamed me. He said, "Woman," "lazy,"

blah, blah, blah. And I was literally tried, convicted and almost sentenced, except my own project manager had been confined at home with mumps he got from his son. He got it on one side and then on the other -- he stuck up for me. So then I spent more time in the technical information center, because I figured I was either to take that or find -- leave the company today. And I figured I needed time to think.

So it was through my former boss that I finally -- well, actually through an assistant manager on the project, they had to find someone, an available engineer, he proposed I take it. I saved the project. And from then on, I became on, what they had in Department C, a special team. There were seven of us, six men and myself, of which afterwards, except working in the technical information department, I never started a project and never finished it. I only showed up in projects in trouble.

Also during this time -- and I should say that it was in the -- go back even farther after getting jobs, when I was working at Underwriters was SWE -- the Chicago SWE section contacted me on that and invited me down. And there I met in the -- the meetings were originally held at the Western Society of Engineers. And I met Catherine Eiden, Dot Merrill, Mary Murphy, Georgiana Peeney who never -- but some of the women. And when I said I had trouble at Underwriters, they were the women who gave me support. They had also encountered discrimination. And it was not just me. They said any woman in that position.

LK: Did that mean a lot to you at the time?

LB: And that meant a lot to me to come, you know, when I particularly had bad times, to talk to these women. They encouraged me to go back to school, night school, and get my masters degree. So when I worked for Armour Research Foundation, they were willing to pay tuition. So I started working on a masters degree in chemical engineering.

LK: Why did they encourage you to do that?

LB: Advanced degrees, because at the time, as we know, we often said, a woman has to have twice the education, be twice as smart, work twice as hard, for half the pay. So figuring that I might get along better and have a better future if I got a masters degree, because I wasn't particularly interested -- you know, I dated some, but as my mother said, "Men" -- and I agree -- "didn't like well educated women that were smarter than them." I'm not something small and petite and feminine. I wasn't that, in that sense.

So I started working for my masters degree. Which unfortunately, the lab courses cut off the night SWE meetings were on, and so I couldn't attend the SWE meetings from then on. But through the newsletter and everything else, I kept in touch with the women.

LK: How did you first hear about SWE? And that was when you were in Underwriters?

LB: At Underwriters, they contacted me. Apparently they

were trying to find more about women. And I don't know if they came across the material in the newspapers or they were contacting the engineering schools. Because it must have been the alumni office at IIT that gave them my name and phone number and where I lived.

LK: And so you felt at the time that it was important to join SWE?

LB: Definitely very important. What I had just faced in trying to graduate and finding a job, and the trouble I had on my job, it was -- you know, I had only read about women engineers.

LK: Right.

LB: I was actually meeting a woman engineer, a living woman engineer who worked in the field. And most of them worked for Illinois Bell [Telephone Company].

LK: Right, right.

LB: And talking about it, they were telling me if I wanted to make it a future to work and if I wanted research work, go in for a masters degree.

LK: Did you belong to any other organization?

LB: American Institute of Chemical Engineers.

LK: You were the only Chicago woman there right?

LB: So anyway, they encouraged me, and of course, it made me drop out of SWE. But I kept in touch, and I kept paying my dues, because I felt it was important that SWE remain in existence, and not fail to help women like myself, who really were interested in

the field, because my high school teachers tried to talk me into teaching, begin teaching math. To be a math teacher in a Chicago high school you need a masters degree. Money, money, money. My history teacher wanted me to teach history -- money. A masters degree -- you could teach in a grammar school with a bachelor's degree, high school with a masters degree, and a junior college with a Ph.D., in Chicago.

So anyway, I was sorry I missed the meetings, but I worked on this special team and everything else. Well, then it came time -- almost, well, three years later -- and I should also go back to that project manager who said I was the result of him -- unhappy sponsor, he was caught. He was fired. At least I saw that.

So I was due for a promotion. And the usual thing: "Sorry, you got a raise, you didn't get a promotion. Clerical error." Now, another woman in the technical information center, she was a chemist, she went to associate chemist, I was an assistant engineer. And when a person went in with an engineering title -- I was an assistant engineer; I over-ranked an assistant chemist. An associate engineer outranked an associate chemist. The engineering titles were higher in rank. So anyway, they said they'd have it corrected six month later. They couldn't do it because to give me the promotion they'd have to give me a raise, and I got one. Go try again in six months later.

So at that time, I got a call from the alumni office that a man wanted to talk to me about a job. Now I hadn't been looking

for a job, and I didn't know him. I said, "Okay, I'm willing to talk," because I wasn't exactly happy what was going on here. I just was informed I had maybe another six months to wait.

So I talked to him, and he was associated with -- a manufacturer's rep, of chemical process equipment. So his thing was that the owner of the company was seventy-nine years old, it was a small outfit, and he had sold the company to a man who had worked with him for twenty years, and less than six months later that man died of a heart attack. So the original owner bought the company back, and had been training this man who interviewed me to take over the company again. And he said that the owner, Mr. DeVeers was seventy-nine, and he felt he was not able to go out and make calls or do anything. In fact, he didn't want to show up at the office too much. So the gentlemen I talked to, Bennet Whistle, said he had to do all the traveling. And he said, "We get calls at the office." And of course, the only one there to help them is the secretary who didn't know a thing about engineering.

LK: Right.

LB: And so he thought if he could get a woman chemical engineer to work in the office and answer these calls and help the men, because he planned to hire another male engineer to do some traveling, that it would help out while the men were on the road, because they represented the -- they covered five states. So it sounded good. And he told me that my salary would be a base

salary, and I would probably get a bonus at the end of the year, depending on my efforts to the company.

LK: Were you going to be hired with the title "engineer"?

LB: Oh, yeah, sales engineer. So I went back to the woman who headed the technical information center and said, "What are my chances here," you know, because of everything else. She said, "I doubt you will be getting it, because the men are fighting your promotion." They don't want to have a woman as an equal, because an associate engineer could be a project manager. An assistant engineer could not. Which meant I could run a project and supervise men. So she said, "You have no future."

So I agreed to take the other job, which meant possibly not a great salary, but at least a working salary. The minute I turned in my resignation, an assistant manager of the department called me in and asked me to retract my resignation. And I said, "Why?" He says, "You're too valuable." I said, "But you haven't let it" -- he told me if I retracted my resignation, I would get my promotion immediately and a thirty-seven percent increase in salary.

LK: Wow.

LB: Seventeen percent immediately, ten percent three months later, and another ten percent. I said, "Would you put it in writing?" He says, "I can't." I say, "Goodbye."

LK: Good for you.

LB: And I went with the sales company, and I started out in

the office. Then, since it wasn't too busy, then decided that maybe I could handle cold calls on some of the corporate offices, downtown offices of chemical firms, the ones they haven't done business with in maybe two to ten years, but at least they should show up. Well, I started selling equipment to those companies. Some had staff that I knew. Some talked to me and were curious about a woman engineer, and they forgot that I was an engineer and I knew what I was talking about. So all of a sudden, I'm no longer in the office. I'm a field sales engineer. And in four years, I had the top sales of this manufacturers rep.

I'm telling you, I was dog-tired, because it's – you'll be on the road five days a week and work on your reports on weekends. I wish they had computers and cell phones and everything else in those days. But I also did something I was -- I not only sold equipment, I also serviced it. You know, if they called me in -- like you had a picture of me at Abbott Laboratories.

LK: Right.

LB: Over those particular units, their lyophilization -- their steam jet Croll-Reynolds units. They were installed at Abbott Laboratories during World War II to freeze-dry blood. They're made of bronze, very expensive, very low-pressure -- or we say high vacuum -- units. Through the first stage, if you put the steam through it, normal steam, it would freeze in the throat. You super heat the steam. Abbotts, very conservatively, put steam jackets on them, steam jackets which were to take away steam no

higher than ten-pound pressure. But Abbott had to be extra cautious and went to fifty-pound pressure. So at the time I was working, those steam jackets were leaking.

Now, I talked to the home office, found out they didn't need the steam jackets. They super heated the steam to 375 degrees; it was fine. So I went out to talk to Abbott. Those units were leaking like sieves. And at this time, they weren't freeze-drying drugs; they were freeze-drying pharmaceuticals, chemicals. It's called lyophilization.

And so I sat in the conference room without about ten or twelve men, including the head of their maintenance department, telling me that they were trying to weld shut these jackets. And I says, "They're brass. They have to be braised. You can't weld them." And the maintenance man says, "I know it." I showed all the data that they didn't need them. Because they had two units. One was completely down, and they were getting behind in production, and the other one was leaking. They had to get them back up.

And of course, my boss wanted to sell them new first stage throats with jackets, which would be cast iron, because they didn't need bronze, and the bronze would be ten times the cost of cast iron, like 4,000 versus 40,000.

LK: Wow.

LB: So I couldn't convince them to run them off, so I got mad. This Swedish-German temper can get mad. And I said, "The

hell with it. Rip off your jackets; wrap your throats with copper tubing. Run your steam through your copper tubing. Insulate the copper tubing, and when that leaks, rewrap it." I had utter silence, and one engineer said, "Brilliant idea. That's what we're going to do." And that's what they did do.

(Laughter)

LB: The next time I was out at Abbott on a call, I'd met the head of their maintenance department, Lindstrom. He says, "I have an opening. Do you need a job?" But I would go and try to help companies in doing it. And of course my boss was angry, because I didn't sell them new throats. I said, "So what? We've got Abbott's business one hundred percent. They won't deal with our competitors, because Abbott doesn't trust our competitors, they trust me." And I said, "We've got one-hundred percent of Abbott's business." "Oh."

So I would do it. Of course, one funny incident: I called in the office and said that so-and-so at the Army Quartermaster Corps. in Chicago wanted to see me immediately. We had bid on a unit that they were using and lost the bid to one of our competitors who has a cheaper unit. And I called out and says, "You want us to bid on another one?" And he says, "No. I want you to fix the Graham unit." And I looked at him -- he says, "We've had" -- he says, "It doesn't work." Steam jetted ejectors are not a good logical science. You can't prove equations; chemical engineering is a lot of that. Two equations, three

unknowns. It depends on experience, knowledge, testing and so forth. And so anyway, I went to him and said, "Well, call in Graham. He said, "We've had their president. We've had their chief engineer. They can't fix it. I know you can." I said, "I can't touch it. I can't touch it. It's a competitor's unit. I can't touch it other than sell you one that will work." And he says they won't go for it because of price. The company we represented, Croll-Reynolds, believed in integrity and quality in their name. They would not sell inferior equipment.

So anyway, I enjoyed working with it until the bookkeeper slipped me a note -- he came in once a week -- to say that the now owner -- Ben would own the company -- was stealing my commissions. And so I went to him. I had wondered why when I called on Corn Products that they wondered why I was there because Ben had been there just a few days earlier. And I lied to him to say I had a call from Abbott Laboratories saying they wanted to know the delivery date on a certain unit. And I said, "I have no record of them ordering it." "Well, you didn't make -- that came in as a routine order. You didn't do any work on it, so it should be my commission."

And he said, "I'm also rearranging territories." And I said, "Oh?" And his rearrangement, he was taking all of my best customers for his own, and I was going out to the boonies. And he simply said, "I'm not going to have a woman make more money than me. I own this company. It's my money, and I'm keeping it." So

I was discouraged, and I'll tell you, I was pretty burned out at that time. And because I was in selling and that, again, I could not go to SWE meetings, because if I went to -- if I had been in town at a meeting, they were on the same night as the American Institute of Chemical Engineers. I went to the meetings of the American Institute of Chemical Engineers. They were my customers. You talk about men going together, I had to go with the men. I was [the] only woman present. And I'm telling you, they served free drinks, manhattans and martinis, and it was pretty hard for me to try and handle three manhattans in a half hour.

LK: Sure.

LB: There was a funny episode there I should tell you. We had a speaker from, I think, the Encyclopedia Britannica head, executive, who started to say, "Welcome, gentlemen. Glad to be here." And then he saw me, and he says, "Oh, I should say" -- there was some laughter, and he says -- I was at the table, because the third drink always went to the table.

(Laughter)

LB: I had trouble with those men. They tried to get me drunk. They didn't succeed.

(Laughter)

LB: So he simply said -- he said, "I'm sorry. You're not exactly a lady." That brought the whole house -- there were six hundred men there roaring with laughter, with, "You're not exactly a lady." That speaker was so flustered and so red in the face it

took him about ten minutes for him to compose himself. And someone else in the room says, "Don't worry. We understand. She's an engineer."

LK: You couldn't be both?

(Laughter)

LB: Well, they'd accepted me as one of them--

LK: I see.

LB: -- and that. It's just funny that they never, you know -- and in some of the things and they said, "Oh, you can't go in there, into the men's room. You're a woman." And I said, "Yeah." And they said, "Gee" -- there was a new building at Abbott, and he says, "I've got to get the plans and find out if we put a woman's room in this building." And he said, "Yeah, we did." And this is the head of the Building Ten. And he says, "Here it is. Can you find it?" I said, "Yeah, I can find it." And he says, "Would you tell me if they put the fixtures in, because eventually we're going to have women here." So I went in, yeah. And I came back and I said, "Fixtures are in, but can you find me a roll of toilet paper?"

(Laughter)

LB: And I said, "They need to clean it, too." But I said, "I can accept it." Any port in a storm.

LK: So he made the comment that there's going to eventually be more women. Did he mean more women engineers, or is that what he was commenting on, or--

LB: No, not exactly, but it was hoped for. But as I said, I had to network with the men, and the men enjoyed it. And it took -- another woman chemical engineer did not graduate from IIT until 1960. Now, I'm talking about 1958, 1959. I met that woman engineer. In fact, I interviewed her for a job, and she told me, "I'm the first woman chemical engineer to graduate from IIT." And I said, "No, you're not." She says, "Yes, I am." I said, "No, you're not."

(Laughter)

LB: And so she said, "How do you know?" I say, "Because I am." And it took ten years. IIT Chemical Engineering Department right now is one-third women engineers, with undergraduate and graduate students there.

LK: How does that make you feel?

LB: Oh, it makes me feel wonderful on that field. But all during this time, when, as I said, I was unhappy with the manufacturer's rep and didn't know what to do, and as I said, I was burned out. Ten years of this, and working my tail off, you might say, to find this out. My brother bought a place up in Wisconsin on Lake Geneva, on the lake there. And some friends of my mother's that she knew when she belonged to the PTA in grammar school, my first school, and a daughter and the daughter's husband were out there.

The husband was the chief control chemist at Baxter Laboratories. And we were sitting on the pier. As I said, this

was occurring in the summertime. And I started looking around and so forth. And he asked me if I ever worked in a technical library. And I says, "Oh, sure. I have a lot of experience." He says, "Well, they got a new head of Scientific Services at Baxter, and he wants to expand it." And he says, "The librarian they have there, she's not very good. They're so upset with what he wants to do, she's resigning." He says, "It sounds like what he wants to do is great. Would you like to come interview for that job?" And I thought, boy, right now, I don't know if I could face another engineering job or what. I'll have to see what it's like. So I agreed.

And I interviewed with the manager of Scientific Services, never went through the personnel department. And I was still on the road there, but George had convinced me it was a great place to work for and had a lot of future to it. And so I was offered a job, and I decided to accept it. And of course, the personnel department said, "That's nice. Would you fill out the application form?" I had to mail it in from southern Illinois, and doing it with the first time someone was hired without going through the personnel department. He just informed them I was hired. So I resigned from the manufacturer's rep. And I didn't know the other man that he had hired and working there too had the same idea, and he turned his resignation in a week later. He said, "You've given" -- and he says, "He's not treating me right either."

Oh, I should also go back a bit. When I left Underwriter's

Laboratories, my boss had to hire two men to handle my workload. I told you a woman has to do twice the work, work as hard -- twice the work, and so forth. Yes, he had to hire two men at a higher salary than I got.

LK: When you went to Baxter Laboratories, were you taking a pay cut?

LB: I was getting the same pay, in the sense, that I was receiving at the Manufacturer's Rep. But I needed to unwind and everything else. And at the time I joined Baxter there, Baxter had been formed in 1933, 1934, by Dr. Ralph Falk. When I joined them in September 1960 they had 2,500 people worldwide and sales were $3 million a year. They are now in the neighborhood of billions of dollars, and they've spun off many divisions, so they have about forty, fifty, sixty thousand employees now. But it did grow. And of course, in growing, and what happened in the future, I stayed with them for twenty-one years, because I liked the challenge, because the research people knew I knew my job and my work.

And it was a challenge, when they had problems, to help these people. Like the head of Pharmacology came up. They were working on a drug, chymopapain, for -- you know, you've heard of slipped discs and so forth?

LK: Right.

LB: This is for the dissolution of nucleus pulposus in the lumbar area of man. So they had to know what dosage -- they had

bought Wallerstein for the enzymes -- Laboratories -- Wallerstein is known in the brewing field there. But they wanted enzymes. They were trying to get more into pharmaceutical drugs. They finally decided that was not the touch.

So the head of pharmacology said he looked through all of his books and all the library books trying to find the weight of the disc. And he says, "How can I find the weight of the disc?" And I looked at him, and I say, "You can take a cadaver and a scalpel, and you cut." He said, "I was afraid you'd say that." He said, "Let me call around." So I called Northwestern University Medical School, the anatomy department. The woman on the other line, when I told her I wanted to speak to someone and told her what it was about, she said, "Is it in the brain?" And I almost dropped the phone and said, "Would you try in the small of the back."

So I got the head of the anatomy department, who agreed you'd need a cadaver and a scalpel. But he says, "From my knowledge and experience" -- he gave me a range in ounces. So I quoted him and sent a memo. They looked it over and said, "If it wasn't for him, we didn't think it weighed that much." But he was in the ballpark. But it was not only to know -- know where to go. And special librarians, or technical librarians, know that when they don't, they call one another or call other places.

Like the president of Underwriters was -- no -- the head of the personnel department was giving a talk in front of some large group. And he wound up -- he knew there was a poem that portrayed

God -- or Jesus as the devil, but he couldn't find it. He had his secretary looking at Evanston Public Library. She couldn't find it. He thought the poet was so-and-so. So she came to me in desperation.

My assistant at the time was Catholic. And I turned to her and I told her -- told Carol, "Call Loyola [University] and talk to a Jesuit priest." And she says, "You're not Catholic." I says, "I know, but I -- at Underwriters -- at Baxter, I'm sorry -- I decided since I was in the field, I went back to school and got a masters degree in library and information science--

LK: Oh, really?

LB: -- from Rosary [College], which is now Dominican University. So, yes, I knew some of that and that type of work. So Carol called. We got a hold of the Jesuit priest who immediately gave it right over the phone, gave her the name of the poet, the name of the poem and everything else, and she relayed the information down to head of public relations. So we handled things other than that. But, yes, I was involved in doing research, and eventually -- oh, I'm finishing the tape -- there. Baxter -- I had time to go back to SWE. And I met a woman engineer and mentioned it, that I'd like to attend. And I asked her about some of the women I had known before that period of time, maybe five, six years ago. She never heard of them. They didn't attend the meetings, she didn't know them, she wasn't familiar with them, and said I would not enjoy the meetings

because the average age of the women there was twenty-five. And I was thirty-one going on thirty-two at this time.

And so I went to one meeting, and I was totally ignored, so I didn't attend a Chicago SWE meeting until Pat Brown came into the section and got a job at Baxter. And we started going back, and realizing we were both women chemical engineers, and we became friends.

LK: Well, let's stop.

(INTERRUPTION IN RECORDING)

LK: This is tape three for our interview with Lois Bey for the SWE Oral History Project, April 16th, 2003.

LB: I'm going back a bit to my days at Underwriters Laboratories. I said the head of the department gave me trouble. But it had a lab technician, George Hanson who had a masters degree in chemistry. He had worked as a supervisor of an analytical lab. But his wife had a nervous breakdown. And he said between working with his wife, managing at home and the pressure at work, he couldn't handle it, both. So he decided to get a simple job where he took orders and could do certain work. So he took the job at Underwriters as a lab technician. He was an older man, very, very nice.

And he told me a story -- he helped me -- and simply he told me, "Men are physically stronger than women, that you have to admit. They can lift heavier objects and do it." But he says, "Men also have the tendency to use their physical strength to do

things that could be done easier by thinking out the problem first." He says, "You're smart. Think out what has to be done first, and then do it that way." And he taught me how to lift a seventy-pound carbon dioxide fire extinguisher from the floor and put it on the lab bench, which is fine. I always remember George's advice.

Now, one time that it helped: The head of the department always wanted to handle new jobs, to be the important one. Believe it or not, I never did mention the head of that department ended up being president of Underwriters Labs many years later. But he wanted to be noticed by heads of what was a small department. A small company in New Jersey had developed the first one-quart dry chemical fire extinguisher. Now, at the time I was working there, it was the one-quart carbon tetrachloride extinguisher, which in an enclosed room can be toxic and dangerous. The one-quart dry chemical fire extinguisher could do the same job -- make a mess, yes -- but be not as hazardous. So they were coming in with the design of the one-quart -- with the one-quart fire extinguisher, which they wanted tested out to see if it was possible to pass the Underwriters test for a one-quart fire extinguisher.

Now, the woman at that company, who I should say the chief engineer was a woman. And she brought the head of the machine shop with her, who was her assistant. I don't know if she had any formal training as an engineer or how she got in that position.

But they brought in the very first unit they made, which was a handmade unit. And they ran a test. And when they came back, they developed problems of trying -- it threaded from the top. It was a brass body, where you put the dry chemical in, and then you put in an assembly, which would have a gauge. You pressurize it and you use the assembly with the squeeze and the nozzle is on that. Well, it wouldn't unthread.

And I happened to come down. The offices were on the second floor and the testing lab, or wherever the fire extinguisher department was in the basement. And I came down and found them -- my boss, the head of the department, arguing with the two people from this fire extinguisher company -- And the lab technician, George, was there -- arguing about opening it up. And my department head wanted to put the unit in the vice and use a wrench to unthread it. And they didn't want it done because the grips on the vice would mark the brass body. They wanted this unit to go up in an exhibit at the office as the number one dry chemical fire extinguisher ever made, and they didn't want it marked. And it was getting to the point that if he couldn't open it his way, they were to take it and fly back from Chicago to New Jersey. I picked it up and looked at it, and I looked at George. And I took the fire extinguisher in my left hand, used the heel of my right hand, hit the handle, the thing spun off. I put the two parts down, turned around and walked back to my desk (Laughter) upstairs, because I knew my boss would probably -- he was Italian.

He would blow his stack. Anyway, later on when they ran their fire testing, and were able to completely do it, they got the yes, it could be done, it could be approved and be labeled. And as they came back upstairs, the woman engineer quietly went by me and mouthed, "Thank you, thank you, thank you." But I only applied what George said, so I did that.

The other thing is, one thing I avoided at Underwriters was foam extinguishers. I don't know why I became a target when they ran routine tests with foam extinguishers. I could turn a corner, and they'd lose the grip of the hose, and be coated down with foam. I once was walking by downstairs when they lost the hose, and I was walking by a tank, and it went over the tank and got me in the head. So I was always saying foam extinguishers I would stay away from.

Well, this time I had to go downstairs. And again, my boss -- it was a new project. It was the head of Victor Adding Machine Company had developed -- had gotten the rights to market a French foam charge in the United States which was supposed to generate twice as much foam as a foam fire extinguisher could in the United States. And he wanted to know if he could get it approved. Well, he didn't have the extinguisher. He got a company to volunteer to loan him a unit to see what's there. I, of course, wore a lab coat downstairs so I could stay out of the way and do my little thing at the bench and let them run their foam charts.

Well, because I wore a lab coat, I was told by my boss and

the other man who worked in the department there, too, to take the pressure readings in this brass unit. You flip over a foam unit, and it's upside down. And you pour -- and the foam is discharged into a large tank that measures the volume. But you have to take the pressure reading, because it was assumed the charge that could develop -- that amount of foam would have too much pressure and blow the unit. And I thought, gee, thanks.

So I had to agree. And so I was more or less kneeling to get this, or stooping over when George Hanson, who inverted the fire extinguisher, found that brown fumes were coming out of the unit. You have the foam charge and all these fumes. Now, George is standing, I'm bending over, and the fumes are coming down. I yell to my boss, "This is dangerous. We should dump it."

Now, this basement floor had a great floor with water, a trough of water running down so that if any accidents occur you could dump it in the trough and do it. So he said, "No, continue it." The brown cloud kept getting worse and worse. I kept giving them readings as one of the other men was taking -- writing it down, the other engineer -- the head engineer at (?) chemical. And I told them three times it was dangerous. Now this is a humongous sized room, probably two stories high, or more. And I mean, stories -- well, let's say it ran a good forty feet high and was probably more than 100 feet long, and it was totally filled with these -- getting filled with these brown fumes. And on the third try, and I was told no -- and this time I'm over eighty

seconds on exposure -- I pulled the grate and I ordered the lab technician to dump it into the water, and he dumped it on my orders. My boss, who was Italian, came back furious as George and I ran out of the room and closed the door. And they came out.

I thought I would be fired on the spot, except neither George nor I could talk. So he called down a chemist from the chemical department who opened up the door to the room and slammed it shut and said, "It's dangerous in there," and wanted the formula of the foam charge. Now, the president of Victor Adding Machine was reluctant to give it up at that time, but did give it up. Now, my boss was wrong in testing that unit without all the information, and could have gotten in trouble. So the chemist looked it over and said, "All oxides of nitrogen were produced from it, phosgene gas, ammonia and hydrochloric acid.

LK: Wow.

LB: I had over an eighty-second exposure to that. And the chemist said, "Call a doctor immediately for these people." So they got back upstairs, called the doctor, who told my boss to let me and George go outside and walk and get some air, because he said, "From what you're saying, their lungs could be corroded and start filling up with fluid and they could die." So George and I walked out, and we came back. We didn't reach that stage. And it was to be reported to Workmen's Comp, because I had to see a doctor. My boss didn't run it and he didn't report it. And I could have gone to the president of the company and got him fired.

And this is the same man who refused to give me a raise.

But anyway, I had one acute throat infection from October through January. And finally my physician told me that my tonsils were totally bad and I would have an acute throat infection for the next two years unless he could pull them. So I had a tonsillectomy when I was in my twenties. But because of that exposure -- and another reason why I had to sort of give up the chemical engineering field and consider these other jobs is I cannot eat -- be -- work in certain chemical atmospheres. When I first joined Armour Research Foundation and working with their chemicals and ozone, I lost twenty pounds. It was a rough diet.

I cannot eat spicy food. My throat dries out to this day, and I have to drink a lot of water or fluids because of that. So I still went to work at, as I said, Armour Research Foundation. And I got back, and as I said, they were much into ozone, which is O_3, making liquid ozone. And I was in a paper pulp lab with Scott Paper Company to find a different method of bleaching paper pulp than using chlorine. Now, paper pulp is highly unsaturated, it used a lot of chlorine. They thought maybe ozone could do it faster.

I made liquid ozone, a highly explosive thing, which could blow up very easily. I said at thirty-five percent, it needed a good reason; at forty-two percent, it didn't need any reason, it'd just blow. And of course, during -- paint sensitized it. My lab was a dirty grungy lab. Painters would come in and say, "Oh, this

is the next lab we should paint." And I said, "Ozone!" And they would turn around and say, "Goodbye. No ozone vapors could be around us."

And I saw a number of accidents. The main ozone lab next door to me -- I had a door into my lab -- they made liquid ozone for other places that didn't have their own generator. So I had a generator, I made my own. When one day, an explosion occurred. And I knew they were to warn me about that, because when they ran certain tests and I was doing any tytrating work, it would usually ruin my results. And so they promised to do this. And this was something I didn't plan on.

I ran through the door and saw blood on the floor. So I went back, and across from my lab door was the men's room, and there was the blood leading into the men's room. I hesitated, but I said, "Someone is injured. I don't know if there's a man in it, but darn it, I'm going in," when the project manager turned the corner from another project, and I asked him to go into the men's room. He did. The fellow had made ozone, and he thought it was all transferred to a door, electronic door. He ran his fingers down the generator. It blew off the tips of his fingers off his right hand.

LK: Oh, my god.

LB: So they got him out and to the hospital. And he -- as we used to use the term "nervous in the service," was that any person who worked with ozone who no longer wanted to work with it

had too many accidents there.

So anyway, after that time I mentioned I got onto this special team. I was assigned to a special project by the manager of the department as another test, after being sort of tried and convicted and sentenced for something I didn't do. And this one, we made ozone, but not by a generator, but called an Ozonator. We made it in very low percentage. But you had to use glass pipe in order to see what's going on -- Pyrex pipe, and stainless steel tubing. I had it in a pump; the pump wouldn't last. So I can bend copper tubing and aluminum tubing, but stainless steel is physically a little bit hard for me.

LK: Right.

LB: So there were three men in the next lab who also had to set up something with stainless steel tubing. And I asked them to help me, and they said no, since I was an engineer and wanted to work as an engineer, I've got to learn to do the same work as a male engineer.

So based on George's philosophy, I sat and thought about it, got the tubing bender out, marked all my tubing, took my tubing and my bender down to the machine shop, put one handle of the tube bender in the vice, put my tubing in place, and I sort of hung on to the other end, and I bent all of my tubing. So then, I went back to the lab, set up all my equipment.

That evening, the men came out moaning and groaning about their poor fingers. And I said, "You poor fellows." And they

said, “Well, you’ll face it when you do your setup.” I said, “Mine’s done.” They looked in and couldn’t believe it and wanted to know who helped me. And I simply said, “Me, myself and I. I did it.” And they said, “How did you do it?” And I was very nasty. I said, “That’s for you to learn and find out.” I never did tell them.

Well, while there, on that particular experiment, they were doing some work on the plumbing system of the building, and they didn’t put a notice on the board. I had to use -- with ozone you use a vacuum. And I was just using a water siphon. And they had a 200-gallon tank on the roof, and it ran out of water. It was a chemistry lab -- 200 gallon -- no, 2,000 gallon tank of water for a whole chemistry chemical engineering department is nothing. So lo and behold, the water ran out. And I was at my desk recording data, and I heard the change. I’m a great one for listening and know when something is in trouble.

And I turn around and saw the pressure gauge going up fast. I knew I couldn’t stop my equipment. I shut off the Ozonator, and I put the safety shield in front of my equipment, and it went “boom.” And everyone came running. I walked out of the lab mad as can be, found the maintenance people there. To this day -- I didn’t know exactly what I said to them, but I think I used all of the good engineering terms a chemical engineer can use -- but for the next few years, those maintenance men, whenever they had to shut down the water in the building were to personally deliver me

a note telling me they were shutting it down.

I should also tell you a funny story that occurred while working in that lab. It was that any new fellow joining Armour Research Foundation was often sent to my lab to get a certain file. I got used to this and what they were doing. And I remember this one young man turning into my lab, and sort of turning red in the face -- turning red, and said, "I -- I -- I." I said, "I know what you want." I reached in my desk and gave him the file. I said, "You don't have to say it." The file was known in the engineering field, if you can believe it, as a "bastard file." So they sent men down to ask a woman engineer for a bastard file.

LK: It was like an initiation.

LB: It was an initiation fee for the men.

(Laughter)

LB: So that was some of that. But this project I knew I was working on didn't have much hope of success. It was delayed now because I had to convince the glass blowers to -- my six-inch Pyrex pipe, which was specially fitted, was hard to work with -- to do it, and I wasn't happy during this time, and I didn't like it. So I fell back on my usual thing, I went to the library to do some research on what this meatpacking firm did with their products and how they sold them and everything else.

Now, this meatpacking firm was on the verge of bankruptcy. They had one million dollars left. They had been in the red for a

number of years. So I wrote a report on what they could do with some of their products, and wasting in their plant, and that they could sell them for five times what they're selling them for or anything else. Yes, the project I worked on did not work, but the company went into the green, the first time they made money. And they wrote to the manager of the department what that report of what I told them to do with their products and how to handle them made them money and gave them money to look into other things. And that company is still in business today. So that put me on a special team at Armour Research Foundation -- that I had the ability -- with some other men.

I also, in time, working on my masters degree, I was specializing in catalysis work, because IIT had one of the best catalysis men in the United States. He had escaped from Russia, Vladimir Kumaruski, Dr. Kumaruski. And I knew that if I became a catalysis expert, there would be hope for me finding work in that field with all the petroleum industry. And so I had a catalysis undergraduate, and I had catalysis work as a graduate student. So one of my projects, when any catalysis work had to be done at Armour Research Foundation, there was only two or three of us who could handle it. But I'm telling you this, trying to take samples from a hydrogenator at 10,000 psi, and open that valve and close it, was a bit hard on my fingers, but I did it, for work.

LK: Wow.

LB: Because I wasn't going to -- if I wanted to work as an

engineer, I had to know how to do the work whether I was a woman or not, and face those things.

LK: Is there anything that you wish you could do differently, or you had done differently in your engineering career, but maybe in your school years?

LB: I wish -- well, as I said, I love the field. I wish I could have stayed in it longer in some respects. But as I was saying, being a sales engineer pretty well burned me out, and we're still -- and this is by 1960, and it didn't look, you know, unless I went back to school and got masters degrees -- and as I said, a friend talked me into going to work for Baxter.

And believe it or not, at Baxter, I did design all their technical libraries. I started in a department where there was just myself and an assistant -- and the manager of the department. I managed to extend the size of the department to be in three facilities and twenty-eight people reporting to me.

LK: Wow.

LB: I designed all the libraries. When I went to a bigger facility and took over the engineering department and measured it, in their Morton Grove Headquarters facility, they -- well, I was going on a trip. I was traveling -- where? I don't know if it was to Europe or to Japan. They were going to give me some space. And another department was moving, so I could expand because I was taking other things. I only had something like an eighteen-inch ruler; I didn't have any tape measure. So I went and I measured

the space with an eighteen-inch ruler, got the plans from the engineering department, went and did my drawings and how it should be laid out, allowed room -- space, because it was the mezzanine floor, for forklift trucks to get into the maintenance behind the thing, and turned it over. When I came back, I asked the draftsmen in the engineering department was I off more, because I told them what I had to do. And he said, "Yeah, one and a half inches." I said, "Ahh."

Anyway, when they designed it, the chief engineer at Baxter brought in the company doing the construction work into the technical library, to introduce them to me, to tell them I was the one who designed it and the layout, and that I knew how to do -- as I said, a lot of experience with my dad and everything, the house, in doing it. But I did all the layouts. I knew the maintenance men. They would do things with me. I would report problems, like, "Come up and fix an air conditioner losing a bearing."

When we moved to an even larger facility, and doing the layout, they knew -- the maintenance men said, "If Lois says it can be done that way, it's going to be done that way." We had to tap into a former outside wall. So I told them -- laying cable for word processors, told them to bring down a star drill to go through the brick wall. Well, they didn't. So the assistant head of maintenance when he came down to look at it and said, "Damn it, Lois told you to do that! Why didn't you listen to her?"

(Laughter)

LB: He said, "See, she never makes mistakes in any of this." Because I used to do a lot of work at Baxter, because if something had to be moved, the engineering department, the maintenance workers had to unscrew the pieces like the shelving, then the janitors had to come in and move the equipment. Then the maintenance department had to come back and put it back together again. Ahh, it was aggravation. So I did the work of the maintenance department. I loosened all the stacks and all the furniture and everything else and had the janitors move it, and I put it together. And they never -- maintenance was -- you know what, they knew I had a complete set of tools. They used to come over and borrow some of my tools when they'd do it and some other things. No, I had no trouble with maintenance workers at Underwriters or at Baxter.

I didn't know them too well at Armour Research Foundation until after I chewed them out, and they were supposed to give me special consideration. I think I burned their ears and everything. But as I said, the toxic gas exposure, the discrimination, and I just got plain tired in some respects, and I still went in -- kept into the research field there.

LK: Do you think that when after you left the field and things like Equal Opportunity Act and laws and things were being passed, do you think that that changed it for women?

LB: Well, I don't know -- not entirely. I still, in a

sense, kept thinking about it, and thinking about maybe going back. But when I said, working for Baxter and Pat Brown joined the firm -- in fact, she was my boss -- and we both -- I was looking for a job and had been offered one up in Minneapolis. But when I found out that Pat was a chemical engineer and a member of SWE, I decided in some sense, let's give her a chance. Let's see, maybe we would be compatible, and we were on that part. So with Pat's insistence, I started attending some national meetings.

I missed a lot of the early national meetings, because what happened was that I said earlier my brother had bought a place up in Wisconsin near a camp called Holiday Home, or Lake Geneva Fresh Air Association. It's been in existence for over a hundred years. My mother and two of her siblings went to that camp. It opened as a Christian camp, to give vacations to children and young adults in the Chicago area recommended by the churches. They're still in existence. Most of the children who come to that camp come from the ghetto area of Chicago, whites and blacks. They come for a three-week vacation, maybe holding a paper bag with one change of underwear and a nickel and nothing else, or even no clothes whatsoever. The camp houses them, feeds them, clothes them, shows that there is a life other than gangs or the ghetto, that they had three weeks of good life.

My mother became interested and started volunteering for the rummage sale, and became a member of that. My mother died. Well, while my mother was there, she worked in the clothing department,

sportswear. And she needed help, and I helped her. We both could judge good clothing. Mother taught me how to shop -- most of my early clothes were bought in thrift shops -- and the pricing, and doing that.

So the local rummage sale was the same week as the SWE national meeting, the end of June. So I couldn't -- no company would sponsor me to go to SWE meetings. I'd have to take it as vacation. So me, if I have to take it as vacation, I took it as vacation to work on that rummage sale to help the children. And I worked there.

The main member of -- the head of that association -- Lake Geneva, Wisconsin, is a big lake near the state line between Wisconsin and Illinois, where you'll find the Wrigley estate, the Maytag estate, and so forth. Now, the woman who was sort of one of the guiding lights, and the president of association -- his name was Gus something -- I can't remember -- he was the son of the Crane fixtures?

LK: Okay.

LB: He had an estate there -- was Mrs. Conrad E. Niehoff -- Niehoff Automotive Products, who designed the alternator for the automobile that replaced the generator. Her husband died. Mrs. Niehoff, Marcella Niehoff was the woman who really made the company. When her husband died, she took it over, and she built it up. And Marcella Niehoff was a woman to be faced. She ran the furniture department.

So my mother died, and I got a notification that I had been elected to membership -- you had to be sponsored by two women -- by Mrs. Conrad E. Niehoff and Mrs. Valerie Grunow. Mrs. Grunow's husband, William Grunow and herself were the Valwil Chicken Stores in Chicago.

LK: Oh, okay.

LB: They had a chain of chicken stores. They raised chickens up there and they sold them. She was also society. So I had two of the women -- biggest sponsors. I didn't ask; I was notified I was a member. So I said fine, because I could participate in the rummage sale and run it.

So the year after my mother's death, I also found out I was named chairman of the rummage sale, which meant I had to find women to work in the rummage sale there, and had to be there. And also donations were plentiful, but there was a hundred women working in this rummage sale -- calling up. Some routinely did it. And you'd have society women and local women who would be there, because one of the things, the day before the sale some of the workers could buy items, but at double or triple the price that they were marked. But it's still a donation.

I contacted publicity, talking to women. I talked to women who had been there for years. Also, I had to provide as chairman, sweet rolls for the women coming in. I didn't know I also -- I had to bring in coffee -- supposedly make coffee, make this. The horticultural hall was used for the rummage sale. It was donated

by the Horticultural Society. So I came in the day before. We spent three days for setting this up and everything else.

So I came in. Mrs. Niehoff sent her "boys," as she called them -- boys (laughs) -- I don't think a man in his twenties enjoyed being called a boy -- to set up tables and everything. It had to be set up for when the women came in.

I found out that most of the women brought their own coffee makers. There were only dripolators there. And I had bought coffee. And I looked, and I thought, I haven't made drip coffee or seen it made since I was nine years old. Well, I made it. In fact, the women said I made the best coffee they had had there in years, and what did I do. So I made the coffee. I got it working.

I got my cousin's wife -- I'd say a cousin, but actually, my one uncle, the carpenter, married a woman. He never adopted her son, but we called him cousins, to work. I brought in my aunt, my mother's sister to work. I sat her at a table. One of the things we had trouble with at the rummage sale was purses being stolen by people coming in. Women would put them underneath. So I got my aunt -- we got an office there. My aunt would take the purse and put the tag on, and give women a claim check. The women were delighted with my idea of keeping the purses safe.

And I ran the sale. I brought in an antique dealer because Mrs. Niehoff's man who priced the furniture was ill. And the antique dealer -- she had some valuable antiques and accepted

things -- she didn't like the prices. I said, "So what. It's only" -- the sale lasted from about 9:00 a.m. I got it to open at 8:00, 8:00 to 12:00, and then it closes, and we give away to Goodwill, and so forth.

So I ran it. And my cousin's wife, as I call her, Dorothy, was laughing because -- the book department was run by a Mrs. Frank, who was the wife of a vice president at Morton Chemical Company. She wanted to know who I was or what any -- was there, because she didn't know who was -- and the way Marcella was sending her boys over to me, and the fact that I argued with Marcella Niehoff. No one argued with Marcella Niehoff! And she did what I told her to do. So anyway, the sale was very successful. But my cousin's wife never told her that -- she wanted to know if I was new money or old money. I said, "I hope you told her I was not money." No, I didn't have money!

So anyway, we broke the record that year.

LK: Well, that's great.

LB: The rummage sale never made more than a little over $3,000. I broke well over $5,000 that year. The next year I became co-chairman. But theoretically I was chairman. Mrs. Niehoff did not like the chairman. She was -- couldn't do work and so forth. So I ended up making coffee again, and her boys reported to me and not to the chairman. And the boys were told, "You take orders only from Lois." And I was working back in the sportswear department, and I had to run around with all of these

other young men to tell them what to do. For two years after that I worked with it. They no longer have that rummage sale. They do it by very expensive dinner dances, now, to raise money--

LK: Oh, sure.

LB: -- on that. But everyone was just amazed, because I worked and could not attend the regular board meetings. And sometimes like they would have teas and lunches and door prizes, after every one of those things, Mrs. Niehoff sent her boys over with a door prize for me.

LK: Oh, that's nice.

LB: I got so much ceramic ware and everything else, because I shouldn't be forgotten--

LK: That's nice.

LB: -- and everything. So I thought that was very nice of her. But I enjoyed working with them. I am still a member of that association, and I still donate to them and everything else, because I think what they are doing is a worthwhile job. On charities, I support those children. They don't get much support there in Wisconsin. They take Chicago children -- Wisconsin, you know, they get a little -- and help them out.

I also, in Chicago, support what is called HOME, Housing and Maintenance for Elderly People, housing opportunities, because my brother and I agreed with there's a lot of charities that support children, but there's nothing for the older people, the older women whose husbands have died and are living on a minimum income,

and I agreed with him. So I support the in between, Disabled American Veterans -- children, veterans and elderly people is what I look for.

LK: And you continue to support SWE--

LB: Yes.

LK: -- through your dues, even--

LB: I'm a life member now, of SWE. And as I said, I've attended. Since coming to Las Vegas, I admire the Region B area. And the young ladies here I've met, it's delightful to meet some of these young ladies who are studying engineering. They don't teach chemical engineering out here, though, not in this state -- mechanical, civil -- and meeting them and seeing their enthusiasm, and knowing that there's better opportunities today for women -- but still a few -- a number of problems. But the salaries are getting better. The opportunities are more. You know, it's nice to know when you're a woman engineer there is a chance of getting a job.

Now, I attended one national meeting, I forget where, where I heard two young ladies talking over it. One was a very, very attractive young woman who someone was saying she was going to the fair for hiring and that. One said, "I thought you had a good job at so-and-so place." She said, "I did, too, until I found out I was the token woman engineer. I want to work as an engineer. I don't want to pose for pictures. They hired me for my looks not for my engineering ability." And so that's true.

And then I mentioned to you earlier, I met at that [conference] a young woman -- I thought was a young woman, I don't know -- she was at an age -- I found out that she was from Chicago, found out we went to the same high school, Lakeview High School. And she told me that she -- when I asked her about a math teacher, Mr. McAlpine, who wanted me to become a math teacher. And I said, "Unfortunately, I need a masters degree. I didn't know where I was going to get the money to go to college, much less graduate school." And she said, "He's still there." She said, "I was going to be a math teacher, and he told me to consider engineering, because he knew a woman who was successful in engineering and loved it." And I said, "I'm that engineer." So it gave me pleasure to hear I was changing people's thought of the field women can be in, and that woman could do an engineering job.

LK: That's a good story. Do you think there's a need for a Society of Women Engineers today?

LB: Yes. I think there is. However, you're not attracting the older women engineers, in a sense. I mean, seeing some of the programs offered at the national meetings -- like "How to Dress For Success" -- I'm past that age, and a lot of women -- the older engineers are past that. "How To Manage a Family and Work" -- now, one of the last good sessions I ever attended was one given by Elaine Pitts on How to Write a Decent Resume. And I went to her meeting. I didn't need a job. I had a job at the time, but I

wanted to find out what was being told. I thought her presentation was excellent on how to write a resume, there.

I went to another meeting, meaning a national meeting, which irritated me to no end. And we had a panel. It was on a subject I knew. I wanted to know what are the latest things being done. I was startled at some of the things they were saying, and I wanted to ask a question, and I raised my hand. And the panel asked every young woman there what their question was, totally bypassing me. And when I was absolutely the last hand up, and I said, "I have a question," I was told by the chairman, "We have no more time." And they got up and left. So I never attended another meeting.

LK: So it seems, then, it's really geared more toward younger women--

LB: Yes.

LK: -- or women going into--

LB: I think they've changed a lot of their program to be a little bit better than what it was. Some of the regional meetings here, where some of the women engineers have gotten their husbands, who are engineers to talk about their field of expertise, that are used locally, you know, they're talking about what's being done locally, have been very interesting.

LK: Sure.

LB: But as I said, I could never get a company to sponsor my going to a SWE national meeting because it wasn't in my field of

training. I could get them to attend an American Chemical Society meeting, American Institute of Chemical Engineering meeting, but not a SWE meeting. I would have to take vacation time and pay my own way there. And I do think there's a place for SWE, still, in this world, and needed to give encouragement for women who may be encountering troubles in their jobs like I did at Underwriters, and talk to the women, the older women engineers. To meet a living woman engineer was important.

Like I find that some of these young students -- the last one we went to, they asked us to, they asked us to open up a mini over-the-hill suite, which we decided to do there. And this was in SLO, San Luis Obispo, and we had a room of suites. So Pat and I went out and we bought wine and beer and soft drinks. The over-the-hill suite used to do a big business originally in hard drinks. Then we got into the wine coolers and the soft drinks, and a few other things. But we still have hard liquor things, but we had to have some there. We brought our own scotch. But we had some of this. And the women came. We had a crowded room, where we'd start talking about a slide rule. Some women student said, "What is a slide rule?" They'd never heard of a slide rule. They didn't know what it was. We've been told to bring a slide rule with us to the next regional meeting so they could see what a slide rules is.

LK: (laughs) Oh, that's funny.

LB: But they asked questions they'd never heard about. They

were interested; they were fascinated. I had an Asian woman, she was Chinese, but not from China, who went into engineering, who's not getting support from her father, who loves it in the field, and we talked. And I talked about my family not giving me support. She was absolutely delighted to meet an older woman who was an engineer, who loved the field, who did it in spite of her family, and she's going to continue.

LK: Do you feel that your mother, at the end of her life, recognized your accomplishments?

LB: I would say so in -- she never wanted to tell anyone I worked in a technical library. She always said I was an engineer. And one of the reasons she didn't put up too much fuss for me going to college was she could tell her coworkers that she had a child in college. She didn't have to say which one. And again, I might meet someone -- of course, my brother entered college after much prodding, and transferred to IIT. I also -- as a veteran, because the schools were so crowded, they took survey exams to pass certain minimum requirements because they wanted general education. My brother didn't know this. I had to coach my brother. I couldn't take them. He was a veteran, and he could take them. He passed them, just barely, on my coaching. But I couldn't take the things on that sense.

But I can remember, my mother believed -- was one of these people who believed improvement is done by criticism. And it reaches a point -- she never knew that, like, I could never -- I

could clean the floor, the kitchen floor, I could scrub it on my hands and knees, rinse it with -- I'd scrub it with soap and water, rinse it and wax it, and she could look in and says, "It's still dirty. Take a mop, put cold water on it, go up and down," and says, "Now it's better." I never pleased her, never did anything right, never did it in the time and everything. So what happens? A person who's constantly criticized just stops doing more. I'm going to be criticized if I do a good job or not, so why try to do the best job? I did a good job, but I didn't try extra hard to do a good job on that.

And she was grateful that I had a mechanical ability. When my brother went into service, I was the one who did all the maintenance at the house. We had a coal fired furnace and everything. So I had to do the repairs, the furnace problems, and all my chores and all of his chores, and still go to school. Also, she was one of these – I always tell Pat [Brown] and say my mother's ambition was to fill up a fifty-five gallon drum out there with garbage, and I had to make certain places off limits, or I'd lose papers, school papers, if I was a little careless or tired.

So I could come home and find -- this was later, up in Wisconsin -- she had bought something that has to be assembled. And she would say, "Put it together." And I'd look at it and I said, "Do you have the instructions?" "No. I threw them out." "Did you read them?" "Yes." "What did they say?" "I don't

remember. Put it together." So I would work on it, and she'd come back a little later -- and as I said, she was a very impatient woman -- and say, "I'll have your brother do it." And I said, "Mother, it takes a little bit longer to get anything done without instructions." I always got it together.

So this one time we were over at my aunt's house. And my aunt was brought up as -- her husband, who was a machinist, a pattern maker, waited on my aunt. He was an Archie Bunker type, very few friends. My aunt had a lot of friends. He went to work 7:30 on until 3:00. He did all the shopping, all the cooking, all the cleaning. He even washed her underwear, her unmentionables every night before she went to bed. She didn't know how to do a thing. He would change the light bulb. So she didn't know how to change when the light burned out in the refrigerator, she didn't know how to change it. So I had to do that. And she got the wrong light bulb.

Anyway, she bought something that had to be assembled. She had the instructions. And she wanted -- it always had to be a man had to do it. My aunt was this -- a man, a man had to do this, a woman had to do that. And so she got out the instructions, and my aunt said, "Send Roy over to do it." And my mother said, "Lois will put it together for you now." My aunt says Roy would do it. My mother told my aunt -- now, I'm forty years old at this time, and my mother said, "Lois is a better engineer than her brother. She'll put it together." I almost fell over. That's the first

compliment I got from my mother on that part.

LK: Wow.

LB: But, yes, she recognized my ability and what I could do, and was, indeed, proud of me, in spite of all that. But she would not admit that she hampered me in any way. And of course, she kept prodding me to get married. Neither my brother nor I got married, for the simple reason I had opportunities, but they were business contracts. And my brother simply said, "I would only get married if there was some guarantee our children would not be brought up like we were." He was extremely unhappy. Even though he was Mother's favorite, he still faced these problems of what she did and what he saw her do there. And as I said, lots of people loved her. She had that charisma that people were attracted to, until they got to know her, and that.

And as I said, I dated, but the fellow I dated my mother didn't like. One time I got -- I saw one, and I said, "I thought we were going out on another date. Why didn't you call me?" He says, "I did call you. Your mother told me what you thought of me. That you were just going out with me because you pitied me, and you really didn't like me, but you were too cowardly to tell me."

LK: So she interfered.

LB: She interfered. She was going to select my husband for me. There was a maintenance man at Underwriters who -- a very good looking young man who was able to date any young lady who

came there, and boasted on how many he slept with. So the maintenance men had a bet with him that he could date me and sleep with me. I refused to date him because I knew this was occurring. So he looked up my address up in the personnel files and showed up at my front door one time. My mother answered the front door and said, "(Gasps) Isn't he a gorgeous hunk a man." And he wanted to see me. So I told Mother. Oh, she couldn't believe me. He had this gift of gab. He wooed my mother. She was absolutely delighted with him.

So I told my mother -- I spent most of my time at home in my bedroom, where I had a desk, and I had a TV and everything -- that if he ever showed up at the door, I wasn't home. He showed up at the door again, and I refused every date. And every time, she went, "Oh, Jim, Lois will be right down." And I'd come down with curlers. It didn't discourage Jim. He tried.

So this one time my brother was out of town. He'd gotten a job as a sales manager, a national sales company. And Jim was there. We'll watch TV. My mother decided to go to bed at 8:30 -- she was tired. My mother never went to bed until 11:00. She was leaving us together because she thought something would happen. She actually told me that I should sleep with the man, if he got me pregnant he'd marry me. And I said, "The hell he would."

And this is another funny story, too. So anyway, she went to bed. And at that time all we had in the house was a cat who slept on the TV set. Well, it was one of those things. Jim was turning

off lights; I was turning on lights. He was moving there, and that. This cat, a male cat, that was given to me as a Christmas gift -- Nicolas K. Cat, I called him -- jumped off the television set, came across -- we're on the couch -- jumped up on Jim's lap -- I don't know how this cat knew, because he knew -- with claws, and got him in his private parts. (Growls) Jim jumped up screaming and said, "I know you hate me, and even your cat hates me!" and went out the door. Never showed up again. This cat attacked Jim.

LK: Oh, how funny.

LB: It was hilarious. I picked up the cat and kissed him. Anyway, Mother wondered what had happened to him, and I said, "Oh, we had a disagreement." A few years later while coming -- Jim lived -- I heard about Jim Smith again while I was shopping downtown, two women talking behind me. Jim did get a young lady pregnant, promised to marry her, but he never showed up at the church. But yeah, Mother had hoped I'd marry Jim because he was so, so good looking. She would love him as a son-in-law. No. I knew that's -- as I say, I figured, oh, well.

Most of the men I dated had certain conditions. One man wanted to marry me because I could make more money than the average woman, and he at the time wanted to get a $50,000 house, which would be like half a million dollars now, and get a big expensive car, and possibly have children which would have a higher IQ than normal from him and me.

LK: Wow.

LB: And I, again, said, "Bye-bye." Yeah. Well, it's hard on a number of women and everything, but I've always enjoyed -- I'm glad I made that choice.

LK: Do you have any final thoughts?

LB: No, just that I hope women who look at this tape will be encouraged and realize that -- maybe at a time discrimination isn't so bad and engineering opportunities are better. And that's the end of tape three.

LK: (laughs) Okay. Well, thank you very much.

END OF INTERVIEW