Interview with Dr. Robert Carl Liimatainen
August 10, 2014
L'Anse, MI
Part 1: Bob Liimatainen Youth and Early Career

Kathryn Johnson (KJ): Good afternoon. My name is Kathryn Johnson. Today is August 10, 2014. I'm in L'Anse Michigan, about to conduct an oral history interview with my wonderful grandfather, Dr. Robert Carl Liimatainen. Grandpa Bob, would you please spell out your full name?

Robert Liimatainen: Yes, last name: Liimatainen, L-I-I-M-A-T-A-I-N-E-N. The name is of Finnish family origin.

KJ: And what does the name mean?

RL: The Liima comes from a Finnish word for, it's a tar or pitch from pine trees. Pine trees have a kind of sap which was made in Finland and still is, into a glue or adhesive, for example in boat building, and so that's where the word Liima comes from. It is the diminutive - like "Johnson would be the son of John". Liimatainen would be the son of Liimatain.

KJ: Great. And can you tell us where and when you were born?

RL: I was born in Detroit, MI, Harper Hospital on October 31, 1929, which is Halloween. My folks were there, my mother, Kathryn Waisanen-Liimatainen, and my father, Carl Gustav Liimatainen. It was the Depression years and economic poor-times and they were both working in Detroit at the time for about the first two years of my life. Then we came back here, up north to the Upper Peninsula of the Michigan, by the shore of Lake Superior where I was raised through my educational years.

KJ: And what is the name of the town that you moved to, when you came back to the Upper Peninsula?

RL: It was in Pelkie, Michigan which is about five miles west of Baraga, at Highway M38 by the Sturgeon River. We lived in a small, basically a hut. It was called a tar paper shack because they had a lot of tar paper that went into its construction. And we went there because my Dad, Carl's parents, we called them Ukki Liimatainen and Mummo, who had come from Finland, they had a farm in Pelkie right on the Sturgeon River where they grew cabbages and had a dairy farm. And when I was a teenager, I used to help them on the farm, for example harvest hay in the autumn, we called it the hay making season.

KJ: Were you ever paid for that, for those chores that you did?

RL: No, not to my knowledge
[both laugh]

RL: Then from Pelkie we moved to Aura, A-U-R-A, here about ten miles north of L'Anse, by Lake Superior. And there my dad and neighbors built the home where I grew up, and it's right across the road from the Aura Lutheran Church and on my mother's side of the family, the Waisanen's, there's Waisanen Road in Aura and they had also a dairy farm and I also used to help them in the summer with

various chores around the farm such as hay-making.

KJ: Do you remember how old you were when you moved to Aura?

RL: Yes, I was four years old. So that must have been, four plus twenty-nine, 1933.

KJ: Okay, and who built the house in Aura?

RL: Well my Dad and we had local help. Two brothers, Laurie and Arnie Kilpela. They were good carpenters and a lot of neighbors were very kind and helped, but my Dad did most of the work. And we had a sauna, an old log sauna in the yard and that was our main bathing facility.

KJ: And was there a tar paper shack in Aura as well? No?

RL: No. no, it was a regular frame house with boards and lumber and wood siding and it was heated by a wood stove in the kitchen, my mother used to cook with the wood stove. And dug a well, a water well for good water and so we had everything we needed, and it was a few years we were there when the electricity came. The R.E.A., which stands for Rural Electrification Association, brought in electric power lines to Aura so that was a big event to get electric lights and electric power!

KJ: And did your father play a role with that? Was he active in the REA?

RL: Yes, indeed he was. He and my Uncle Ted Waisanen, my mother's brother, were active in the REA in getting the REA to come to Aura in the first place because the farmers had to make their own electric light poles to put up the transformers and hook up the power lines, and the electric company in those days was commercial and they said it did not pay for them to bring the electric power lines into Aura because there weren't enough customers, and that they'd lose money. So, this REA is a cooperative, basically. And my Dad, Carl Liimatainen, was one of the original secretary-treasurers on the Board of Directors of the REA for I think, maybe twelve years at least.

KJ: Do you know if he was paid for that position or was that all volunteer?

RL: Well it was paid but they got expenses, most of the meetings were held in Ontonagon which is near the Porcupine Mountains, west of there. And he got paid mileage for going to the meeting and a modest fee for the meetings. I'm guessing maybe it would have been maybe twenty-five dollars, or maybe something like that, just for expenses.

KJ: And what other kinds of work did your Dad do to support the family?

RL: Well he built a garage and he was very handy mechanically and so he got a supply of tools, welding machines, power drills, and a forge and he repaired cars. And farmers then had tractors and trucks and if they broke down he fixed them. So that was his business and then we had a Standard Oil Gas Station where people came to, it was the only one in Aura, they needed gas for their cars or tractors. In the wintertime, anti-freeze, we would service and they would pay. I remember we had a gas pump that was hand-pumped with the glass gauge on it and gasoline was twenty cents a gallon, so customers gave a dollar and they got five gallons of gas. I helped out with that, I pumped quite a few, probably hundreds, maybe thousands of gallons of gas.

KJ: And were you paid for your assistance there too? That was more free labor for the house?

RL: No, no, no. Yeah, it was my contribution to the family.

KJ: When you think about some of the chores that you had to do around the house, and these various jobs for your parents and grandparents, how did they compare? What were some of your favorites or which were some of your least favorite?

RL: The least favorite was piling wood for the winter. My Dad and I, we used to go in the woods back of the house in Aura and cut down trees by hand saws and there were no power saws in those days, and then haul the logs by the house and then they had a small portable sawmill cut them up into chunks, probably a little over a foot long. And it was my job to pile them into what's called cord-wood for the winter. So we would have dry wood to burn in the stove to heat the house and the sauna. I did not like that chore. But otherwise, I helped my Dad in the garage and as I said, in the gasoline station and I kind of enjoyed those. Probably my experience helping my Dad in the garage with the machinery and things mechanical, I decided to go into engineering after graduating from L'Anse High School in 1947. I got a scholarship, I attended Michigan Technological University in Houghton, Michigan, which is about thirty-five miles from here and got my Bachelor of Science Degree in 1950.

KJ: Professor Gabe Logan from Northern Michigan University just joined us and he has a question for you.

Gabe Logan (GL): Going back to your least favorite chores, how would you get the wood from the woods to the house?

RL: Yeah, good question. My recollection is the neighbors had a team of draft horses with a harness and either a wagon or a sled. They'd put the, we called them stringers, the logs on this sled and the horse pulled the sled to the yard. So that's how we got them.

KJ: So, going back to your childhood in Aura, you mentioned you went to school in L'Anse, was there ever a school in Aura that you attended?

RL: Oh yes, that's a good question, I'm glad you asked. Aura had a one room school then and I went there from kindergarten to the sixth grade, and the teacher's name was Ms. Mary Jackson. She was very good. And she in fact stayed, she got room and board staying at our house in Aura. And my Mother and Dad used to, either one of them, get up early in the wintertime to walk to the school before the kids came and to start the fire in the school room so the school room would be warm when the kids came in the wintertime. And a lot of our family members, my uncles Fred Waisanen and Carl Waisanen also went there to the one room school and they all went onto higher education and indeed became college professors.

KJ: That must have been quite a great school to have there in Aura.

RL: It was very good, yes. I'm thankful for it and the interesting part was all the kids were in one room so even if you were seeing the second grade, you'd listen to the class for the fifth or sixth graders as it went on, and you could pick up different, by osmosis I guess, what was going on in the more

advanced years.

KJ: Were there more recreation activities built into the school day?

RL: Well, we had a baseball field next to it and when spring and summer came we played baseball, and that was the only facility. But we did have recess, we did have games outside we played, there was a game we tossed a ball over the school roof. One team was on the other side receiving, and things of that nature. And so we just made do with, we didn't have like a basketball court or anything like that.

KJ: What about school lunches? Were those brought in for all the kids or?

RL: No, no. We brought sandwiches in a lunch bucket as I recall.

KJ: And then for the curriculum, oh, we'll skip that. So, do you remember where the school was?

RL: Yes indeed, it's in Aura near the, his name is Mike Roberts, lives there now with his wife and children. So it's from our house, the Liimatainen house in Aura about maybe half a mile, not quite half a mile, quarter of a mile back in the woods.

KJ: So you could walk there pretty easily?'

RL: Yeah, you could walk there, yes.

GL: So this idea of recreations, were there community plays?

RL: Oh indeed, yes. We always had a play for sure at Christmastime. I remember once I was the Santa Claus.
[All laugh]

RL: And it was fun, the whole community came and that was a big, kind of theatrical event of the year. And of course you exchange small gifts and sang Christmas hymns. So that was a fun time.

KJ: Were your classmates mostly of Finnish American descent as well?

RL: All of them.

KJ: All of them? And did everybody speak Finnish at home mostly, and then English at school?

RL: Well, yes. My sister Judy went to the same school, Judy Parks, now lives in Hancock. She was bilingual as I was, English and Finnish. But she had one of her classmates whose name was Antti Lehto, young boy, and he knew only Finnish so I remember my sister Judy helped him to learn English in addition to the teacher, of course.

KJ: Was the teacher bilingual?

RL: No, she was Ms. Jackson, her name. She was American and I think probably of British origin, so she did not know Finnish at all.

KJ: Do you know why she went to teach in Aura, what brought her to this area?

RL: Well, she was from L'Anse originally, she grew up in L'Anse and then she went to, it was then called in Marquette what is now Northern Michigan University, it was called Marquette Normal as I remember. She went there two years and got a teaching certificate and since she was originally from L'Anse, her family, she came back and I guess the job in Aura as a teacher happened to be open and so she became the teacher.

KJ: Wonderful. And then, go ahead.

GL: Some of these teacher contracts from the past are amusing reading to us today. Do you remember, you said that she had, the teachers would have free room and board? Were there any other stipulations with the contract that you knew of?

RL: Not to my knowledge, no, we didn't have a chance to get into that but their Superintendent of Schools in the L'Anse area was a very impressive, tall man, Mr. Sullivan his name was, and about once a month he would come on a surprise inspection and he would always dress in suit and tie and oftentimes he carried a yardstick with him, I remember. [All chuckle] He would walk between the rows, very stern looking and kind of a commanding presence and he'd stay maybe one hour and then he would leave but I always remember him.

KJ: Did you ever see him do anything with that yardstick?
RL: No, never did.
GL: He didn't have to.
[All laugh]

KJ: And so then you went to high school in L'Anse.

RL: Correct, yeah.

KJ: And how did you get from Aura to L'Anse in order to go to school?

RL: Was the school bus, the school bus picked us up every morning about seven thirty, right in front of the house in Aura, and of course, the school bus was full in those days. There were a lot of children in Aura. And some went to Pequaming where there was the Henry Ford School, and others like myself chose to go to L'Anse. It was a little bigger school. And then when school was over it was about three thirty in the afternoon, as I recall, the bus took us back to our home.

KJ: You mentioned Pequaming and Henry Ford's place. Can you briefly describe how your family worked there and had a connection there?

RL: Yes. Yeah, as I said my two uncles, Carl and Fred Waisanen, they went to Pequaming High School and graduated from there, but my mother, Kathryn... in Pequaming is part of the Ford Pequaming Community, it was called "The Bungalow", build for Henry Ford and his family and they often came in the summers from Detroit, Dearborn, Michigan to spend a few weeks in Pequaming and at the Bungalow. And my mother, Kathryn, for at least two summers when she was a young teenage

girl in Aura, worked at the Bungalow, as I guess the French would call it an "Au Pair", but she also did some cooking and she had once made a roast leg of lamb, which Henry Ford had complimented her on, it was apparently very good.

KJ: That's great, thank you. And then, so what were some of your favorite past-times when you were growing up?

RL: Well, my Dad was an outdoors-man, he liked to fish and hunt. And I never was much of a hunter, but I used to enjoy fishing with him. We fished in Huron Bay which is near Aura and then Keweenaw Bay on the other side on Lake Superior. Maybe lake trout, we had a small boat, an outboard motor. In the wintertime we used to go ice fishing and then on small streams I used to catch speckled trout and rainbow trout, especially in the spring when they'd do what they would call runs, they came up the crick and we had to catch them. So, we always usually had quite a few meals made from trout, either lake trout or brook trout.

KJ: And what about visiting with people in the Aura community?

RL; Oh yeah, yes, there were very, I would say Aura had quite an active social life. The Aura Hall was built I believe in 1937, by volunteer effort. And the Aura Hall still exists. There's the annual Aura Jamboree there now which is basically folk music. It was originally called a Fiddlers' Fest. And so, we had, and there was a stage and still is a stage there. There were community plays, theatre, and we played basketball in the hall, and in the wintertime an ice rink for ice-skating and some hockey, and so there was quite an active community, I would say.

KJ: When you attended the plays at the Hall or the theatre events, were those in English or Finnish?
RL: Both.
KJ: Both?

RL: Um-hmm. Yes, mainly in English though. But there were some in Finnish also. And we had a cooperative store in Aura in those days too, a co-op. And that was active, we got all our basic supplies from there like flour, sugar, sausage, cheese, and all kinds of groceries. And plus originally it was the mailbox, all the mailboxes for everybody were in this Aura Co-op Store, so we used to go to there to pick up our mail.

KJ: And do you remember which family ran the co-op store?

RL: Yes, it was the Nygord family, spelled N-Y-G-O-R-D, there still Nygords in Aura. There is Wayne Nygord and his two sons are there, and then Heikinen, Carlo Heikinen, H-E-I-K-I-N-E-N, managed the store for probably ten years at least.

KJ: And were people in the community actual member of the co-op? And did they pay in shares?

RL: Yes, yes indeed. Well, they were called rebates, I remember. There were no dues as such but I remember when they purchased whatever it was, you got a rebate and at the end of the month you'd get a rebate which you could in turn use to buy groceries or a cash refund.

KJ: Nice.

RL: But it was a cooperative, and they used to have meetings, cooperative meetings and, which I remember my father, Carl Liimatainen used to attend also.

KJ: Did your mom ever attend the meetings? Did women, in general, ever attend the meetings?

RL: Oh yes, yeah. Not as much, but they did. I remember that, yeah.

GL: For literature and reading and newspapers, where was the source of your information would come out of?

RL: When I was young, on the Waisanen Farm, on my mother's side was just down the road. My Uncles Ted, Carl, and Fred were very active readers, and they had accumulated books and I used to get books from them to read and return to them. Some were called "Big Little Books", they were thick, you know, so big and maybe about five, six inches. And let's see, they had some classics I remember and even ones as I vaguely remember a Harvard classic book, which I had read. And then, when I went to L'Anse High School there was quite a good library, and there still is here in L'Anse. And I guess I was a bit of a book-worm and at lunchtime many of the kids used to walk downtown and there was a soda fountain and they had an ice-cream cone or a soda. But I went to the library and I think I just about read through the L'Anse Library at the L'Anse Public School.
[all chuckle]

RL: So, I used to enjoy doing that.

GL: Did L'Anse have its own newspaper or was that…?

RL: Yes, the L'Anse Sentinel, we still get the L'Anse Sentinel. I get it every week. It comes out on Wednesdays and it was a growing concern. I think the L'Anse Sentinel has been published for a little over a hundred years, as far as I know. And for many years when both my Dad and mom were living from the Copper Country and we got the, it was delivered, The Daily Mining Gazette newspaper and so those were the two main sources of news.

KJ: Did the Daily Mining Gazette come out of Houghton?

RL: Houghton, yes. Then of course we had the radio, got news on the radio.

KJ: Did Aura ever have its own publication?

RL: No, hm-hmm, nope

GL: So getting from place to place obviously you had an automobile and going into the woods horsepower, but train service?

RL: There was a train. In fact it operated for maybe twenty years. It came from L'Anse and Herman, which is just up the road here up to Pequaming and it went right through Aura. And it carried various supplies into Pequaming. So the railroad tracks, there are still remnants of them there, but the train in L'Anse here, it was called the Milwaukee Road in that there was a train came from Chicago to the

Hancock and Houghton in the Copper Country, so that was the way that people got from here into a metropolitan area like Chicago.

KJ: And the train that ran from L'Anse into Pequaming, was that at the height of Ford's lumbering years?

RL: Yeah, right. Exactly.

KJ: And so did he probably build that?

RL: Probably, that would be my guess, yeah.

GL and **KJ**: [Hrmm]

KJ: And could passengers go on it as well, not just supplies?

RL: No it was a freight train, that was a freight.

GL: Did people ever jump the freight train to get from place to place?

RL: Not to my knowledge, not that I was aware of.

GL: Probably for the best.

KJ: What about safety and crime when you were growing up in Aura?

RL: I think it was basically nonexistent as far as I know. Once, my Dad was fairly sure some tools he had in the shop in the garage were taken, but he knew the man who took it and they never came back. But that's the only event that I'm aware of. But we never locked the doors in the house or the garage. They were open.

KJ: And with the gas pump there nobody ever pumped and didn't pay? That's good.

RL: No, no. And then some people got gas, they call it, on credit. And most of them paid but there's still a few I know for a fact some did it, they never did pay, so.

KJ: Did they ever barter with the gasoline, exchange for eggs or, you know...

RL: No, no. I'm sure there was some of that going on, but I don't specifically remember what we, yeah. The Waisanen dairy farm, I remember I helped my uncles there. They delivered milk bottles to Pequaming residents, and there was some bartering went on there, I remember. Yeah.

KJ: Well let's move on to your university years, when you graduated L'Anse High School in 1947. Then you went to Michigan Tech?

RL: Correct

KJ: So why, what was your application process like, why did you decide to go to Tech?

RL: Well, two reasons, I did have a scholarship, as I said which paid for tuition and books and, but I still had to pay for the room and board and my folks helped me on that. But the second reason was economy. I could have gone to the University of Michigan in Ann Arbor on a scholarship but Tech was closer to home and it just was more economical to go to Michigan Tech rather than the university in Ann Arbor.

KJ: And how big was Michigan Tech at that point?

RL: It had one thousand, five hundred students.

KJ: Wow.

RL: Now, I think it has about six thousand

RL and **KJ**: Yeah.

RL: But it was a very good, highly regarded. It started out originally as a mining school, it was called the Michigan College of Mining and Technology and then that evolved into Michigan Technological University.

KJ: And did you know when you went there that you wanted to major in engineering or did you figure that out along the way?

RL: Yeah, no, along the way. I started out because of the influence of my dad and I started out my first year in Mechanical Engineering but then I took courses in chemistry and I had a very good professor, and I really liked chemistry. So I switched to chemical engineering.

KJ: Was Michigan Tech known for engineering at that point?

RL: Yes, that and mining and geology. Engineering, mining, and geology, those are the three big areas.

KJ: So do you think it would be accurate to say that you were at one of the best engineering schools in the country, did you feel that way?

RL: I would say so, I would say that's the way I felt and that would probably be accurate. Especially in the field of mining engineering, and geology and metallurgy which is part of it, I think. It might have been the premier university, or in the top ten, I'm sure.

KJ: So you were the first in your family to go to university. Was that difficult for you, did you miss home and?

RL: No, no I enjoyed it, it was a good transition. I got a good education out of L'Anse High School, And again, in the areas of math, physics, and chemistry they were my favorite subjects at L'Anse. And it was a rather easy transition to take.

KJ: And would you live there during the summers or would you go home for the summers?

RL: Two summers I went to summer school at Michigan Tech and one summer I came back to Aura.

GL: What was student life like? Did you hang out with the other chemistry kids?

RL: Not much, no. I lived in a, it was called a student boarding house right on College Avenue in Houghton and rented a room. And my roommate was Walter Hill from the Aura-Pequaming area, he was a good friend, yeah. But I pretty much focused on studies. I never was into... I never joined a fraternity but I was elected a member of the honorary Engineering Society, it's called Tau Beta Pi, I became active in that a little bit. But I was not into the social life at the campus very much, perhaps it was a mistake, I don't know. Anyway, that was the way it was.

KJ: So when did you graduate from Michigan Tech?

RL: 1950. Then I got a job courtesy of the Department Chairman. He recommended me to start in the nuclear energy field. I was not aware of the whole atomic energy program as it was called in those days, but as I was fortunate to get a job at the Argonne National Laboratory in the Chicago area. And at first there was a security clearance. The FBI came, I found out later, and they had interviewed people in Aura and Pelkie and I guess verifying, that was the McCarthy era then, they were very sensitive about anyone with left-political leanings or tending towards socialism or communism. And I was fortunate, I got the security clearance and started in the nuclear energy field.

KJ: And what was your first job at Argonne?

RL: Well there was a football stadium called Stagg Field, it was rather historic on the campus, and under the stands of the football stadium, they took over a portion beneath the stands and the seats. And there was a laboratory for nuclear fuel reprocessing. So my first job was right under the Stagg Football stadium in Hyde Park, on the University of Chicago campus.

KJ: And so were you a manager of the...

RL: Not right away, no. But I became what was called a group leader, and then we moved out west to Lemont, Illinois, now it's Argonne, Illinois where the laboratory is located. And I got into the field of nuclear reactor safety, how elements in a nuclear reactor behave under accident conditions like Three-Mile Island which happened later and Chernobyl in Russia. And studying the behavior of the fuel and how much radiation was released and so I was the head of that program. And we did a lot of our work in Idaho Falls, Idaho out west, it was called Argonne West. It was the reactor testing laboratory as an actual nuclear reactor called T.R.E.A.T., T-R-E-A-T, which we could pulse, have a neutron pulse which would melt the fuel elements in water ,and then we would measure the pressure and temperature and how much radioactivity was released, and so forth. And published a lot, I published, I had a total of either author or coauthor of twenty nine papers in peer-reviewed journals and I'm coauthor of a chapter published by MIT Press, it's still a handbook. It's called Safety Information for Technology of Reactors.

KJ: That's impressive, indeed. So rewinding just a little bit back to when you were working

underneath Stagg Field. Who were some of your coworkers?

RL: Well, one was Octave DuTemple, he's from Lake Linden up in the Copper Country originally, also a graduate of Michigan Tech and he became, eventually he left Argonne, but he was recommended to be the Executive Director of the American Nuclear Society, which is the professional society for people in the nuclear energy field. But there were many, probably the most prominent one, and I didn't work too closely with him but I got to know him, Dr. Glen Seaborg. He was from Ishpeming originally, U.P. And he got his Nobel Prize in Nuclear Chemistry, so he was one of the people. And then I just met him once, but Enrico Fermi was considered the father of the first nuclear chain reaction. He was from Italy originally, I did meet him once and heard one of his lectures. But there were a lot of rather distinguished people worked at Argonne at that time.

KJ: And so what was, when you were working there specifically underneath Stagg Field, what was the research goal?

RL: Well try to make nuclear-electric power more safely and the better materials and generally design and avoid these kind of serious accidents.

KJ: Were there any contracts with the military that you knew of?

RL: Yes, I met Admiral Hyman Rickover, he came to Argonne a few times. He was the head of what was called the Nuclear Navy, of the nuclear powered submarines. So and we did one project had a little bit to do with the nuclear fuels which went into submarines.

KJ: Interesting.

GL: So Bob, your research when you were starting out, it sounds like it really was a brave new world.

RL: Yeah.

GL: How has your research evolved to the present? What did it start and carry on, how is it still influencing the field?

RL: Well it started pretty much there, at Argonne and it's expanded now, there are other National Laboratories, one in Oak Ridge, Tennessee, Los Alamos, California...I'm sorry, Los Alamos, New Mexico, the Berkeley Laboratory, which is part of the University of California. So it's expanded worldwide and then we started to work closely with the IAEA, the International Atomic Energy Agency in Vienna, which is a United Nations' agency and it expanded internationally, so it's grown and expanded over the years, but the focus was getting away from the military and into strictly civilian, peaceful applications.

GL: Did you and your colleagues, it almost sounds like it was missionary work. You all sound so committed to the program.

RL: Yeah, we were. Yeah we sure were, yeah. We didn't get distracted very much as I remember. We enjoyed it. I personally enjoyed it, it was kind of our life's work, at least at that time. I lived in Lockport, Illinois where my son Bruce and Kathy (daughter) were born and educated. And then

Wheaton, Illinois Chicago western suburb. And so I learned to like the Chicago area and the suburbs and I feel very fortunate.

KJ: And so at what point did you go on for your advanced degrees? I think it would have been your Ph.D?

RL: Well I was working at Argonne Lab and it became clear to me that I needed still more beyond the Bachelor of Science degree. And I took night and Saturday courses at IIT, the Illinois Institute of Technology in Chicago, on the south side. And a few courses were in fact given at Argonne with professors who came over. And so that's how I completed my Masters of Science degree in 1955 and PhD in 1958 and my thesis topic was vapor liquid equilibrium in the system Uranium Hexaflouride-bromine-pentaflouride. So I worked with...UF-6 is Uranium-hexaflouride and it's the substance that's used in centrifuges to separate the Uranium-235 isotope from Uranium-238 to 235 is the one that fissions and gives energy.

GL: And so was this an extension of your work, of your first job of safety precautions?

RL: Yeah, exactly. Yes. Yep, sure was. And to handle, it would have been difficult to do the experimental work for my thesis at the university because you need, there were called big ventilated hoods. It's like in a whole room that's enclosed and ventilated and filters and anything so in case of a leak in the apparatus that none of the Uranium-hexaflouride would get out and spread into classrooms or something like that.

KJ: Did you ever experience any kind of leak?

RL: Small ones, yeah. We were tested about every three months in the Health division at the Argonne Lab in those days. They took blood, blood, and urine samples. And once, I don't know if it was a joke or not but one of the nurses told me that they had voted me the man who's urine they most like to analyze.
[All laugh]

KJ: What an honor! But those tests always came back normal? For you and your colleagues?

RL: Yeah. Yes.

KJ: That's good, safety precautions were working well.

RL: Oh yes. Yeah.

GL: I'm intrigued with this concept of going from the Copper Country which was fairly insular to what sounds like an international workforce.

RL: Right, yes.

GL: And what allowed for that transition? The language of science to work with each other or?

RL: I think so. And the department chairman at Michigan Tech in Chemical Engineering, and there

was a nuclear course given as part of the curriculum, he had this connection to Argonne. He was on like the Argonne Board of Control in those days so he recommended some of us, even after I came. Octave DuTemple and I were the two firsts, but I think that was very instrumental in it because otherwise we probably might have gone into the petrochemical industry or maybe work for Dow Chemical or maybe DuPont or something like that.

KJ: How was Argonne funded? Was that an endowment?

RL: The US Atomic Energy Commission, USAEC, it was a government agency and they got their money of course from taxpayers originally, but USAEC funded the Argonne Laboratory. Now the AEC is called the U.S. Department of Energy, DOE, which funds Argonne.

KJ: Okay, and so was your job, when you think of it about in terms of pay and benefits, were you in a career position with the government at that point, and was that, do you think that was a good decision for you?

RL: I think so, yes.

KJ: Compared to going into the private sector?

RL: I would have, I think I'm fairly sure I would have made more money in the private sector with more perks like if I had gone to work, say for Ford Motor Company or General Motors, generally the engineers got a free auto every year, and that sort of thing and higher pay. But I had no regrets. I enjoyed what I did, yeah.

KJ: And how did you fund your PhD? Did Argonne help you pay for that or you paid for it yourself?

RL: No, I did. I paid for it myself, yes. But the equipment, like in the laboratory came from Argonne, yeah, which was fortunate.

GL: Was your work week a forty hour work week, and then school on top of it?

RL: Yeah, I often worked, I put in a lot of time after-hours and weekends I would go in and do some of the lab work, yeah. That was quite a strenuous schedule.

KJ: Were there any aspects of your job that you found to be somewhat tedious or?

RL: No, I never did actually.

KJ: Cleaning up the lab, you know?

RL: Well we had help in that area. But yeah, that was a great place to work.

KJ: Wonderful. Alright, we've reached almost an hour at this point, so I'm going to take a break and save this file and then we'll pick up in a few minutes with Part Two.

RL: That's fine.

END OF AUDIO FILE PART 1: Bob Liimatainen

START OF AUDIO FILE PART 2: Bob Liimatainen

KJ: This resumes the oral history interview, this is part two. We're continuing with Dr. Robert Carl Liimatainen on August 10, 2014. We left off talking about your career at Argonne, and one of the questions that's been on the minds of family members is: Were you a member of, or were you a part of the Manhattan project, and in what capacity?

RL: Well as I said, I joined Argonne National Lab in 1950 and at that time the atomic energy program at Argonne and especially at Oak Ridge, Tennessee, the Oak Ridge National Laboratory is considered part of the Manhattan Project and the key was then to develop nuclear materials which are mainly used or designated for use in the weapons program. And this area that I first worked on nuclear fuel reprocessing was in that area. In Hanford, Washington it was called the Hanford Laboratory, that's where they purified the nuclear fuel to give the plutonium that went into the plutonium weapons. There are two kinds of nuclear weapons, uranium fission and then the plutonium fission. So the first few years were in that area, then I moved over to this nuclear safety area, so I was for a few years in part of the overall Manhattan Project.

KJ: Were you ever in the Oak Ridge facility?

RL: Yes, yes, quite a few times. We had cooperation between the Argonne lab and the Oak Ridge Laboratory in Tennessee. And again, in the nuclear fuel area. And so we had worked rather closely for a couple years, and people came from Oak Ridge, scientists and engineers to Argonne and conversely, on these cooperative programs.

KJ: Did each one have a separate specialization?

RL: Yeah, a little bit, yeah. We at Argonne were mainly in the nuclear fuel reprocessing side. And the Oak Ridge were mainly in the gaseous diffusion side which is where the isotopes were separated uranium-235 from the U-238, uranium-238.

KJ: So you mentioned the uranium-235, 238 separation earlier with regards to the thesis for your PhD. Was your research then put to use and did that become important at Oak Ridge?

RL: No, I wouldn't say it became important. There was another competing process called solvent extraction, which was done in an aqueous system rather than Uranium hexaflouride (UF 6) which is normally a gas. So in the long run, the solvent extraction proved more economical and technically feasible. So it was, it would have been a back-up. It never became, what you might say commercialized. (Uranium Hexafloride sublimate from a solid to a gas.)

KJ: Okay. And when you were working with people, either directly at Oak Ridge or with these cooperation programs, did everybody know that they were working on military related technologies?

RL: Yeah, oh yes, yes.

KJ: Okay, and was there any resistance or any protest?

RL: Not at that time, no. There sure wasn't.

GL: This is, you're playing such a pivotal role in the shadow of the Cold War here, and Rosenberg, this was probably at the beginning of your career. How did that, did that influence the workforce?

RL: Well I'm sure it just made them tighten up security. They did their espionage work at Los Alamos Laboratory. To my knowledge Argonne never had any problem in that spying or espionage area, but you're right it was in that Cold War context. So we had to be very careful and we had laboratory notebooks, for example, where we kept data from experiments and tests, were all stamped "Secret". And eventually many of them became declassified and open literature.

KJ: And what were the security measures like at work? Did you have to...

RL: Well we all had a badge, it was about the size of, now-a-days a credit-card. But it had your photo and number. I had one of the earliest badges, mine was 1998. A bargain basement number, I got. Before entering, in each building at Argonne we had two security guards, they checked your badge when you went in, and when you exited at the end of the day or if you went out to the cafeteria for lunch, so they were very strict. And at night they had a, each office had a big file cabinet, like about the size of a refrigerator. And with combination locks, and if by any chance a staff member left it unlocked, that was a big security violation. Fortunately I never got one, but some of my colleagues did and so you had to, you were very conscious of security.

KJ: And did you have to lock up your notebooks at night too, everything?

RL: Yep, and you could not take them out or take them home or anything like that.

GL: Do you know where you notebooks are today?

RL: Some archives some place, I would say. Maybe with the U.S. Atomic Energy Commission in Washington, D.C. would be my guess.

GL: If I could expand upon this, how did your colleagues and scientists, how did they perceive the Soviet scientists since this is a technological race as well?

RL: Well, we had limited cooperation with them. They were rivals, but I never in my days that I can remember at Argonne had contact directly with the Russians or Soviets. But later on when Argonne became more international oriented with the IAEA in Vienna, we'd start to interact with the Russians then, yeah.

KJ: Was there a sense that technology in the United States was outpacing what was going on in the Soviet Union or vice versa, or did you even know?

RL: About even I would say, yeah.

GL: Did your language skills and your, for lack of a better word, your Yooper heritage, did it ever serve as a bridge?

RL: I would think so, yeah. I knew Finnish and we had, as the years have gone by, some Finnish scientists came. You met one, Professor Pentti Kettunen from Tampere, Finland and he worked at the Lab for two years in the Materials Science area and so then later my final job at Argonne was after I was with the State Department Foreign Service was the manager of International Energy Development programs and I think they came in very handy with, we had quite a few country participants

KJ: Can you spell Pentti's full name?

RL: P-E-N-T-T-I, last name Kettunen, K-E-T-T-U-N-E-N

KJ: Thank you. So back at Argonne, were there ever any politicians who came through on tours? Do you remember anything like that?

RL: Yes. There were congressmen, he was Harris Faywell, he was a Republican from the DuPage County District came through, I remember. And Dr. Glenn Seaborg, whom I mentioned earlier, who was then a Commissioner of the U.S. Atomic Energy Commission, he came to Argonne. And no president ever came, and since I've heard that the Governor of Illinois has come to Argonne, but not many politicians in those days, no.

KJ: So when did you leave Argonne and where did you go next?

RL: In 1966, I joined the U.S. Foreign Service, diplomatic service at the U.S. State Department and so that was my start. And that evolved from a Fulbright Fellowship that I had at the Technical University in Helsinki, Finland where the American Ambassador at a reception told me about this new program, a bureau it was called in the State Department for International Scientific Technological Cooperation. And he suggested that I try for that and they were looking for people who had a background in science and technology, especially nuclear energy. So that is how that got started, I can thank the former Ambassador, his name was Guffler, G-U-F-F-L-E-R, to Helsinki in 1962-63.

KJ: And what was your research as a Fulbright Scholar? What was your purpose there?

RL: Well, it was two-fold. I did give some lectures, mostly in English, a few in Finnish at the Technical Physics Department. And then I did more work in this metal-water reaction field, how molten metals that are used in a nuclear fuel react with water, explosively usually, and release hydrogen. But so, I was in that nuclear safety area.

KJ: So was that your first time to Finland was as a Fulbright Scholar?

RL: Yes, the first time, yep.

KJ: And who, which of your Finnish relatives did you meet at that point, and what was it like being in your parents' country?

RL: Well I...Yeah! It was very enjoyable, probably one of the best years of my life I would say, enjoyable. And my family was there and...well Liimatainen and Waisanen relatives, they're all deceased now, but I saw the homes where the Waisanen family came from in northeastern Finland, Suomussalmi, near the Russian border, and the Liimatainen family in central Finland, not so far from Tampere, Kuopio was a closer town.

KJ: Can you spell the name of that town?

RL: Kuopio, K-U-O-P-I-O- and it was, the actual village is called Vesanto, V-E-S-A-N-T-O, Vesanto Church Village. In Finnish it's [In Finnish] Vesanto kirkonkylän. It's probably something like Aura, mainly rural agriculture. But a lot of small lakes in that area and so I got to see the two communities where our family roots came from you might say.

KJ: And what did you think of Helsinki as a city?

RL: Oh I liked it very much. It was, I made many friends at the Technical Physics Department there at the University. And I just liked Helsinki, it was a nice walking city. I used to like to walk. And good public transportation and I used to enjoy going to the harbor, and see all the boats there and have a cup of coffee and maybe a bakery roll on a bench sitting by the harbor and it was a great place. It sure was.

GL: So you came over there with a working language skill, did you have any language surprises?

RL: Yes. Oh yeah, I had quite a few. I could communicate okay but often it would bring smiles because I had Swedish words mixed up with my Finnish vocabulary, which I had mainly learned growing up in Aura. And I was not aware that they were Swedish, so I rooted them out. Yeah, yeah, yeah.

KJ: At that time were the Finns all still learning Finnish and Swedish in the schools?

RL: Yes, they still are I think. But English has become dominant.

KJ: Uh-hmm. But were the Finns more of proponents of speaking Finnish, rather than Swedish?

RL: Definitely, definitely, yeah. At the Technical Physics Laboratory we spoke...I don't ever recall Swedish being spoken as a matter of fact. It was mainly Finnish.

KJ: So you were in Helsinki for your Fulbright from 1962 to 1963, during that academic year. And that's where you met the Ambassador who encouraged you to apply for the Foreign Service. And then how did your application process go? What did you have to do for that?

RL: Correct, right. Well, there was an exam and interviews, and another security check, and it went well. I waited, I remember, about three months or so and then I enrolled. They sent me for the first three months to the, what's called the Foreign Service Institute. It's still there in Arlington, Virginia. And they knew they had decided they were going to send me to Cairo, Egypt to the American Embassy there and so I learned a little bit of Arabic and generally the history and culture of the Middle East with a focus on Egypt.

KJ: Was that your first exposure to that or had you had...

RL: Oh yeah, first, the first time, Yep.

KJ: You hadn't worked with any Middle Eastern researchers?

RL: No, no, no. Not up until then, so it was an interesting, like a new world.

KJ: Did you get to put in a bid list, did you request Cairo or was that at the bottom of your list or?

RL: No, no. They assigned me. I did not put in any request and there was this opening and a need there. And so they chose me. I probably would have picked Helsinki, Finland if I had a choice!

KJ: Were you nervous about going to Egypt or excited?

RL: No, no I was excited. Yeah, I really was.

KJ: Okay.

RL: It was quite an adventure you might say.

KJ: So you went to Cairo in June of 1967 and you...

RL: Yes, no, no. That was the end of it, I went there to Cairo in, it was in November of 1966.

KJ: Okay.

RL: And then I, it was to have been a two-year assignment but in June of 1967 the Six-Day Arab-Israeli War came and Egyptians broke diplomatic relations and all of us at the American Embassy and including other Americans were there under other programs. We took first a train from Cairo to Alexandria, Egypt, the port on the Mediterranean, and then an U.S. Navy ship brought us to Athens, Greece. And we were in Athens for about a month and a half waiting reassignment, and I was assigned to the American Embassy in Tehran, Iran where I spent the next three years.

KJ: So back to Cairo real quick, what was your job there in Cairo? What was your purpose?

RL: My official title was Science Attaché and we had...Egypt was just starting in the nuclear field. They had a nuclear research reactor, but generally we had several cooperative programs between U.S. government agencies or institutions and the Egyptians. One, the most interesting one was with the Smithsonian Institution. Outside of Cairo, are the three big pyramids you're familiar with them. And the Smithsonian had a project looking for undiscovered tombs in the pyramids. So I was the local rep on that and representing the Smithsonian Institution and the State Department and we never did find anything, but it was quite a project because we had to install special radiation detectors for cosmic rays. It's like x-raying your chest area, you can see the bones. We were using cosmic rays to x-ray the pyramids, the big pyramid.

KJ: Wow.

RL: And the key American scientist was Professor Louis Alvarez from the University of California in Berkeley, and he got the Nobel Prize so he and I worked rather closely together but it was very enjoyable. And one amusing experience is that we had a small wooden building probably the size of a garage, a two car garage, with most of the electronic equipment and the detectors and there's only one door to the building and who was going to keep the key to the door, the Egyptian side or the American side? They were the two. And we finally had to cave in, the Egyptians said they were going to have the key.
[**KJ** & HL laugh]

KJ: Was the equipment all American equipment?

RL: Yeah, all American equipment, yeah.

KJ: Huh. How did the equipment work in kind of layman's terms? How did the project detect cosmic rays?

HL: The detectors, we had put probes, detectors inside of the tombs and I remember I crawled in some of the tunnels. And the detectors were probably about the size of this computer screen and if the cosmic ray would hit them then they would give different signals, but if it was a solid rock, there would be less and if they were dense still less, but if there were open space like a tomb, then there would be more cosmic rays would get in. So, the analogy would be like x-raying a chest.

KJ: Do you know if the Egyptians initiated that project or if the Americans initiated it or?

RL: I think, I'm not sure but I think it's mutual, yeah, because we had to get the permission of the Egyptians for sure.

KJ: For sure.

RL: But I think it was mainly the Smithsonian because the funding for most of all the equipment came from the Smithsonian which gets their funds from the U.S. government.

KJ: Right, so you got to go into the pyramids in places where tourists never get to go.

RL: Oh Yeah. That's right, yeah.

KJ: Were you under security escort in there?

RL: Not then, no, no. Well sorry, take that back. There were Egyptian security guards but no Americans.

KJ: Okay, wow. What was it like being in a tunnel of a pyramid?

RL: Well it's no place if you're claustrophobic.

KJ: You must have handled that well, huh?

RL: Well apparently I did okay, I managed and it was kind of an eerie feeling really.

GL: Was you assignment in Egypt then cut short by the Six Day War?

RL: Yeah, we had to close down the Embassy.

GL: And then you never went back?

RL: No, I have never been back there.

KJ: Did they give you time to pack up your belongings?

RL: Twenty-four hours.

KJ: That's not much time.

RL: No, I lost quite a bit in Egypt.

KJ: Oh!

GL: It was like you have notebooks scattered

RL: Yeah, yeah. But...So that was my experience. And then the three years in Iran, in Persia, I enjoyed that also.

KJ: And which years were those?

RL: 1967 to 1970.

KJ: Okay.

RL: At the American Embassy in Tehran. And again, we had good cooperation in various fields of science and technology, including the early days of their nuclear energy program. We had at the University of Tehran, a nuclear research reactor which came from the United States. And it was used strictly for scientific purposes, medicine and agriculture, biochemistry. And so and then we had cooperation with again the Smithsonian and archeology and the Environmental Protection Agency, the E.P.A in the environment area. And it was quite good, but the Shah of Iran was then the king and it was stable, so it was a very good time to be there, actually. And the Iranian people were very pro-American. And after that I went, I was transferred back to Washington to the U.S. State Department. I was there about a year and then, part of which was in Vienna, Austria at the I.A.E.A., the International Atomic Energy Agency. And then my next post was in Belgrade, Yugoslavia at the American Embassy, also in that we had a very big cooperation, a cooperative program. Back then Yugoslavia had all the Republics, there was Serbia, Croatian, Montenegro, Bosnia-Herzegovina, and Slovenia. In each of the Republics we had specific cooperative programs with laboratories and universities. And the total budget was about eight million dollars, I remember, that was a substantial program. And my office, the Science Technology Office, took care of all of the, you might say administrative aspects; contracts and

budgets and distribution of funds, and biannual, twice a year meetings of...we had joint committees between Yugoslav personnel and Americans who came from Washington, so it was a busy time, but very productive.

GL: Was this Tito, when Tito was in power?

RL: Yeah, Tito, Tito, yep. He was, Marshall Tito kept the country together, yeah. I saw him once at a distance in a parade, but I never got to meet him personally.

KJ: So going back to Tehran, I've heard a couple of funny stories about your time there and maybe you can verify them. I think one involved you constructing a make-shift sauna on top of your roof? Can you talk about that for a minute?
RL: Oh, yes. Sure. Yeah. Living in an apartment building, a nice apartment building, on the second floor, fairly close to the American Embassy. I found out from, I met some Finns who were in their military under U.N. auspices and they told me about a tent sauna, so I ordered a tent from Finland. And got a Finnish stove called a *Kiuas* in Finnish and so I rigged up the tent on the roof of the apartment building with a sauna stove and stones and a bench in there, and took quite a few saunas there.

KJ: What did you heat your stove with? Wood? What did you, make a fire or was it electric?

RL: It was electric actually.

KJ: So you think you were probably the only person in Tehran who did that?

RL: I'm sure, yeah. Maybe in the whole country.

KJ: And did the apartment manager ever have issue with that?

RL: No, no he was nice. He happened to be an Armenian, Armenian-Iranian man and he was very understanding, and took quite an interest as a matter of fact. But one of my interesting experiences was we had a cooperative project which the Shah was very keen on. In the middle of the Persian Gulf there's an island, and it's still called Kish, K-I-S-H. And they had a shortage of fresh water so the Shah decided he would like a desalination plant to take the saline water from the Persian Gulf waters, run it through this de-salting plant, basically distillation-evaporation, and produce fresh, potable water. And on the U.S. Side, the U.S. Department of Interior, they had an office for saline water. And so anyway there were American funds involved as well as Iranian funds. So I was asked to go there to inspect how the project was going, it was under construction then. So the Iranian Ministry of Water and Power furnished a motorboat, a launch, I think it was about twenty-five feet long. And took to the boat to the Persian Gulf port of Bandar Abbas to this Kish Island. And it was about a three hour ride, and I inspected the whole project. It was going well, and then when it started to get late in the day, myself and the Iranian boat driver started to head back to the mainland, to Iran, and he ran out of gas. A classic case of being up a creek without a paddle. And it was hot during the day I remember, it must have been at least a hundred degrees in that open boat. And then it got dark and it got cold, the stars came out and we could see them twinkling. And we could see these big oil tankers, their lights would go on and off with airplanes flying overhead, but nobody saw us or heard us. And we had no sails, no water, no food, literally no-nothing and so we were at the mercy of the elements. And finally, about three in the morning, one of these, they're called Dhows, D-H-O-W-S, from the other side of the Persian Gulf, the

Arabs call it the Arabian Gulf, came and we made all of, the driver and I made all the noise we could and they fortunately saw us. They heaved us a rope and they towed us into Bandar Abbas. So they literally saved us. But we were lucky that waters were quite calm, but it was several hours there, there were big sharks swarming around our boat. They'd come out the water's surface, and it was probably our imagination, but some of them seemed almost as big as our boat. And, but fortunately they didn't come and try to knock us over or anything like that. But that was quite an experience!

KJ: Unforgettable, huh? They don't tell you you'll do things like that when you sign up for the Foreign Service. What did you think of the Persian food compared to what you grew up with?

RL: Oh I liked that. Well, I honestly liked the Persian food. Chelekabob, basically a roast lamb on a spit they grill over fire or charcoal. And with a special kind of rice, called Chelo, saffron rice and then usually vegetables on the side, but that was one of their main dishes. But I liked the Iranian food in general. I sure did. It had more variety and a little more taste than Scandinavian food which sometime tends to be rather bland.

KJ: Alright so just to recap here, we've got: Fulbright Scholar in Helsinki `62,`63; then what did you do after your Fulbright and before you joined the Foreign Service?

RL: Well, I went back to the Argonne Lab. (West of Chicago)

KJ: Back to Argonne, okay. Okay, so you were back at Argonne from `63 to probably `66?

RL: Exactly three years, yeah.

KJ: And then Egypt `66, November of `66 until June of `67 when you had to evacuate because of the Six-Day War between Egypt and Israel. And then from there you went to Yugoslavia? No, Iran. Sorry.

RL: Yeah and then from...oh yeah, Iran yeah.

KJ: And then Iran `67 to `70, and then you were in Belgrade in Yugoslavia from `71 to `74.

RL: Exactly. And then I went to Washington D.C. for a short while, and then my last post in the Foreign Service was the American Embassy in Seoul, South Korea. I was there for a little over three years. And then I enjoyed that also, had very good cooperation. Korea has, it's grown, but they now have over half the electric power in the whole country comes from nuclear-electric power units and we worked closely with them in supplying them the nuclear fuel. And we didn't represent, but we kind of facilitated you might say, the work of American companies like Westinghouse and General Electric and Combustion Engineering Co., who helped to build the power plants for Korea, so we had very good cooperation with them. And I enjoyed that also.

GL: Did that carry over to Japan with their nuclear programs?

RL: Yeah, but Japan was in parallel but I did not have much to do with it. We had a scientist representative at the American Embassy in Tokyo and he handled that part. But I did go to meetings; twice I went to Tokyo. We had cooperation with the Japanese basically in the nuclear safeguard area again, so I did see some of their, quite a few in fact, of their nuclear facilities. But again in the context

just that everything was being done under the framework of the N.P.T., the Nuclear Non-Proliferation Treaty.

KJ: And when you lived in Korea, did you travel around Asia on vacations? Were there any favorite spots?

RL: Briefly, not much actually. I was once, they were actually meetings in Taiwan, Taipei, and that was about it. I didn't, I stayed pretty much in Korea, which was a mistake. On the way back once to meetings in Washington D.C. I remember I stayed for two days in Bangkok, Thailand. That was interesting. I remember all the boats on the canals, but those were the only two places, yeah. (I did get to travel to several places in South Korea.)

KJ: What about when you lived in Yugoslavia and Iran, did you travel around?

RL: Well I saw basically both countries from top to bottom you might say, all the republics, the Adriatic Sea area has a very nice sea coast in Yugoslavia, now part of Croatia, Dubrovnik, and then in Korea I was to the south to Pusan and the Island of Chindo, in fact we brought back a Korean dog with us named Chindo and he lived with us in Wheaton for many years. He was a favorite of Tor's.

KJ: Yeah, I remember Chindo very well. He was a very sweet dog, very protective of the family.

GL: How were your parents and the community back in Aura interpreting these jet-setting, international travels of yours?

RL: Well you know, quite interested and I guess that presumably impressed a little bit, but they were mainly interested in matters here in Aura and L'Anse and the U.P. and Baraga County. I once gave a talk at the Aura Lutheran Church, downstairs there's a social room. I gave a talk and showed some slides on my experience, and it was well attended, I guess a lot of people came from Aura to listen. So they were very interested, but they never made a big fuss about it or anything like that.

KJ: Did any of your brothers and sisters come and visit you while you were at these posts?

RL: Uh, no. They never did.

KJ: And your mom never did either, I don't think, right? No.

RL: No, no, no. And my dad had passed away by then.

KJ: Alright. So then, when you retired from the Foreign Service, that was in 1985?

RL: Yeah. Exactly.

KJ: And then you went back to Argonne again?

RL: Again, I did, yeah.

KJ: That was from 1986 to `88.

RL: Yeah, that's right. I was in their office of International Energy Development programs, and I became manager of those programs. And then I heard through the American Nuclear Society, that in Washington D.C. in the Congress, House of Representatives, they were looking for a person in the Committee on Science and Technology, and I was referred to that by a member of the American Nuclear Society. And I got that job and I was there, I worked as a professional staff member, Senior Adviser on the Energy Subcommittee, and our role was to work in the budget cycle for agencies such as the Department of Energy. We handled the legislative part of it, the drafting of the bills and committee hearings. We had many committee hearings, and some of which we held at the Los Alamos National Laboratory, at the Idaho National Laboratory: part of Argonne. So that whole budget process, that was the focus, it's called Authorization and Appropriation of funds, so that was a keen experience and it kind of opened my eyes to the, you might say machination and horse-trading that goes on in the political world, more than as a scientist-engineer that I was aware of.

KJ: Yeah, that would be an entirely different professional aspect to deal with that.

GL: And so from my notes here it looks like you roughly worked from Truman to Reagan.

RL: Yes, correct.

GL: Did any of these political regimes that the United States have or presidencies emphasize the technology more than others or was there always a fairly continual support?

RL: Fairly continual, actually, yeah. It was surprising now that I think of it, and I can't think of one president who was outstanding in terms of support in that area. I think Ronald Reagan was very positive, for sure. And Lyndon Johnson also, but I think if I had to pick one, I would pick Reagan as being the most supportive. Yeah.

KJ: So when you were working on Capitol Hill, who were some of the Congressional Representatives?

RL: Well there were the Chairman of the Committee, his name was Harold Brown. He was a Senior Democrat Congressman from Riverside, California which is outside of Los Angeles, very fine man. And from, the ranking Republican member, was Sensenbrenner from Wisconsin, from the Milwaukee area and he's still there on the committee. And, so we had a good committee and the members were very interested in science and technology, especially energy. And very much into the space program, I got involved with that. For a while there we worked very closely with NASA, the National Aeronautics and Space Administration. And I, once I flew down, in fact a few Russians were on the plane to, now it's Cape Kennedy, it was Cape Canaveral, Florida to watch one of the launches, a cooperation between the United States and Russia. And so that was kind of interesting.

KJ: What do you think were some of the accomplishments during the time you were at Capitol Hill, so from 1988 to 1992, what do you think were some of your major accomplishments?

RL: Well I think to keep up the budgets. We got involved with, our subcommittee especially, with fusion energy, nuclear fusion, instead of fission. And we kept the budget at about $300,000 a year for the fusion technology area which will still have promise for the future I think, as far as clean energy

goes and minimal release of radiation or contamination. And we even had a hearing once on what was called cold fusion. It got a lot of attention, publicity. Where instead of having a high temperature plasma reactor to make the fusion, they tried to do it at room temperature, but it was subsequently disproven. But there were two scientists from the University of Utah, kind of pioneered that. And people are still looking at that area, so it's hard to say. I'm personally skeptical but that was an example of kind of, it was very exciting for a time, I think, this cold fusion area.

KJ: Alright. And so then in 1992 you wrapped up your job on the hill?

RL: Yeah, yeah.

KJ: And then you have been enjoying retirement ever since?

RL: Yes, I have. Yeah, I was active in, while I was in Washington I should mention I was active in the, it's the Finlandia Foundation, the National Capital Chapter. There were, we had about three hundred members from Washington D.C., Virginia, and Maryland. And we had monthly meetings and programs, cultural events, lectures, dinners. And I served one term as Vice-President and another term I was elected President of that National Capital Chapter. So I was quite active in that Finnish-American cooperation on a nongovernmental level.

KJ: So Finlandia Foundation continues to be an important promoter of Finnish-American heritage, even to this day. Thank you for your work that you did with that. I've certainly benefited from it.

RL: Exactly, exactly, yeah. Oh, oh yeah!

KJ: Um, so what do you think influenced you to want to maintain your Finnish-American identity?

RL: I don't know, it's always been innate, kind of bred into me I guess. And I feel, I guess, comfortable, not prejudice as far as I know. But if I meet Finnish people I enjoy meeting with them and talking with them. And Finnish-Americans are, or people that have interest in Finland. And so it's not something I've consciously cultivated, it's just kind of been with me I guess.

KJ: Um-hmm. When you were Vice President and President there at the Finlandia Chapter in D.C., did you all host events and what were some of the typical events you might have hosted?

RL: Well there was one event I remember, in fact he succeeded, he became President too, Colonel Alpo Marttinen. In the Finnish War of 1939, the Finno-Russian War when Russia tried to take over Finland, he was one of the top commanders in the Finnish Army fighting against the Russians, and he received their highest military decoration called the Mannerheim Cross. And he gave a talk, as an example, about the historical aspects of that Winter War, and he knew what he was speaking about, because he was in it. As an example, in particular.

KJ: Sure, how about that? That's great. And did the Chapter sponsor youth programs and scholarships?

RL: We did, yeah we gave stipends for youth in various fields, liberal arts and sometime they were a few hundred dollars but I think they helped and made a difference. And that program is still ongoing as

far as I know.

KJ: Yeah. Were there any events with the Finnish Embassy?

RL: Oh of course, yes. We had good cooperation. Every National Day for example, December 6th is the National Independence day of Finland, their Fourth of July. There was always a big reception hosted by the Finnish Ambassador to America and we were invited, the whole group of us and so it was nice, yeah. And they had a sauna too at the, and they still do...

KJ: At the Embassy?

RL: At the Embassy. And we had almost free use of the sauna.
[all laugh]

KJ: That's great. What about celebrating Juhannus, the summer solstice?

RL: Uh, you know for some reason that was not a big thing in Washington D.C. I guess because it was more of an urban environment, but so that kind of fell through the cracks you might say.

KJ: Alright. Well how do you think the Finlandia Foundation has changed over time?

RL: Well, it's still going strong. It's probably better now than it was then, from what I sense. And I hope it continues. I think they've expanded a little bit so I can't think of a specific example but it's good that they're an ongoing organization.

KJ: Another organization with a yearly event is the Finn-Fest USA. Were you ever involved in organizing a Finn-Fest?

RL: A little bit. I helped a little bit on the one that was in Hancock many years ago. I was already up here and had retired, but that was the only one.

KJ: And how many, or where else have you attended Finn-Fests besides Hancock?

RL: Well once in Toronto, Canada I attended a Finn-Fest. And Marquette, Michigan, U.P. And Hancock, those were the three.

KJ: I think your uncle Fred Waisanen was involved with organizing some Finn-Fests. Do you remember which Finn-Fests he was involved with? Off the top of your head?

RL: I believe it was the one that was in Marquette, as far as I remember.

KJ: So when you had come back to Aura on vacations or when you retired, was there an interest in the community to...

RL: Yes, oh I'm sorry...

KJ: Oh I'm sorry, to kind of continue these Finnish…?

RL: Oh yeah, I would say so. We had the annual Aura Jamboree at the Aura Community Hall. I think it's the thirty-seventh year now, every third week in July. And I served three terms on, they call it the Board of Trustees, but it's like a board of directors. It's called the Aura Community Hall Association, so I was on that board for, as I say three terms and we did the planning of the Aura Jamboree and organization and a lot of volunteer work before the Jamboree putting up tables and tents and chairs and getting the hall organized. So I put in a fair amount of work in that, yeah.

KJ: Thank you for all of your work, that's something else I've always enjoyed. So a couple of family members have asked you to reflect on some of the lessons you've learned throughout your life, and what you would like your grandchildren to know about what you've learned and what you might have done differently.

RL: Well, I guess having a good, honest work ethic is important, and education is paramount. And I've enjoyed also being active in the church; in the Aura Lutheran Church I was the chairman of their board for four years when I retired. And so I think religion played an important part. And those are the main values, but I would put ethics and faith as probably high up on the list. Being a good neighbor in general, trying to help others as far as possible.

KJ: So what about the flip-side of that, what would you have done differently in your life? What would be some of your regrets?

RL: Oh boy. What do I regret? Maybe what if I had maybe still had the energy continue just to still work some more. I always enjoy working and trying to be productive in some way and. But I can't think of any major thing that I would change.

GL: Could I jump in here?

KJ: Please.

GL: This idea of science in the classroom and throughout your life, do you think the United States has, do you think that emphasis is still on science and technology as much as it was when you were coming up through your youth?

RL: I don't think so, unfortunately. But I sense a resurgence now, from my probably biased point of view it's very important. It helps you with logical thinking and even creative thinking, problem-solving. And just generally, the scientific approach to verify. And it was, I think it's the key to our country's competition with China and Russia and even India now, and Korea. That we just in general education, but I feel that there should more so focus on science and technology. That's my personal opinion.

KJ: Do you think nuclear energy will continue to be an important component?

RL: Oh yeah, definitely. It has to be, yeah. Coal is going to fade eventually, I think, just it's so polluting, and mining is a hazard and the waste ash is…. And climate change which now is quite well established, and so we'll still have coal for many generations but it'll be nuclear energy, either fission and/or fusion in the future. But there is still place, depending on the country in solar and wind energy

and there's a mix. But I would predict that nuclear is going to be at least half of the source of most electrical energy.

KJ: Do you have any other questions? What else would you like to talk about?

RL: Well I think that's it for now. I appreciate your interest of you and Gabe. And I'm glad to make a contribution to oral history and I think I've had a fairly unique experience. So it's good to save it.

KJ: Yes, absolutely. You've had a wonderfully remarkable life for sure.

GL: Fascinating snap-shots you gave us there. You're working with Nobel Prize winners and surviving shark attacks!

KJ: And building saunas in Tehran. Alright, with that said that concludes Part Two. Thank you for your time.

RL: You're welcome

GL: Thank you Bob, that's...wow, mesmerizing

END OF AUDIO ROBERT LIIMATAINEN PART II