

**THE DEPARTMENT OF ENERGY ORAL HISTORY  
PRESENTATION PROGRAM**

**OAK RIDGE, TENNESSEE**

**AN INTERVIEW WITH BETTY F. MASKEWITZ**

**FOR THE**

**OAK RIDGE NATIONAL LABORATORY  
ORAL HISTORY PROJECT**

**INTERVIEWED BY**

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STOW: Today, we're going to be talking with Betty Maskewitz. Betty came to Oak Ridge National Laboratory in 1963 after a ten-year stint at K-25. Her greatest contributions at ORNL have been setting up information centers, some of which still exist today, and fostering international information exchange. We'll be hearing about these things and other stories from Betty over the course of the next hour.

Betty, thanks for joining us today. I look forward to talking with you for an hour or so. You had a very interesting career here and at K-25. Tell us about where you grew up and went to college.

MASKEWITZ: I grew up in Kingsport in Sullivan County, Tennessee. I went to Berea College in Kentucky.

STOW: So, you actually hail from East Tennessee.

MASKEWITZ: Yes. My father was born in Mitchell County, North Carolina. My mother is from Carter County, Tennessee.

STOW: But, you knew Oak Ridge was here, didn't you?

MASKEWITZ: No, absolutely not. When World War II started, I went into civil service and met the man I later married, Mendel Maskewitz.

STOW: Okay.

MASKEWITZ: And we were married in Salt Lake City in 1943.

STOW: Okay.

MASKEWITZ: He was an electronics technician, and his specialty was installing radar in the great planes. And, I was doing payroll, records, and other things for the war effort. We came to Oak Ridge in early '44 to visit our friends George and Irene Plumlee, who were school teachers ...

STOW: Okay.

MASKEWITZ: ... and Aden Ison and Ruby. And, he was a butcher in one of the supermarkets. We'd known these people from Berea for many years and, we thought Oak Ridge was a rural area. When we topped the hill at the Oliver Springs gate [we were] absolutely amazed to look out on a hive of activity I never knew was there. There was a little boy standing at the gate, and I said, "What do they make here?" And, he said, "Applesauce."

STOW: Applesauce? Now, I've never heard that one. I've heard lots of other stories.

MASKEWITZ: (laughs) Our friends persuaded Mendel to go down to Y-12 to interview for a possible position. And, he had to get himself withdrawn from the Air Force, where he was an employee, and I went into the school system to teach under Alden Blankenship, the first superintendent of Oak Ridge schools.

STOW: Now, did you have your master's degree then?

MASKEWITZ: Oh, yes.

STOW: Master's in what -- mathematics?

MASKEWITZ: No, at that point, my master's degree was in accounting. I was still studying mathematics.

STOW: All right, okay.

MASKEWITZ: But, I had a class of children. Blankenship believed that you teach each child [according to] where that child is, and every child in Elm Grove School, where I taught, came from somewhere far away.

STOW: Yes.

MASKEWITZ: I had children that I had to teach [whose levels of knowledge and understanding ranged] from third grade through early college. I had brilliant kids, [slow kids], and everything in between. So, that was my earliest experience in Oak Ridge. Then, at some point, I decided I wanted to go into a profession for myself.

STOW: Yes.

MASKEWITZ: And, in those days, you could hire housekeepers, which is a rare thing today. So, we hired a woman from out of Wartburg, who came [to our house] at 7:00 in the morning with the hourly people, and stayed till 5:00 and went home again. And, I started my career at K-25.

STOW: What were your first impressions of Oak Ridge when you saw this bustling hive of activity?

MASKEWITZ: I'll tell you. It blew my mind, really. I had been communicating with our friends, but they never, never mentioned anything other than teaching school and having a job. And so, everything was new. We had to have badges to come from, go to, and see this "secret city."

STOW: Sure.

MASKEWITZ: We were strongly rationed. It was a war. It was wartime.

STOW: Yes.

MASKEWITZ: And, Mendel and I did very well, because my family back in East Tennessee had lots of children and lots of coupons. They had food coupons they didn't need.

STOW: They didn't need them, huh?

MASKEWITZ: So, they shared them with us. Also, when someone would come to visit us in Oak Ridge, we had to badge them ahead of time. They'd come with suitcases full of meat, and the rare thing, coffee. You could buy up to one quarter pound of coffee, and you had to go from store to store to buy that one quarter pound of coffee.

STOW: Yes.

MASKEWITZ: So, we had lots of good food at parties at our house.

STOW: And, you lived in the present city of Oak Ridge?

MASKEWITZ: Up on Warrior Circle was our first home. My first child was born in the old Oak Ridge Hospital and was delivered by an Army doctor.

STOW: Okay.

MASKEWITZ: Those days were exciting.

STOW: Did you know that the atomic bomb project was going on in Oak Ridge?

MASKEWITZ: No one discussed it. Deep in the night, Mendel would whisper possibilities. But, he didn't know for sure, even though he worked directly with the research group at Y-12, where eventually they [separated uranium isotopes] and got enough U-235 fuel for the bomb that was manufactured at Los Alamos. So, basically, the day they dropped the bomb on Japan [August 6, 1945] ...

STOW: Hiroshima, yes...

MASKEWITZ: ... Everybody in the area took to the streets in Oak Ridge. Most people were just flabbergasted. Many immediately moved away because they were afraid to stay here in the city.

STOW: Too dangerous, right?

MASKEWITZ: Yes, but the basic research people had fallen in love with Oak Ridge. They would come from everywhere. Those who had fallen in love with the beautiful countryside and the life of simplicity in our garden city of Oak Ridge, stayed. And the government established the national laboratory here.

STOW: What was it that drove you to get a master's degree in mathematics? I mean, mathematics is not an easy subject.

MASKEWITZ: Well, I went beyond the master's degree in mathematics.

STOW: Okay.

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MASKEWITZ: I did all the coursework for a doctorate.

STOW: I see.

MASKEWITZ: But, at the time, I was working at the Lab. My advisers at the University of Tennessee wanted me to do a thesis and finish, but I didn't think it was necessary. So, from that point on, I went to school all my life. I studied on a need-to-know basis, mostly physics and engineering subjects that I needed to know for the areas in which I was working.

STOW: And, you started your career here in Oak Ridge at K-25 in 1952, right?

MASKEWITZ: Yes. I hired in to a group of, what we called “hand computers,” who were seated in front of Marchants or Friedens [mechanical calculators]. Each had a favorite machine for making calculations for graphical solutions. And, you had to carbon back those, by the way, and that was difficult to do neatly. And, we had slide rules. We supported the engineers who were designing Portsmouth, Paducah, and the additional plants at K-25.

STOW: Okay. And, did you have a lot of women as coworkers?

MASKEWITZ: They were all women.

STOW: They were all women?

MASKEWITZ: But, with a man supervising! (laughter)

STOW: It’s a message there, isn’t it?

MASKEWITZ: There is a message there. I was there for, I think, a couple of years. And, they recognized “pushy” people (laughs), even in those days. They decided to move me onto the monthly payroll. It was a salaried position, [and my job was] to do programming. And, when the supervisor of this group of hand computers came back from a meeting with the management of the computing group, he said that what he heard was, “Betty has too much Jewish aggressiveness and drive -- she must be watched.”

STOW: Whew! (laughs)

MASKEWITZ: And, my supervisor said to me, “Whatever you do, don’t ever give up your drive.” The interesting thing was that I was a convert to Judaism.

STOW: Is that right?

MASKEWITZ: Innately, I had no “Jewish” aggressiveness and drive. I had “hillbilly” aggressiveness and drive, if you will. But anyway, from then on, we got to work with an IBM 650. It was the first computer at K-25 that had to be programmed. And, we first programmed it in machine language.

STOW: Yes.

MASKEWITZ: Then, at some point, there came FORTRAN [which I had to learn].

STOW: All right.

MASKEWITZ: But, working for those engineers, I had to always program their problem, first in machine language and then in FORTRAN, to prove to them that we got the same answer (laughs). But, at the end of ten years at K-25, where we went from one bigger computer to another to another, I became very interested in nuclear problems, nuclear codes, and nuclear solutions.

STOW: You were continuing to go to school through this period of time.

MASKEWITZ: Oh, yes. Oh, yes.

STOW: And learning more about nuclear things.

MASKEWITZ: And, I was working hard. The research people from ORNL were coming over to K-25 with the problems [they needed us to solve]. So, I worked for quite a while doing a lot of programming for people designing the small “swimming pool” reactors and reactor shielding.

STOW: Okay.

MASKEWITZ: And, in the meantime, I became aware that very large computer programs were being generated for the old Aircraft Nuclear Propulsion Program. And, there were ORNL people interested in using them.

STOW: Oh, yes, that was a major program here.

MASKEWITZ: So, I made those available on the K-25 computers.

STOW: All right.

MASKEWITZ: And, they had many ORNL contacts who used those programs to solve problems. For instance, I remember working with Bill Colston of the Reactor Research Division at K-12. We did the [nuclear fuel] burnout studies for the *USS Savannah* [the first American nuclear-powered merchant ship, which was in use from 1962 to 1972].

STOW: All right.

MASKEWITZ: That was an exciting thing to do. It was a lot of work, but it was fun. Then, on my 45<sup>th</sup> birthday in 1963, I became rather agitated all day, thinking, “I can continue doing what I’m doing here and draw a salary, but there’s no excitement to it.”

STOW: Not as much challenge as you want.

MASKEWITZ: I kept thinking that I can stay at K-25 and get my kicks from this place, or maybe [I can find] something somewhere that has more challenges. So, I put together a résumé, called someone at the Laboratory, and said, “You don’t know me, but I need to talk to you. May I come see you?”

STOW: That’s that pushiness coming through, right?

MASKEWITZ: And, they said, “When?” And, I said, “At the end of today’s shift.” I went home, had two martinis to get up my courage, and went to talk for a couple of hours with this man. He was very, very kind and gave me time [to tell my story], and I asked him to circulate the information that I had given him, informally to see if anybody was interested and to [communicate with me] through formal channels.

STOW: All right.

MASKEWITZ: And, Everett Blizzard, who is now a blessed memory, called and asked me to come for an interview.

STOW: I’ve read about him. He came down here with Captain Rickover’s Navy crew, didn’t he?

MASKEWITZ: He was fabulous.

STOW: Yes.

MAKSEWITZ: And, he was a man of ideas -- terribly creative thinking ... in the research world. And, he had many admirers at the Lab and all over the world, really. I went to see him, and basically, he let me talk. After it was over, he told someone, "Betty deigned to interview me, and I appreciate the fact that she found me worthy." (laughs) That was Everett Blizzard. He was wonderful. He had so many people that he influenced. You think of putting round pegs into square holes.

STOW: Yes.

MASKEWITZ: He made the most of them because he brought out the best in the people in his division.

STOW: How long did it take from the time of your birthday and your meeting that evening, until you were lured over here?

MASKEWITZ: Oh, I was here in very short order -- within a few weeks. The K-25 people never knew what happened.

STOW: (laughs)

MASKEWITZ: I did not know anything about shielding. [Everett Blizzard was an expert on shielding.] My two compatriots, if you will, David Trubey and Keith Penny, were very busy devising an information analysis system in the computer to handle [scientific] literature.

STOW: All right.

MASKEWITZ: The first thing I did was to go to Lab Records. I found out who were the major research groups in this country doing shielding research and development. The old aircraft people, General Dynamics and General Atomics, had research groups. I sat on a stool in Lab Records and read every document they had published. And, when I came out, I knew who the key people were in the field. I knew the kinds of technologies they were using. So, I [started gathering information on] their technology.

STOW: And, this resulted in the birth of the information analysis center, did it not?

MASKEWITZ: Well, yes. Between the SARI (Storage and Retrieval of Information) -- that's the literature -- and the Codes Collection, I learned from the beginning what all these good programmers did. They built what data existed into the computer system itself, [making it] very unwieldy, because you couldn't change one [type of data, such as that from the scientific literature) without changing the other [computer code data], and it was difficult.

STOW: Sure.

MASKEWITZ: So, what we did was to start "brainwashing" the industry to separate scientific data from data from the computer programming, so you could handle each.

STOW: Separately, though...

MASKEWITZ: And, Henry Honick at Brookhaven National Laboratory had a dream of improving on nuclear data. And, he got himself assigned to the Atomic Energy Commission to get the funding to start the Nuclear Cross-Section Processing information center. And, the

Radiation Shielding Information Center I started was a part of the whole thing. And today, at Brookhaven is housed the finest evaluated nuclear cross sections in the whole world, used by everybody, and all packaged in the Radiation Shielding Information Center.

STOW: Is that right?

MASKEWITZ: And, RSIC has a collection of computer codes that incorporates the technology from all the nations of the world that have a nuclear program.

STOW: But, now you've built a lot of information centers over the years.

MASKEWITZ: Oh, yes. [We were inspired by ORNL Director] Alvin Weinberg, who in the 1960s was head of the President's Advisory Committee on what to do about the explosion of information in the nuclear community. And, the leading recommendation of that committee was that they establish information analysis centers.

STOW: That's right.

MASKEWITZ: And, Everett Blizzard decided that was the thing to do to preserve all of that information and technology that was generated in the Aircraft Nuclear Propulsion Programs, in the early NASA programs, and in similar programs. And so, he offered to found and test the first information analysis center in his division, and that's how RSIC was born.

STOW: Well, did you use the same format or the same design that you used for the Radiation Shielding Information Center for the other centers and just make appropriate modifications to tailor the center for the users?

MASKEWITZ: Everything depended on the needs of that community. One of the first centers that we founded was [concerned with] nuclear medicine and the leading nuclear medicine physicians, Henry Wagner from Johns Hopkins, Dr. Randy Brill from Vanderbilt, and other key physicians from Sloan Kettering and other cancer research centers.

STOW: Yes.

MASKEWITZ: They would come to my house in Oak Ridge on the weekends -- the only time they were free.

STOW: Sure.

MASKEWITZ: They would come to my house all day Sunday, and I'd have to give them lunch. We planned and planned. And, the result was that we started pulling together conferences [at which physicians and programmers] discussed the state of the art of using computers in nuclear medicine. We had the first several conferences in Oak Ridge. Then we had them in different places. And, we published the proceedings of each conference and founded what we called the Nuclear Medicine Computing Center. But then, the end result of that was that we worked directly with the Nuclear Medicine Society. And, with the help of the big names in nuclear medicine at that time, we founded what they called a Computer Council. So then, all of this nuclear medicine data went to the Computer Council, which is still today maintained by the Nuclear Medicine Society.

STOW: From a financial standpoint, where did the money come from?

MASKEWITZ: AEC and then the Department of Energy. They had a nuclear medicine arm that funded it. They funded everything I did. DOE funds the Carbon Dioxide Information Analysis Center at ORNL.

STOW: CDIAC. Yes.

MASKEWITZ: That was a spinoff due to one of the department heads in the Neutron Physics Division getting a program from the Department of Energy to do climate studies, if you will.

STOW: And, this was Chuck Weisbin, right?

MASKEWITZ: That was Chuck Weisbin. And he, being a believer in information analysis centers, immediately twisted my arm. And, we set it up right there in our facility, Building 6025. We called it a prototype of an information analysis center. And, once we thought it was ready, it was moved into the Environmental Sciences Division.

STOW: Where it still is today.

MASKEWITZ: And going strong.

STOW: Yes.

MASKEWITZ: I remember my first trip to China, I was asked to go there to try to get world records [for climate] from China for [the future CDIAC] center. I was able to talk with the climate people in China and came back with China's world climate records.

STOW: You mean, the Chinese had been keeping those records?

MASKEWITZ: The Chinese have been, even during the Cultural Revolution when everything was chaos. Over the countryside, they had little climate data gathering [monitors] used by peasants they trained [to record climate measurements]. The Chinese have the world's best, finest, most developed, and longest climate records.

STOW: Amazing. How many times have you been to China?

MASKEWITZ: My first trip was in 1983. And, I was invited there by the Institute of Atomic Energy, the oldest of China's nuclear research institutes, and I responded. I got permission from my funders to go. I responded that I would come, if they would bring together at that institute, every research person in China who was doing [work in] radiation transport and shielding. They did, and I was there. We were together about ten days. [It was] a very intense period [when] they were telling me their state of the art, reporting from every nuclear research institute in China.

STOW: And, was there anybody else there with you representing ORNL?

MASKEWITZ: Oh, no. I travel alone, always.

STOW: I see.

MASKEWITZ: The end result of [my first visit to China] was that every institute represented in that meeting sent invitations to me in the following years. So, I've been to every nuclear research institute in China, where I spent time listening to their discussions of the state of the art in the

areas of nuclear safety. That was the reason my government sponsors, not only allowed me to go but also liked me to go.

STOW: Well, let's talk about your international work a little bit. You've worked around the world on virtually every continent -- Africa, South America, Eastern and Western Europe, Asia...

MASKEWITZ: Just about everywhere, but it was in the interest of promoting good research in nuclear safety and exchanging information. The first time I ever traveled to the Soviet Union, I went at the request of the AEC. I was working with the radiation transport and shielding people of Western Europe, at EURATOM in Italy. And, I got a call in 1969 from the AEC [with his request]: "Betty, see if you can find where there is shielding in the Soviet Union."

STOW: Okay.

MASKEWITZ: So, I felt puzzled. I had to have an invitation. How I went about it [was to contact] our many Western European friends in the nuclear agencies. In a round about way, I got an invitation to come to the Soviet Union.

STOW: Okay.

MASKEWITZ: And, so I went there, alone. (laughs) Several British working with me in Italy were so puzzled [when they heard I planned to travel there alone]. They said, "Betty, we're not allowed to go anywhere alone, as one research person. We have to go with at least another person. And, we'd never be allowed to go to the Soviet Union." (laughs) Well, anyway, I was puzzled myself as to why I got the invitation, but I think [the invitation came from] an American and a woman, and they were real curious. So, I flew to Moscow and first I was taken to the Joint Institute of Nuclear Studies at Dubna.

STOW: Dubna...

MASKEWITZ: There, they really wanted to look me over. And, I had a wonderful time there with those people. But in the mean time, I kept saying, "I want to talk to your radiation transport and fast reactor shielding people." Then I was taken to Obninsk, which today is an Oak Ridge -- what do you call it... ?

STOW: Sister City ...

MASKEWITZ: ... Sister City, yes. But, when I was in Obninsk, I had a marvelous time meeting those [reactor shielding experts]. I had to have a translator, who was a big woman, who had been trained to translate Russian to English. But, she told me that she had never met an American visitor, that I was number one. The other thing she told me is that she had never translated for a woman. So, throughout all the translations and talks, she called me "sir."

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STOW: (laughs)

MASKEWITZ: And, in secret, when we were alone, I'd forget to correct her. In front of her colleagues, I would not make her lose face ...

STOW: Sure.

MASKEWITZ: ... So I was "sir" And, the most interesting thing happened. This was 1969. There

was a very pleasant and kind little man who was taking care of me. And, when I was in the laboratory, sitting and talking with the radiation transport people, their physicists, and their mathematicians, they would think of a reason to send him away to take care of something for me. The minute he went through the door, they would hitch up their chairs and ask, “Now Betty, what shall we talk about?” (laughter)

STOW: Wasn't this all going on in the middle of the Cold War years?

MASKEWITZ: Yes.

STOW: And, did you sense any sort of... under the table ... ?

MASKEWITZ: When you walk into a research institute, you are among people who are your peers and everything disappears, really. I was shown everything they were allowed to show me at Obninsk. I saw their reactors, even the fast-burst reactor, where there were bursts of radiation.

STOW: My goodness.

MASKEWITZ: Before I went in to see this reactor, I had to put on an extra badge [with dosimeter]. When I came out, the Russians would look at each other's badges and laugh. They weren't afraid, so I wasn't either.

STOW: (laughs) Well, it doesn't seem to have affected you.

MASKEWITZ: Nah. No, I should say not. But, many years later, I was at a conference in Moscow. I had made a lot of photographs on my first visit to Obninsk, so I brought them with me. And, in the photographs is the little man who had been looking after me .

STOW: Yes – the one they sent out of the room .

MASKEWITZ: Some photos showed he had given me a great, very vulgar, bouquet of flowers.

STOW: Yes.

MASKEWITZ: And, as I showed these photos of the flowers among those who had come from Obninsk, they started laughing. And, I asked, “What's so funny?” And, they said, “Betty, you rated a General.” And I said, “A General of the Army?” They said, “No, a General of the KGB.” (laughter)

STOW: Okay.

MASKEWITZ: But, the little man was so nice, and I had nothing to fear. But, I went back many years later when for the first time official exchanges were arranged in which high-level DOE and good research people go to Obninsk, and Obninsk officials and researchers come to Oak Ridge -- that first trip. We have communicated through RSIC ever since.

STOW: Okay. Well, it's obvious that you've really made some major advances internationally here and are widely recognized internationally. Your work was obviously recognized by the Atomic Energy Commission ...

MASKEWITZ: Oh, yes.

STOW: ...and by DOE...

MASKEWITZ: And by the Nuclear Regulatory Commission, Defense Nuclear Agency, and all the intelligence people.

STOW: Did ORNL recognize the excellent work you were doing?

MASKEWITZ: No, because they accepted RSIC as an ongoing thing and only in one division. Well, in that division, there were sometimes constraints. RSIC, because of its publicity and public relations, would get programs well funded by the Department of Energy or NRC ...

STOW: Yes.

MASKEWITZ: ... or other government agencies that other groups in the division would love to have. And, sometimes, I had to defend RSIC to management at both the division level, and through Laboratory management. But, it worked. Today, they think we're wonderful.

STOW: A few years too late perhaps, but anyway ...

MASKEWITZ: Well, that's all right. We did our thing and are still doing our thing.

STOW: Now, you've been very active in the American Nuclear Society.

MASKEWITZ: Oh, yes.

STOW: And, actually, you have received a very distinguished award from ANS for your work on information exchange.

MASKEWITZ: Well, they have technical divisions in ANS. We learned our trade [from the division] devoted to radiation transport and shielding.

STOW: Okay.

MASKEWITZ: It's where we developed the whole philosophy of information exchange. We had a forum that really was unbelievably successful. And so, I devoted myself for many years to basically learning my trade and pushing the mission of the RSIC. Then, at some point, you think you about giving back. So then, I began to do national (ANS) society work. I think I worked on every activity that they had within the society, and at some point, I like to think that I paved the way for a woman president, because I was nominated by petition for vice president.

STOW: Yes.

MASKEWITZ: As president-elect, I had a formidable opponent. He was Lynn Draper, head of a nuclear group in one of the nuclear power plants.

STOW: All right.

MASKEWITZ: Lynn Draper was the handsome young man followed Jane Fonda when she went across the country making speeches against nuclear energy. And so, he was extremely well known, and he won. But I was told, with some amusement, that I got the entire foreign vote.

STOW: I can see why.

MASKEWITZ: Well, I was the only name they knew. (laughs)

STOW: Yes.

MASKEWITZ: The next president was male, but the next president was female. The American Nuclear Society has had two women presidents.

STOW: It's a tough nut to crack sometimes, isn't it?

MASKEWITZ: Right, right. Right.

MASKEWITZ: But, those were good years, even working in the ANS activity groups that were really pushing for the betterment of the nuclear community. I learned lots of things, and it was good. Through the ANS committees, I got into working with the Pacific Nuclear Basin people -- all the nations bordering the Pacific Ocean that have a nuclear program.

STOW: All right.

MASKEWITZ: They still meet. They have wonderful, wonderful conventions.

STOW: And, do you still go to any of them?

MASKEWITZ: No. After I turned seventy-five years old, I thought it was time to back away.

STOW: Time to slow down a little bit, huh?

MASKEWITZ: But, I was always on the program committees and met all the leaders of the nuclear nations.

STOW: Let me ask you about being a woman in a technical arena.

MASKEWITZ: Okay.

STOW: You've obviously been very successful and have made some real strides forward on your own behalf. But do you think being a woman has hindered your ability to advance? Have you encountered situations where you could say that was the case?

MASKEWITZ: Well, you know as well as I know, that when I started, it was unusual for a woman to work in the world in which I worked. So, I devised certain procedures for myself. I worked in a world of men. There were no women around me. I made it my business to walk alone -- to be a part of a group, to participate in it, and never let them feel they had to take me to lunch. When I was finished, I said goodbye and I went away.

STOW: Yes.

MASKEWITZ: Another thing that helped me, I think, was my white hair. I've had white hair since I was thirty years old. Snow white. I think that helped. I had only respect in the research world. The people with whom I dealt in radiation transport shielding [gave me] only respect. And, it was only basically within my own local environment that I did something that looked good, and there were others who would like to have [the respect I got].

STOW: Well, what advice would you give to a young woman coming out of school now, into the work environment, say, in science and technology? Things have changed a lot over the years.

MASKEWITZ: Yes.

STOW: It's perhaps a little bit easier now, but looking back on your early experiences, what advice would you give?

MASKEWITZ: Know your field. Know it like nobody else. If there exists a supporting professional society, join that society, but only to use it as a forum to again build your own confidence, [market your capabilities, and get] to know who's in the field. And, freely exchange information, help others as you can, and do your utmost to stretch, in whatever area you're in. Don't ever be satisfied to just do the job and go home.

STOW: Well, that same advice applies equally well to a man.

MASKEWITZ: You said it.

STOW: Well, don't you agree?

MASKEWITZ: I do. The most important thing is to know your field. I never regretted sitting in Lab Records, until they thought I was a fixture, reading [relevant] document at that time that had been generated.

STOW: Well, you can get lost in Lab Records. I've been up there myself and gone through documents.

MASKEWITZ: But, I they left me free. I'd pull open drawers, read, pull open ... (laughs) Well anyway, the Lab has a really a remarkable environment within every technical field for the individual who is committed to learning that field and to making a contribution to it.

STOW: True. Is there anybody that you recall who influenced you especially in your career development and career choices?

MASKEWITZ: Not really. I've known some remarkable people for whom I still feel [admiration]. [I feel] that they were awesome.

STOW: Yes.

MASKEWITZ: And, one of them, of course, is Alvin Weinberg.

STOW: Of course.

MASKEWITZ: He was a scholar's scholar. He was a research man. I'll never forget sitting in meetings when we were planning programs. Nothing was too small for him to know about it and then build it up. Eugene Wigner was a part of the little coterie that [included] Blizzard and Weinberg. Wigner was a dear friend. I used to listen to his stories on worrying about his children and getting advice about his children, (laughs)

STOW: A very polite man, I'm told.

MASKEWITZ: But, he spent a lot of time in Everett Blizzard's area, and I was pleased to know him. Basically, the people around me, the people who became a part of RSIC, and the people in the industry were just as eager as we were to push the state of the art. They all helped.

STOW: Hard to single out anybody.

MASKEWITZ: Yes.

STOW: You're not the first person to sit here and mention Alvin Weinberg. As a matter of fact, most people have had words of praise for him, and he was a man of tremendous foresight.

MASKEWITZ: Right, right. God bless him. You'd meet him in the hall and he greeted you by your first name. Now, how he managed that I don't know, because I was a little nobody when I first started in Building 4500 North.

STOW: But, knowing Weinberg his record, and way of operation, I bet you may have been a little nobody when you got here, but pretty quickly, he knew who you were.

MASKEWITZ: Well, he knew also that we were experimenting on one of his theories.

STOW: One of his recommendations, yes.

MASKEWITZ: One of his theories. I think, he was interested to see whether or not there ever would be established a feasible, viable, working information analysis center. And, I think it makes him feel good that the theory had some merit.

STOW: Sure.

MASKEWITZ: He spoke when the American Nuclear Society had its international meeting in Gatlinburg. He was on the evening program along with me. He spoke on "Immortal Reactors" in the last talk he gave to the American Nuclear Society.

STOW: "Immortal Reactors."

MASKEWITZ: He was puzzled, pleased, and awed by the long life of nuclear reactors in nuclear power plants. Some of them seem to go on forever. The people at the Gatlinburg meeting were reactor physicists, mathematicians, and nuclear data people and so on. And, he threw out challenges about the reactors of the future and in view of accomplishments in the past.

STOW: He threw out a lot of challenges to people. We owe an awful lot to him. As you look back on your career, what would you say you are most proud of among your accomplishments, Betty?

MASKEWITZ: A viable, continuing, funded, information analysis center, now called RSICC. They stuck a C on there because computing technology became the major portion of the center. They still collect literature, and the world's literature in radiation transport and shielding is in their system. But the thing that has made RSICC well known has been its computing technology.

STOW: And, that's been around for four decades, right?

MASKEWITZ: Yes. Yes. You said it.

STOW: And, all the little children that got spawned off your original concept.

MASKEWITZ: Well, you notice what they're doing now. One of the big things that was pioneered in RSICC was the seminar workshop on a given computer code system and accompanying nuclear data, which all the people wanted to know and use. They came together, and they discussed the theory and technology, they published a state-of-the-art report, and they learned to use that computer program. Now, all the national labs are doing that. So, the result in each case is that a knowledge base is built on a knowledge base as the technology goes on.

STOW: Well, what opportunities have you missed as you look back over your career? What do you wish you had accomplished that you didn't?

MASKEWITZ: (laughs) To tell you the truth, I was so busy following my own internal mission, that I don't think I missed anything.

STOW: Great.

MASKEWITZ: I had a wonderful family -- three children. Mendel was the most supporting person in the world. I called him my Rock of Gibraltar.

STOW: And, did he continue to work at Y-12?

MASKEWITZ: He retired at the normal age of sixty-five. But, he had many resources -- always a home workshop. We moved out of Oak Ridge up on Chestnut Ridge in the Claxton community.

STOW: Sure.

MASKEWITZ: We had fifty-seven acres and he had a big garden. So, he was a happy man. We moved back into Oak Ridge when his health began to fail.

STOW: I see.

MASKEWITZ: And, I lost him in 1998.

STOW: I'm sorry.

MASKEWITZ: So, for the first time in my life, I live alone. But I keep my home because my three children and their spouses -- they're in Florida, Block Island, off the coast of Rhode Island, and Maryland. And, they often come home and bring my grandchildren.

STOW: You've left a significant imprint on the history of ORNL obviously. We're talking with you because this is the 60<sup>th</sup> anniversary of the Laboratory.

MASKEWITZ: Oh, yes.

STOW: In another twenty-five years, Lab leaders and publications people will probably look back as they celebrate ORNL's 85<sup>th</sup> anniversary, and in another forty years, they'll look back when the celebrate the 100<sup>th</sup> anniversary. What if your name should come up forty years down the road? How do you want to be remembered?

MASKEWITZ: As somebody who understood her job and did it.

STOW: Yes.

MASKEWITZ: What else? I believe in nuclear energy. I think it's the greatest boon that mankind has had in our times.

STOW: Well, we've got to use it more, there's no question there.

MASKEWITZ: And, there is a source in every research hospital in this country.

STOW: Yes.

MASKEWITZ: Nobody's afraid of it, because it's used for medical purposes, for [diagnosis and] healing. And, the nuclear power plant -- the nuclear power part of it, as far as I'm concerned, will come up again.

STOW: It has to.

MASKEWITZ: I do hope they push and realize fusion energy, because it promises to be the cleanest and the safest fuel in the whole world, and I want to see it completed.

STOW: Why do you think the general public is so fearful of nuclear energy?

MASKEWITZ: Ignorance [about the risks of radiation from uranium fuel]. It's something they cannot see, feel, or touch, and it's new.

STOW: But, you can see a hunk of coal.

MASKEWITZ: And the media. Right. I'll never forget giving a speech at a conference in Virginia, where the nuclear submarine base is.

STOW: Yes, Norfolk.

MASKEWITZ: Yes, Norfolk. And, the day before I came, there had been demonstrations all over town. There was garbage everywhere from so many people who had come [to protect the construction of] a nuclear power plant forty miles up the river. And, after I gave my speech that night, there was a reception. And, there were people whispering to me that they worked in the nuclear submarine program there, and that they closed off streets in Norfolk to move radiation sources all around, and nobody was afraid of that. But they were afraid of a nuclear power plant forty miles up river. That was the strangest thing to me.

STOW: Yes, we've made a terribly bad effort in this country to educate people about nuclear power.

MASKEWITZ: We're beginning to, I think.

STOW: Yes.

MASKEWITZ: In small ways. Hopefully they'll do it through the schools, through the earliest of the science courses in the lowest of the schools. But, I've been in almost every research reactor

center, looking at their reactors, climbing o past forty years. I don't think that if I went through a full-body counter here, I'd show more radiation than John Q. Public anywhere.

STOW: No, I mean, John Q. Public generally doesn't realize that we're all radioactive.

MASKEWITZ: Right, right.

STOW: Carbon-14, potassium-40, and other isotopes.

MASKEWITZ: Right, right.

STOW: You say that you've crawled under and climbed over many reactors, and you've been all over the world. What part of the world have you enjoyed the most during your travels?

MASKEWITZ: To go into the research institutes where they know you already has always been wonderful.

STOW: Yes.

MASKEWITZ: Because [many institute people] meet you, work with you, and wine you and dine you, I have no favorite. If I went on vacation, I think I'd like to go again to Italy, because it's so warm and friendly and the food is good. But I've fairly enjoyed everywhere I've been. There are some areas that are far more primitive than others, but it was of great interest to me to see how people lived in those areas.

STOW: Sure.

MASKEWITZ: For instance, when I first visited China, the Chinese gave you the best they had. But, the best was none too good. The same was true in the Soviet Union.

STOW: Certainly.

MASKEWITZ: They'd take you, and as you got to know people, [they invited you to visit them] in their cramped quarters. And everybody wanted a little piece of land out of the city, where they'd grow fruits and vegetables. So, I've been through their little dachas. But, to me, the most satisfying and the most important thing is meeting people, and believe me, they're the same wherever they are.

STOW: We just look different and talk differently.

MASKEWITZ: Right, right.

STOW: Is there something that you want to get in here?

MASKEWITZ: I want to tell you a story that I really enjoyed.

STOW: Okay.

MASKEWITZ: The first time that I visited the Soviet Union, at Obninsk, the Soviets walked everywhere, although we had to walk when a car was dawdling along the street [waiting to pick us up].

STOW: Yes.

MASKEWITZ: But they drove me to their house of culture for dinner and a party for all the scientists who were doing radiation transport and shielding. And, the little man didn't go with us.

STOW: (laughs)

MASKEWITZ: But, while we were having a party, next door there was a loud noise -- lots of male voices. And when we left our room, out came all these strapping young men, all still talking and obviously a little bit...

STOW: Tipsy?

MASKEWITZ: ... "in their cups," yes. And, one of the scientists, my host, asked them what was their occasion for partying. They said they were celebrating because they had just passed their English language test. So, I asked in a loud voice, "Who here can speak English?" Well, they surrounded me, and they walked to my hotel with the people who were with me -- all the way -- and they couldn't believe that I was an American visitor to Obninsk.

STOW: Yes.

MASKEWITZ: They kept saying, "You're lying." (laughs) And, my host assured them, "Oh, no, no." And, at that time, in 1968, the Democratic convention was being held in Chicago, where young people were protesting the war in Vietnam.

STOW: The riots and all that.

MASKEWITZ: And, they kept asking me, "What's wrong with your young people?" And, I would try to answer, and my host would interrupt because he thought [their repeated questions] would offend me. When we got to the hotel, I had this great cortege of people with me. My host took me to my room. The next morning he was laughing as he said, "These young boys went into the public garden, gathered an arm load of flowers, came back to the desk of the hotel, and insisted on seeing the American woman to give her the flowers, and the hotel had to call the police to make them go away." (laughs)

STOW: Oh, my goodness!

MASKEWITZ: But, the [Russian youths] were so eager to communicate with the rest of the world. That was thirty-five years ago.

STOW: Yes. And, of course, the Soviet Union was a backward country.

MASKEWITZ: Right, right. I also was invited to South Africa. And I went there the day after I retired from here.

STOW: I see.

MASKEWITZ: And, this was before there was any rapport between the South Africans and the Americans.

STOW: Yes.

MASKEWITZ: And, I was the guest of their electricity-generating agency and of their atomic energy commission, which had two laboratories set up -- one less restricted and one completely restricted. But, they took me on a tour of the completely restricted one and the question I got was [whether my visit] there was a signal from the U.S. government [of its interest in lifting restrictions on the apartheid government and establishing a diplomatic relationship with South Africa]. And, my answer was, "Oh, no. I'm here as a private citizen, by invitation of your government, and I do not speak for the U.S. government."

STOW: Well...

MASKEWITZ: But, they were so longing to have the restrictions lifted. Now, apparently, the apartheid business is a thing of the past.

STOW: Anything else you want to add at this point?

MASKEWITZ: Well, I'll tell you -- the creation of nuclear institutions in this valley where once poor farms were not doing well anymore -- was one of the finest contributions of the U. S. government, I think. And, at the conclusion of dropping those bombs on Japan, the [decision to redirect] all research locally, for the benefit of mankind, is a gift.

STOW: The Manhattan Project was an incredible undertaking.

MASKEWITZ: Oh, yes.

STOW: And, of course, we couldn't do it today.

MASKEWITZ: Right. And, Oak Ridge National Laboratory is diversified, pushing forward, basically, for the benefit of us all.

STOW: And, as a result of many people, not the least of which is Alvin Weinberg ...

MASKEWITZ: Oh, yes.

STOW: And, the contributions you've made. So, thank you very much.

MASKEWITZ: Well, all my colleagues during those days were marvelous people.

STOW: Sure.

MASKEWITZ: I'll never cease to admire Blizzard, Weinberg, and Wigner. We used to refer to them as Veinberg and Vigner (laughs).

STOW: Thank you, Betty.

MASKEWITZ: Well, it's been a pleasure meeting you, and long may your career continue here at this Laboratory, as you make your own contribution.

-----**END OF INTERVIEW**-----