

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

OAK RIDGE, TENNESSEE

AN INTERVIEW WITH DR. TOM LINCOLN

FOR THE

OAK RIDGE NATIONAL LABORATORY ORAL HISTORY PROJECT

INTERVIEWED BY

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STOW: Our guest today is Dr. Tom Lincoln, who came here in the early 1950s and was fairly quickly promoted to head of the Medical Department (later the Health Services Division), where he remained for over twenty years. He brings a whole different perspective to our interviewing of the folks for the history of Oak Ridge National Laboratory.

Tom, I see that you earned a degree in chemistry in undergraduate school, and then, of course, went on and got your medical degree. What got you interested in science and then ultimately in medicine? Was there any particular point in your life when you became interested or any person who really excited you about science and medicine?

LINCOLN: Well, I enjoyed “playing doctor” when I was in grade school. But, when I was thirteen years old, I developed type-one diabetes. I then had personal contact with medicine. I think that stimulated me further. And so, I had a desire to become a doctor very early.

STOW: You grew up in Minnesota. Did you come from Minnesota then to East Tennessee?

LINCOLN: Well, I finished medical school and an internship. I began working with a surgeon who needed a family practitioner to help with his general medical practice. I worked with him in Robbinsdale, Minnesota, which is a suburb of Minneapolis. I was finding it difficult, because he didn’t manage his practice very well, and he had very weird hours ...

STOW: Yes.

LINCOLN: ... And, being a diabetic, I needed to eat on time and so on. I was just having all sorts of difficulty, so I decided, “Boy, this is not for me.” So, I began looking, and I saw an ad in one of the medical journals about an opening in Oak Ridge, Tennessee.

STOW: Had you ever heard of Oak Ridge before?

LINCOLN: Oh, yes. Oh yes. And, I contacted Dr. Felton, and he invited me down for an interview. I was offered the job, and I started work here. It just flowed from that.

STOW: Well, that was 1951, if I recall.

LINCOLN: Yes.

STOW: Oak Ridge was still a city that hadn’t evolved an awful lot from the war years. What were your impressions of Oak Ridge when you came down here the first time?

LINCOLN: Well, the security was of some concern. But, otherwise, I was very much impressed by the cosmopolitan nature of the people who lived in the city of Oak Ridge. Their interest in the arts, music, and so forth impressed me. So, I took to Oak Ridge very quickly. There was no problem at all.

STOW: And, you’ve maintained that interest in arts and music. We’ll talk a little bit about that later on in the interview.

LINCOLN: Yes.

STOW: Were you married at the time?

LINCOLN: No. I was a very diligent administrator and physician here at the Lab, but I was not married. I was beginning to recognize a need for more research. I had discussed this possibility with Dr. Sydney Cobb of the University of Pittsburgh. He was interested in doing a research project on the prevalence of mild rheumatoid arthritis in industry. So, he came out to the Lab, and we decided that we would go ahead [with a research project.] He had the money available ...

STOW: Yes.

LINCOLN: ... And the Lab management had approved [our participation in Dr. Cobb's research project]. We decided that we would do a special lab test -- a blood test -- on all the participants, which is called the "latex fixation test." And, we didn't think we could do that with our lab technicians in the Medical Division.

STOW: Yes.

LINCOLN: So, we needed to get a better qualified technician. We were discussing that, and Dr. Cobb said, "Well, we need to get a good medical technologist." I said, "I received an application from one today. Today!"

STOW: Yes.

LINCOLN: "Let me show it to you," I said. And, he looked at it and said, "Wow -- she's terrific!"

STOW: (laughs)

LINCOLN: We contacted her. She came out to the Lab. We hired her. And, I married her about three years later.

STOW: (laughs)

LINCOLN: And, she's been my wife ever since and ...

STOW: You sneaky fellow, you!

LINCOLN: ... We'll celebrate our 50th wedding anniversary in just a few years.

STOW: Is she from the Oak Ridge area or Knoxville?

LINCOLN: No, no. She's from Biloxi, Mississippi. She took her training at Loyola University in New Orleans. But, she worked out extremely well on the job, and it just seemed to fit. I guess she wanted to come, and so it worked out very well.

STOW: What was your job? What was your role in 1951 when you came to Oak Ridge National Laboratory?

LINCOLN: Well, I was hired as a staff physician, and Dr. Felton apparently liked what I was doing. I had expressed a need for special training in occupational medicine. I greatly needed this additional postgraduate training. And, way back then, it was much easier to get money to send people to courses. So, I took a lot of postgraduate courses.

STOW: All right.

LINCOLN: And then, all of a sudden, Dr. Felton decided to leave.

STOW: Where did he go? Do you know?

LINCOLN: He went to Oklahoma and later to the University of California. And, I was promoted to his position of medical director. I'd had no administrative experience. It was all brand new. I had seen what he was doing, and I liked what he was doing. So, it was a natural progression for me to go along the lines that he was doing.

STOW: How large was the medical department at that time?

LINCOLN: I think we had around twenty employees. For a while there were just two physicians, but it grew from there. After I became medical director, it expanded considerably.

STOW: What was the principal reason why ORNL had a medical department? Was it for preventive medicine or for screening patients and staff for health problems?

LINCOLN: Well, I think the powers that be were uneasy about the possible health consequences of working in a radiation environment.

STOW: Yes.

LINCOLN: I think they felt it would be logical to have a medical program to reassure and evaluate employees. And so, the managers always supported this department. As it turned out, we did very little in the radiation area. The radiation dosimeters were the responsibility of the Health Physics Division.

STOW: Yes.

LINCOLN: But, Dr. Felton and I both recognized that employees who are comfortable in their work environment and like where they are working do a much better job. Their attendance is better. Their motivation is better. Their productivity is better. The medical department is part of that process. ORNL employees who have concerns and anxieties about their work environment can go to the more-or-less, independent Medical Department for advice.

STOW: Well, did the medical department in the 1950s take a proactive role in bringing staff in for physicals and checkups?

LINCOLN: Not as much. I think I expanded that program considerably. But, I guess, Dr. Felton and I both thought that, because the Lab is located out, shall we say, in the country, it wasn't easy for employees to take off work and run in and see their doctor.

STOW: Family doctor, yes ...

LINCOLN: And, so we provided a personal consultation service. We saw people with any kind of medical complaint you could possibly imagine. We would evaluate them, and we would make recommendations. We treated employees' minor ailments and injuries, so that we could keep them at work. We played a fairly important role in referrals to appropriate specialists. Now, that got us in trouble with the local practitioners sometimes, but I think the Laboratory management and the employees liked that service. They would come to us for a separate opinion ... very often the case. They would say, "My doctor told me this. What do you think?"

STOW: But, that got you in trouble on occasion with the locals.

LINCOLN: Oh, yes.

STOW: Any particular incidents come to mind that you might want to relate to us?

LINCOLN: No. I don't remember any incidents. Doctors soon recognized that we played a very important role in patient referral. I was nominated to and became president of the Anderson County Medical Society. So, that shows some acceptance of what we were doing by the medical community.

STOW: Very much so. Before you ever got here in 1951, were you familiar with the early history of the Lab's Medical Department? Do you know about the first head of the Medical Department?

LINCOLN: I had heard the names, but I really didn't have too much involvement. I think people commented about Dr. Wirth, for one.

STOW: John Wirth.

LINCOLN: John Wirth. And, always very favorably. But, other than that, we were, I think, constantly looking ahead and not looking back.

STOW: I'd come across John Wirth's name in the my early readings, because, in the mid-1940s, the Medical Department had the responsibility for waste management around here and for monitoring all the waste materials. Now, that ultimately went to the Health Physics Division and other organizations after the war. And, by the time you got here in the 1950s, I guess, that was not a responsibility of the Medical Department at all, was it?

LINCOLN: No.

STOW: You were very instrumental in pushing preventive medicine as a concept. Can you expand on that and tell some of the things you did?

LINCOLN: Well, I think my push for preventive medicine developed out of my own personal interests. I realized that if I hoped to survive, I had to control my blood glucose.

STOW: Yes.

LINCOLN: I had to be sure my blood pressure was adequate. I needed to have an adequate diet, and I needed to get exercise. These are things, of course, which are good for anybody.

STOW: Sure.

LINCOLN: I felt that, if we just react to what we see when the patient comes in, we're going to be missing a great deal. We need to do a more comprehensive evaluation. When we find early signs of health problems, such as a slightly elevated blood pressure, some albumin in the urine, or high cholesterol, we could take early action [to prevent the employee from having a heart attack, for example].

STOW: Yes.

LINCOLN: And, we might get to that individual, ten, twenty, thirty years before ...

STOW: Before anything could happen.

LINCOLN: Typically, employees don't present themselves with spectacular illnesses, such as a stroke or a heart attack, until very late in their careers. And, we felt if we got in early, we might be able to have a favorable impact on the eventual outcome.

STOW: So, what were some of the things that you did to actually begin this preventive medicine program?

LINCOLN: Well, we started a more comprehensive, periodic physical examination program for all employees. That was unusual. Typically, that sort of thing was done for executives but not for the ordinary employee.

STOW: I see.

LINCOLN: But, we did it for everyone.

STOW: This would be when, in the late 1950s or 1960s?

LINCOLN: We got started fairly soon after I came. The content of the physical examination expanded over time.

STOW: Yes, sure.

LINCOLN: But, I think we started out fairly soon. I don't remember just how soon it was.

STOW: Early to mid-'50s, then?

LINCOLN: Yes, yes.

STOW: Okay.

LINCOLN: And, we very quickly learned that when you do a periodic assessment, you find out about personal issues that are troubling people.

STOW: Yes.

LINCOLN: About their work, their boss, their marriage -- all sorts of things. So, we began to realize that we had an opportunity to help them either solve their problems or at least take some actions that would help. We had a clinical psychologist on the staff, and the staff physicians would refer individuals to him and try to get them under therapy, if it was necessary. And, I think the employees greatly appreciated this service. They liked what we were doing, and, I think, they gave good feedback to management. And, the managers liked what we were doing because they could see that it helped employees who were having some difficulty.

STOW: You know, you describe a situation back then that is just like our present medical program. I mean, that's the basis for it. I didn't realize that it had gone back 50 years and that we've maintained that approach for that period of time.

LINCOLN: What we were doing was not characteristic, I would say, for most occupational medical programs. We had a much broader outlook. Most health services for private manufacturing and business sites, as well as public organizations, would tend to have very limited programs and might do specific tests that were required because of certain exposures in the environment. But, they didn't do nearly what we did, and they don't even today.

STOW: Did you have pretty much of a free hand to develop the medical program the way you wanted to? Did you get guidance from Laboratory management?

LINCOLN: I just did it.

STOW: Just did it?

LINCOLN: And, they liked what they saw. And so, they generally supported me.

STOW: What went on at other national laboratories -- Argonne, Brookhaven, and so on?

LINCOLN: Well, they had a similar program -- perhaps not quite as comprehensive -- but they all were doing fairly similar things to what we were doing.

STOW: And, were you in communication with your counterparts at the other national labs?

LINCOLN: Yes. We had at least one annual meeting of the medical directors of the various Atomic Energy Commission (and later Department of Energy) laboratories and plants.

STOW: Now, of course, you worked for the Atomic Energy Commission at that point, or at least the Laboratory did. Did you get any guidance on medical health issues from the AEC, or were you again pretty much on your own?

LINCOLN: Not very much initially. Sam Shoup, who was responsible for biological research in the local DOE office, used to come out, and he was very supportive of our program. He was not a physician.

STOW: Yes.

LINCOLN: But, he could see what we were doing, and I think he, in turn, told his management about what we were doing, so there was an opportunity for communication. I got some guidance from Union Carbide, although we were way ahead of what the private part of the corporation was doing [in health services to employees].

STOW: Is that right?

LINCOLN: And, they'd say, "Oh, we can't afford to do that." And, perhaps that was true, but I think they looked on with amazement and wonder at what we were able to do in Oak Ridge.

STOW: Were you able to, in any way, evaluate the effectiveness of what you were doing with regard to the overall health of the population?

LINCOLN: Well, that's one of my big regrets. I was not trained in epidemiology, and I guess I didn't appreciate what it might mean. But, I wish now that I'd had the vision to establish a research program that compared the Lab population that had the benefit of free health services with a working population that had none of these services.

STOW: None of them...

LINCOLN: And, then follow these populations for ten, twenty, thirty years, and compare the outcomes, such as the frequency of various degenerative diseases?

STOW: Sure.

LINCOLN: Do our people live longer? I was not able to do this work, because I didn't fight for it and I didn't personally appreciate the value of such epidemiological studies. It's really never been done.

STOW: Even to this day?

LINCOLN: Even to this day.

STOW: My goodness.

LINCOLN: One of the problems is to find a place that has a terrific program and find a comparable population that doesn't have anything.

STOW: Sure.

LINCOLN: And, to be able to follow them that closely. I think it's still a big problem.

STOW: Well, we mentioned the issues of radiation and health protection with regard to radiation, and you said that there was a health physics organization. I think that was under the directorship of Karl Morgan at that time.

LINCOLN: Yes.

STOW: Did you have interaction with K. Z. Morgan, or with that organization very much?

LINCOLN: Not too much with K. Z. directly. I had a lot of interaction with Jim Hart, who was in charge of the personal monitoring program. I was pleased that K. Z. would come in just like anyone else, get an examination, and discuss medical problems. So, I felt he had confidence in what we were doing. And, I always felt uncomfortable that I wasn't doing enough in the radiation field, but he was doing so much that I just didn't feel the need. And I didn't feel that I had the background. So, we said, "We'll leave that to health physics."

STOW: But, was there much concern on the part of general staff over radiation exposures?

LINCOLN: Not really.

STOW: Not really?

LINCOLN: I think the general public expects that most people are just scared to death of radiation. And, that was just not the case at all. We might occasionally see someone who had some concern, but most employees were impressed by the monitoring program. And they used to complain about how they were restrained -- they couldn't do this, they couldn't do that, and so on. But, we didn't have people coming in complaining that they were worried about their health because they were working with radiation. That was a very minor, very minor part.

STOW: Well now, the other side of the coin was industrial medicine. There was growing concern about the health effects of heavy metals and other hazardous materials. You got a program started to address these concerns early in the 1960s, didn't you?

LINCOLN: Yes.

STOW: Tell us a little bit about that, Tom.

LINCOLN: Well, I had depended on consultation with a professional industrial hygienist at the Y-12 plant, but I realized that this just wasn't adequate. And, in my training, in learning about occupational medicine, I realized that the Lab [faced other potential health threats besides radiation]. So, I decided [to try to get permission to establish] an industrial hygiene department. I went to Laboratory management, and they listened. After a few months of discussion, the managers eventually said to me, "Okay, see if you can find somebody to lead an industrial hygiene department." Well, I had contacts within Union Carbide, and I happened to know this industrial hygienist who was working at South Charleston in West Virginia. He was interested in coming here, he joined the Lab, and he was terrific.

STOW: What was his name?

LINCOLN: Newell Bolton. He established the department and brought in four or five staff. So, the department expanded considerably. I think it was well received by Laboratory management. I think they thought that we were handling the problem adequately. One thing I thought was very important is that we had a very close relationship with the industrial hygiene staff. For example, several of the doctors and Newell Bolton -- and maybe two of the other industrial hygiene people -- frequently had lunch together, and we would talk about mutual problems. We would talk about medical problems. We would talk about industrial hygiene problems. So, we had very good communication. I think that communication was of great value. When the industrial hygiene department was moved to the Lab's Health Physics Division, I don't think they understood the importance of communication. I would wager, at the present time, that the medical staff's communication with the industrial hygiene people is probably much less than it was.

STOW: Were there any particular contaminants or materials here that were of greatest concern from an industrial hygiene point of view?

LINCOLN: Well, beryllium and asbestos were major concerns. But, there were all sorts of chemicals, especially organic chemicals, which some people worried about.

STOW: Yes, and we didn't even realize the toxic nature of many of those chemicals at that time.

LINCOLN: Yes, that's right.

STOW: But, beryllium is one metal that we did recognize as potentially hazardous going back all the way to the 1940s or even earlier. Of course, that was a bigger problem over at Y-12 than it was here. Did you have interaction with industrial hygiene people at Y-12? You said that there had been someone that came over on occasion.

LINCOLN: We had communication. We gave periodic chest X-rays to employees for early detection [of possible lung problems]. We didn't start pulmonary function exams until somewhat later. We did pulmonary function screening on everyone, not just those that we thought had been exposed to beryllium. Of course, smoking and exposures to various other air pollutants can impair pulmonary function.

STOW: Because we're talking about exposures to industrial chemicals and radiation, do you have any feeling at this point in your life that, looking back on your career here at Oak Ridge National Lab and other people's careers, a really dangerous work environment has been created at the Lab? Articles in the newspapers we read suggest that ORNL employees work in a terribly hazardous environment out here. Do you think that from a medical and health exposure standpoint, there's any validity to these suggestions?

LINCOLN: I think not. I can see a reason for anxiety. We have a reasonably aggressive industrial hygiene and health physics program and we control exposures to radiation and chemicals. We just didn't see any [signs of exposure-related health problems].

STOW: Of course, it would take decades perhaps to evaluate that.

LINCOLN: Yes, that's true. We had two cases of berylliosis, but those exposures had occurred actually before the affected employees came to the Lab.

STOW: Okay.

LINCOLN: And, they had pretty heavy exposures. But we followed them and saw to it that they got medical care as good as possible.

STOW: Now, I understand, in talking to people here, that you used to write a column published regularly in the company newspaper about fitness and wellness. Is that right?

LINCOLN: Yes.

STOW: Do you recall what those articles were about?

LINCOLN: Dr. Felton, who preceded me, also wrote columns, so I probably got the idea from him. But, I think, very early, I realized that the one-on-one interaction [between doctor and patient] is not a very efficient way [to educate employees about health]. There's just no way that you can get to thousands of people doing that. You need to communicate with a large group, and the best way is to write. So I started writing articles on [health topics] that were of popular interest.

STOW: Yes.

LINCOLN: I didn't just write about beryllium or radiation. I wrote very little on these topics. I wrote about the common cold, headaches, backaches, and other [common ailments]. And, I think people appreciate information on these common problems. The one thing I treasure is that, when I went to the supermarket with my wife, women would come up to me and ask, "Are you Dr. Lincoln?" When I said yes, they would say something like, "I want to say how much we enjoy reading your articles."

STOW: That had to be gratifying, didn't it?

LINCOLN: It surely did, yes.

STOW: Excellent. You stayed here until 1977, I believe.

LINCOLN: Yes.

STOW: The Atomic Energy Commission dissolved about then and we got ERDA and then the Department of Energy. Were there any impacts on the ORNL Medical Department from this change at headquarters?

LINCOLN: Nothing negative that I can recall.

STOW: Well, any positive impacts?

LINCOLN: I think there was better communication among the various medical programs. They had more meetings and discussions of common problems than there used to be.

STOW: You had a lot of interactions outside of ORNL, too. You were on the National Council on Radiation Protection and Measurements, I believe ...

LINCOLN: Yes, the NCRP.

STOW: ... and other committees and organizations. Can you reflect back on any interactions that went beyond the fences here at the Laboratory?

LINCOLN: Well, there were very few occasions when workers would get contaminated with radioactive materials. So, we had the problem of decontaminating the workers, usually by removing the materials from their skin. In some cases, workers may have inhaled radioactive materials, and the question was, "What should we do with these people?" And, there was really very little in the literature on this. George Voelz, the medical director at Los Alamos Scientific Laboratory, was very active in this area of concern. George Voelz was the chairman of this NCRP (National Council on Radiation Protection and Measurements) committee, and he asked me to be on it. We started developing ways to deal with these problems, and I published a number of papers on. And I worked like a dog for several years, [collaborating] with him, writing papers, and then publishing the NCRP report on the handling of persons contaminated with radioactive materials. And incidentally, unless I'm wrong, that report has been the number one seller of all NCRP reports.

STOW: That's a classic. What other activities did you have that went outside of the fences here, and how did you get involved elsewhere?

LINCOLN: You mean in medicine?

STOW: Yes.

LINCOLN: Well, I helped develop the Tennessee Occupational Medical Association. I was the first president, and I worked a great deal [on leading the organization]. But I enjoyed it and I think I made a useful contribution. I was on some review committees -- several of them out of the Department of Energy. And, we would go to other laboratories and see what they were doing on these things. So, I did a fair amount of traveling over my career. I got to see lots of different programs, and I'm grateful to the ORNL management for actually encouraging me to participate in these. I was on boards of directors and I was on committees, and these positions gave me an opportunity to find out what other people were doing and to introduce them to what we were doing.

STOW: You mentioned management --does any particular person in management come to mind who was most supportive of you?

LINCOLN: I think Alvin Weinberg was the ultimate supporter. I reported to Mansell Ramsey ...

STOW: Yes. I've heard that name.

LINCOLN: And, he was always supportive. I didn't have too many wild ideas. I was usually fairly conservative, and I was a fairly cautious person. I knew I had to sell what I wanted, so I didn't go in with a wild idea and be upset that they didn't approve it immediately.

STOW: Sure.

LINCOLN: I would say my relationship -- or at least I thought so -- was very good with management. Well, there may be times when I would go home mad about something, but I think that's true of everyone.

STOW: Sure.

LINCOLN: But, for the most part, I was pleased by what I was doing.

STOW: Did Alvin Weinberg leave you pretty much alone, or did he come down and actually snoop around the Medical Department and try to figure out what was going on?

LINCOLN: He didn't snoop around, but he came to me as a patient.

STOW: Yes.

LINCOLN: So, I had a chance to ...

STOW: Was he a good patient?

LINCOLN: Yes. Yes, yes.

STOW: Good. Well, you must have done well by him because he's still doing okay. [Alvin Weinberg died in 2006.]

STOW: You left here in 1977 and went with Union Carbide. Tell us a little bit about what caused you to leave and what happened when you went with Carbide.

LINCOLN: Well, I was ambitious.

STOW: All right.

LINCOLN: And, the medical director for the Union Carbide Corporation was getting near retirement. And, they decided ... and I was particularly pleased ... because, as far as Union Carbide was concerned, Oak Ridge was very much on the periphery. It was not like private industry.

STOW: That's right. Yes.

LINCOLN: But, they decided to promote me. So, they offered this job. I went as an associate corporate medical director with the idea that as soon as he left -- my predecessor left -- I would become corporate medical director. And, you know, I would be a fool not to respond to that opportunity, so I went. But, my years at the Lab were ten times more satisfying than they were after I got to corporate headquarters.

STOW: Now, this was where?

LINCOLN: In New York City.

STOW: New York. Yes.

LINCOLN: Initially in New York and then they moved to Danbury, Connecticut.

STOW: All right. What made such a difference between your years at the Lab and your years at Carbide headquarters? You say that it was so much more rewarding.

LINCOLN: Well, it was much more difficult to sell [ideas for health programs]. The corporation was organized so that there was a lot of local plant management responsibility. Each manager was a power unto himself. And, the amount of work that came in from corporate headquarters [was huge]. There was always resistance. And, it was a struggle getting support. I had to sell, and I had very little clout.

STOW: Okay.

LINCOLN: Now, at the Lab here, it was similar, but I think I had much more clout, and I had much more management support than I ever did in the private part of the corporation.

STOW: Of course, you were in a smaller arena, too.

LINCOLN: Yes, right. Yes.

STOW: So, you could have more impact, of course.

LINCOLN: Yes.

STOW: Well, you must have liked East Tennessee, because you came back here, didn't you, in 1986?

LINCOLN: Yes. Well, the corporation was in trouble. They'd had this Bhopal disaster [in India], and the financial situation wasn't good. I could see the handwriting on the wall. And, I was in a position that I could take retirement.

STOW: Okay.

LINCOLN: And, my wife will tell you that I got an inquiry from Oak Ridge Associated Universities. They were wondering if I would be interested in coming back to Oak Ridge. And, I said, "Yes!" And, I accepted the offer without even talking to my wife! Oh, she was unhappy because she liked the New York environment. But, we came back. But I think she likes it here, too. We get a chance to go back to New York to enjoy the opera.

STOW: There's one thing I meant to ask you earlier, so I'm going to jump backwards a little bit.

LINCOLN: Okay.

STOW: I just recently read a book called *The Plutonium Files*, which deals with experimentation on human beings and injections of plutonium, some of which went on in the city of Oak Ridge, not here at the Laboratory. When you were medical director here in the 1960s and in the late '50s, were you aware that this experimentation was under way on human beings?

LINCOLN: I don't remember. I wasn't involved. I can say that.

STOW: I assumed that.

LINCOLN: But, I might have had some contact with some of the medical people at ORINS (the Oak Ridge Institute of Nuclear Studies, predecessor of ORAU), but I don't think I had any particular concerns about how it was being done. What I know now, I think, would have [made me] more concerned. But, I think that's the evolution of research.

STOW: Well, I think we all fall in that category. Yes. But, you didn't have any active knowledge [about the use of radiation for human experimentation] at the time.

LINCOLN: I don't remember that I did.

STOW: Okay, fine. I ask it only because I just recently read the book, and there are detailed descriptions of the experiments that went on at ORINS and in the City of Oak Ridge. It's pretty frightful to look back on that nowadays. Speaking of looking back, as you look back over your career, principally here at Oak Ridge National Lab, but also with Carbide, what is the single most gratifying accomplishment that you've been responsible for and that you are really proud of?

LINCOLN: I think the orientation to prevention is my greatest accomplishment. Way back then, there was almost no interest in prevention in the practice of medicine. The patient came in with a complaint, and you tried to make a diagnosis and treat it. But, as far as preventing future [health problems], there was very little interest or concern. And, I think I established that philosophy here. And, it probably still prevails.

STOW: It still does, of course. We just recently, within the last year or two, actually built a fitness facility here, which ten years ago, would have been out of the question. But there are Stair Masters and walking machines and everything like that, specifically for preventive medicine. So, yes, your philosophy has lived through the years and thrives right now.

LINCOLN: I remember I hired a female physical fitness person who started the fitness program.

STOW: Well, now we know where it came from. Now, let me ask you to look back over your career. Is there anything that you wish you'd done that you didn't have a chance to do, or that you tried that didn't work out?

LINCOLN: Well, the main thing I regret was that we did not [collect hard data for determining whether our preventive medicine program at the Lab] had an impact on survivability. I guess when it comes to looking at dollars, well, I'm not sure. We were interested in preventing disease, but I don't think we quite realized that we were having a favorable impact on productivity, attitude, and morale. And, we didn't quite realize that the local management felt that this was very important -- that we were doing a very important job. That's really what they wanted.

STOW: Sure.

LINCOLN: They were probably not interested in long-term survivability. When people retired, you know, that's their problem.

STOW: Yes.

LINCOLN: We want to keep them as productive as possible, until they retire, but when they retire, we'll pay their retirement...

STOW: They're on their own.

LINCOLN: They're on their own. I probably shouldn't mention this, but if you take a very hard look, the people who developed the health insurance programs don't want people to live longer.

STOW: Of course they don't.

LINCOLN: They're expensive.

STOW: Yes. They get more expensive every year, don't they?

LINCOLN: And, the longer they survive, even though you had a very good prevention program, they begin to have more and more medical problems, so they may be more expensive. So that... I could see ... I don't accuse anyone of having this attitude, but I think it would be not surprising if they did say, "We're interested in keeping productivity now."

STOW: Yes.

LINCOLN: "And, we're not going to worry about twenty or thirty years from now." And, that... I wish I had some hard data to say that we had an impact on that.

STOW: Well, you have to know that you did have an impact, but it's one of those things that you ... it's a gut feeling, rather than a ... quantitatively supported there.

LINCOLN: Yes. Yes, yes.

STOW: You associated with a number of premier scientists and engineers and I'm sure, medical professionals over your career. Is there any particular person who stands out in your mind as someone who has influenced your career or the direction of your thinking, or for whom you have really great respect and admiration?

LINCOLN: There were so many people that I came in contact with whom I admired, but I can't think of any one person.

STOW: Okay. Well, I don't want to put you on the spot there.

LINCOLN: If I thought about it for a while, I could probably come up with a name.

STOW: You've recently written a book, I understand.

LINCOLN: Yes.

STOW: Tell us a little bit about why you wrote that book and what the audience is.

LINCOLN: Well, I've been a type one diabetic now for 63 years.

STOW: All right.

LINCOLN: The treatment for type-one diabetes is taking insulin to regulate your blood glucose.

STOW: Sure. Yes.

LINCOLN: And, it's very difficult to get it exactly right. On the one hand, your blood glucose is too high. On the other hand, your blood glucose gets too low.

STOW: Yes.

LINCOLN: That's called hypoglycemia.

STOW: Okay.

LINCOLN: And, that produces symptoms. It slows down your brain function. When you're early in the course of diabetes, when you get hypoglycemia, you start sweating and feel shakiness and other obvious symptoms, but those disappear with time. It's mainly an impairment of your brain functioning. That's why you have to be very careful when you're driving while hypoglycemic. Well, Dr. John Eaddy at the Family Practice at the University of Tennessee was also a long-standing diabetic.

STOW: Diabetic, yes.

LINCOLN: We were at some meeting, and he happened to be sitting across the table. And, he somehow knew I was a diabetic and he said he was a diabetic. So, somehow, during our conversation, one of us said, "We ought to write or do something about educating people on hypoglycemia. Okay, let's do it."

STOW: Okay.

LINCOLN: And so, we started writing a book. And, it took a long time.

STOW: When did you get the idea?

LINCOLN: It was shortly after I came back.

STOW: You mean, to go with ORAU?

LINCOLN: Yes.

STOW: Okay, so it was '86, '87, or ...

LINCOLN: Yes. I did a lot of the literature searches and the initial writing. He was still very busy with his practice, but he was very good. He had many ideas and would read the manuscript. We worked together very well. I think I was very lucky to have such a person to work with.

STOW: Okay.

LINCOLN: It took us about eight years to complete the book, and it was eventually accepted by the American Diabetes Association. It's now one of their basic educational books.

STOW: And, what's the title of it?

LINCOLN: *Beating the Blood Sugar Blues*.

STOW: Hey, that has a bit of alliteration to it.

LINCOLN: Well, we didn't like that title at all, but the editor said, "We want to use it." So, you know, we didn't have any say. And, I guess it was attractive."

STOW: And, has the book sold well?

LINCOLN: Yes. I don't know what the latest count is ... it was about 15,000 copies the last I heard, so, that's not too bad.

STOW: I see. Okay. Well, you've taken on a new career I understand, or at least a second vocation, if not avocation. Opera?

LINCOLN: Yes, I'll admit I am an opera fanatic. I've always been interested in music. And, when we were in New York, we attended the Metropolitan Opera. We had season tickets and did a lot of other things. I have a large collection of opera music on compact discs. And, when the Oak Ridge Institute for Continued Learning ...

STOW: ORICL.

LINCOLN: ... got involved in teaching courses on music, I was asked if I would be interested in conducting one of these courses. And, I thought, "Well, you know, that might be fun."

STOW: Sure.

LINCOLN: I've taught three courses on opera and now I'm preparing to teach the fourth one. I spend a lot of time at it. I'm an example of the Japanese proverb, "To teach is to learn."

STOW: Yes.

LINCOLN: I have found ... and it's wonderful. If you have to teach, you really have to learn.

STOW: You'd better know the subject.

LINCOLN: You'd better know the subject.

STOW: Absolutely.

LINCOLN: And, I found teaching opera to ORICL classes very satisfying, very enjoyable. And, I think there's been interest. I've had plenty of students and they seem to enjoy it, and I'm continuing to do it.

STOW: You teach but you don't perform, right?

LINCOLN: No, I'm not a musician.

STOW: Okay. But, this goes back to your early interest. You said that one of the things that attracted you to Oak Ridge was culture, art, and so on.

LINCOLN: Oh, yes. I was active in the Oak Ridge Civic Music Association.

STOW: Okay.

LINCOLN: I was president of ORCMA. I was head of the chamber series. I was very much involved in the concerts in Oak Ridge before we left to go to New York. So, I had a lot of personal contact and lots of involvement there.

STOW: Is that the Oak Ridge Symphony Orchestra that ORNL biochemist Waldo Cohn [founded, conducted, and played cello with]?

LINCOLN: Yes.

STOW: What was your role? What did you do in the concert area?

LINCOLN: Well, I mainly arranged for guest artists [to play with the Oak Ridge Symphony and for string quartets to perform during the chamber series].

STOW: All right.

LINCOLN: And, I had to arrange for the receptions that were held after the concerts. In the chamber series, for example, if you have a reception at your home, you get to meet the musicians and get a little insight into what they're like, and so forth.

STOW: Did you arrange the Isaac Stern visit here?

LINCOLN: No, I don't think so.

STOW: I've read about the famous violinist coming to Oak Ridge and performing here.

LINCOLN: I remember I attended that concert, but I don't think I had any involvement.

STOW: All right. So, you've had a long-time interest in arts and music, and so on.

LINCOLN: Music, yes.

STOW: And, now you're full-time hobby involves teaching ...

LINCOLN: Yes, yes, yes.

STOW: ... and learning about music. Is there anything that we haven't touched on that you think we need to discuss?

LINCOLN: Well, when times get bad, every manager is looking for ways to save money.

STOW: Yes.

LINCOLN: I would caution them that cutting back on their medical program is not a smart thing to do. They may not realize it, but they're getting more out of their program than they may be aware of, and they should think carefully before cutting it back. Now, if they find that their medical program isn't doing what it used to do, then they should do something about it. They're managers. If it's not functioning like they think it should, they should get somebody else to manage the program. But, don't just reduce it.

STOW: There are intangible benefits out there.

LINCOLN: Yes, yes.

STOW: That either you never will see or realize for years, decades or whatever.

LINCOLN: Yes, yes.

STOW: If you'd been able to go back and quantify the effectiveness of your preventive medical approaches, we'd have a benchmark today ...

LINCOLN: Yes, yes.

STOW: But, unfortunately, we weren't able to do that.

LINCOLN: Okay.

STOW: Did you think of anybody yet, who greatly influenced you?

LINCOLN: No, I can't. I'll have to think about that some more.

STOW: Can't think of a single person? That's fair enough. Okay.

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