1986

Fay Lawson Oral History

Fay Lawson
The Jackson Laboratory

The Jackson Laboratory
Oral History Collection

Interviewer's Comments

Narrator's Name Dr. Fay Lawson

Interviewer's observations about the interview setting, physical description of the narrator, comments on narrator's veracity and accuracy, and candid assessment of the historical value of the memoir.

NOTE: Use parentheses () to enclose any words, phrases or sentences that should be regarded as confidential.

Fay Lawson has seen the Lab from several perspectives: as a research assistant to Tibby Russell, a graduate student and later college professor viewing Jax from the outside, and now, as a part-time Lab administrator. This interview, in its two quite different halves, reflects these different phases in Lawson's interaction with the Lab.

When she is drawing on her early years of working at the Lab in the mid-50's, Lawson provides some of the most vivid and funny anecdotes in this collection, especially vignettes of Tibby Russell (e.g. Tibby having fallen in the snow with mice all over her, wearing her tattered lab coat, looking like a cleaning lady) and recollections of Lab social events (e.g. mouse races and the "Lab Lovelies" softball team). Lawson clearly here has an eye for the vivid scene that recaptures the essence of Lab esprit.

After Lawson left Jax to go on to graduate school, and then to a twenty-year career in college teaching and administration, the anecdotes are fewer. We are provided with memorable material on Barbara Sanford's entry into science, as Lawson's classmate at Brown under Herman Chase.

When I began to ask some of the more penetrating questions about Jackson Lab's identity, mission etc., Lawson switched over to her Lab administrator mode, and produced a PR piece. The last c. 30 minutes of this tape would bear out David Harrison's observation that the Lab mentality does not handle intellectual aggression very comfortably.

Value this tape for its wonderful anecdotes, which go far toward providing a sense of the Lab's earlier years, but do not look here for much objective analysis.

31 May 1986
Date

Susan Mehrtens
Interviewer's name

The Jackson Laboratory
INTERVIEW DATA SHEET

This section is to be completed by the Interviewer.

Narrator Dr Jay Lawson Address The Jackson Lab Bar Harbor 04609 Phone 207 288 3371
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Date(s) & Place(s) of Interview(s) 29 May 1986 Bar Harbor
Collateral Material Yes ____ No X Terms unrestricted

Complete each of these sections as the tape is processed in each step.

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Place Bar Harbor

Date 05/29/86

Fay D. Lawson
Narrator

Susan E. Mehrtens
for the Laboratory

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Collateral Materials Report

Narrator's Name Lawson

Collateral materials, whether originals or copies, enhance the value of an oral history memoir. Ask the narrator if you may borrow or keep such things as personal photographs, newspaper clippings, pages from a diary, and other mementos. Borrowed materials can be photographed or duplicated and then returned.

List and describe all acquisitions below. A typical description might be "Copy of letter from Governor Henry Horner to James L. Singleton, February 29, 1937." Provide as much identifying information for each photograph as possible. Each photograph should be labeled on its back as well as listed below.

1. None

2.

3.

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This is the tape of an oral history interview of Dr. Fay Lawson, given as part of the Jackson Laboratory Oral History project sponsored by the Acadia Institute. This interview was held on May 29, 1986 in Dr. Lawson's office at the Jackson Laboratory in Bar Harbor. The interviewer was Dr. Susan E. Mehrtens.

SM: Okay, why don't I start by asking you how you first heard of the Jackson Laboratory.

FL: Well, I was at Tufts University and I had just about gotten my degree, and I was asked if I wanted to take it in English or in Biology or did I want to take it in Chemistry. I took the degree in English because I wanted to write a slim significant volume of poetry one day, but there weren't any jobs for poets. So I started asking around where could I get a job. One of my roommates' fathers was an undertaker up here in Maine, I can't remember the town. "Gee, you have all those biology courses, why don't you go up to the Jackson Lab and see if you can find a job there as a research assistant." Jackson Lab? I had never heard of it. So I called anyway and they said, "Why don't you come up for an interview?" Then I began reading about it and looking up its background and I thought not a bad place at all. I got here in 1954 after I graduated from Tufts. C. C. Little was then the Director and the scientific director was Bill Murray; it was Bill Murray I got in touch with and I came up on a rainy, rainy terrible day. Flew into the Bar Harbor airport in Ellsworth on a

on a little airplane--and the thunder and lightning, Oh my! Scared to death. I got here and there was no scenery visible at all, it was just gray and I thought what a terrible place to come and work, do I really want to do it? Bill Murray picked me up and he was all bright and cheery as he always was. He brought me down to the Lab, and he said that the person who needed a research assistant was Meredith Runner. Meredith Runner worked up on the third floor of unit four, where Janie Barker is now; he is an embryologist. So I interviewed with Meredith Runner the entire day, and at about five o'clock Bill Murray picked me up again, took me out for a nice dinner and brought me to the airport and in the middle of the same storm put me back on the airplane and sent me home. And as he put me on the airplane he said, "You've got the job."

SM: Oh, wow.

FL: "Great, that's wonderful. I'll take it right then and there," I said. "There will be a letter of confirmation in the mail tomorrow. You will get it in a couple of days." So I went home and waited for the letter of confirmation. One week, two weeks, three weeks the letter of confirmation never came. In the meantime (it was in 1954) there was a hurricane and I had--both my parents were dead by that time--and I had this cottage on Cape Cod and I got a telephone call one day that it had been swept away. It had just disappeared. So I was down on the Cape looking for my cottage, if you please. Literally looking for it. It was just an empty lot.

When a relative drove down in a car and said, "Phone calls from Bar Harbor have been coming in and they are wondering where you are. You were supposed to report for work on Monday, where are you?" Somebody had forgotten the letter, so I phoned back and I said "Whoa! I am still waiting for the letter of confirmation that says I have a job." They said, "Well, yes you have a job. Never got the letter?" "No. Never got the letter. Thought you might have changed your mind." "No, we didn't change our minds, we are waiting for you. Come on up." And I said, "Well I have a little problem here to take care of."

SM: What?

FL: So I said, "Can you give me a week?" They said yeah, so actually I did find my house. It had been blown away on a tidal wave about a mile and a half away. And I found it intact. Frame intact. I opened up the cupboard and the teacups were still hanging on their little hooks, but the partitions inside were all ruined with the seaweed and sand and what have you. So it landed on somebody's front yard and I said, "Gee, wouldn't you like to have this? It would make a nice cottage." He bought it right then and there, so I got rid of it and came up. That's how I heard about Bar Harbor and got up here through all kinds of confusion.

SM: What were your initial impressions?

FL: The initial impressions were quite different. On day one, I got up to Bar Harbor and it was a much different day. It was a beautiful day and I thought wow, I am not going to mind

working here after all. I came up on a Friday night and I had a chance to drive around, stayed at the Y, drove around and thought "Oh brother, this is really it. I have made the right decision, it just wasn't a job." I came in on a Monday morning expecting to meet Meredith Runner because that was who I interviewed with. I was told by the receptionist, "Just take a seat down in the lobby" and so I sat there. There was a bench and I sat there and this little lady came shuffling along; she had on a white lab coat full of holes. She sat down next to me and when I saw her coming, I thought, "Well, isn't she friendly for a cleaning lady." That is neat. That's wonderful. Sat down next to me and the minute she started talking I thought, "Whoa, this is no cleaning lady." Tibby. It was Tibby Russell. She said, "There have been some changes in plans, and you are going to be working with me instead of for Meredith." And I said "Yeah, but we have to back up a little bit. I don't know who you are." "Oh," she said, "I am Tibby Russell." And I said, "Of course." I had gone to the library and read all of Meredith Runner's stuff so I knew what he was doing and Tibby Russell I didn't know at all. I said, "Tibby Russell? Well, what kind of work do you do and so forth?" She started to tell me and then I said, "Are you E. S. Russell?" And she said, "Why yes, I am." I thought, "Oh, God. I've fallen into this one. Now this is great."

SM: You had heard of her.

FL: Sure.

SM: But never linked it up with Tibby, wearing a white coat, looking like...

FL: Blue sneakers and a coat full of holes and hair all disheveled. I thought, "Oh my God, what's happening to me now?" Then it turned out to be E. S. Russell and turned out to be the luckiest break in my life. Really good. So I worked with Tibby and we worked in something called the Inbred Nucleus, which was the nucleus of what is now Morrell Park.

SM: Oh, wow.

FL: Morrell Park did not exist, you know there was no separate operation for raising and breeding mice to distribute to other institutions. Instead, there was this brain child of Tibby's and Prexy's and the brain child was that mice ought to be distributed to other institutions at minimal charge for shipping and perhaps production costs and that sort of thing, so that we could share the wealth of the genetic background that was here at the lab. And so Tibby started this thing, called the Inbred Nucleus, which was a system of brother-sister inbreeding maintaining the genetic integrity of the strains here at the laboratory, so that investigators elsewhere could be using uniform genetic material for their experiments. And so I got in on the ground floor of that in 1954 when it was begun. And before I left here in '59 the Morrell Park construction was underway and it had become a real operation. But in those days there was a

little squawk box in our laboratory and a little loud speaker. John Dorey was then the head of shipping, and he would call up and say, "Have you got a dozen C57 blacks?" And we would say, "Well, we don't know John, we'll see if we can scrounge them up," and we would get a half a dozen from Tibby's colony and another half dozen from George's colony and we would say, "Well, John we've got your twelve mice to ship out. Gee. That's a lot, but, you know give us a little more warning next time." A little warning, twelve are hard to come by. Of course, they ship them out by the thousands now.

SM: Right, amazing.

FL: They were shipped out then in cardboard boxes, they were put together with staples and they threw potatoes into the box so that the mice would have some moisture and some carbohydrate content for food for during their travel. The mice at that time were housed in wooden boxes on the shelves in the mouse rooms. There was a whole carpenter shop maintained because the mice kept chewing through the wooden partition between the two sides, of course. We kept a carpenter busy all the time building new boxes. Much later they replaced the boxes. They tried out plastic, then stainless steel. But the wooden box story was a funny one too because we were noticing that our black mice were developing skin tumors and we thought this is weird, because those are supposed to be the control animals, animals that are supposed to be healthy,

susceptible to very few diseases and they are our control animal. And here they are getting all these skin tumors. What's wrong? Come to find out that Watson Robbins' crew decided that they were going to be animal health conscious and they were going to be sure that those wooden boxes were clean because the urine did get into the wood and by God they were going to clean those boxes. So they dipped them in creosote and the creosote, of course, was what was causing the tumors in the animals, so we had to stop that.

SM: Well, I know they told me, Watson and Allen Salisbury told me, they had a lot of trouble with bedbugs.

FL: Yeah. You see the animal room was so marvelous. In the animal rooms we had the windows open and flies would be flying in, and some animals were kept right in front of the windows so they could get the fresh air. And the environment was not at all controlled as it is nowadays. Where you have to put on special clothing and go through a special lock to get into the animal quarters. It was all very loose. In fact, when we had our Christmas parties, we would have them right out in the mouse room and people from all over, people from other mouse houses would come in, we would play hide and seek around the mouse racks and the windows would be open. And the mice that came out the other end of the pipe were a lot bigger than they are today. The mice that were weaned looked bigger and healthier. They were resistant to every damn disease because they were exposed to everything. And now they are delicate, they are runts. They are a lot more fragile

actually, living in a controlled environment we get a lot of notes from people writing back that the mice you sent all died in my laboratory. If you send them to a good clean laboratory, they are okay. When I was teaching at Mount Holyoke College, I used to write here to get mice and we had very primitive facilities and the Jax mice did not survive. They died on me because they were not used to a germ laiden environment. In the old days they were...living in the creosote, wooden boxes, in the rooms with the open windows and there were no controls at all really. We'd have mouse races. Somebody probably told you about this one.

SM: Oh, races...

FL: Not even Arden? He's participated in some of these.

SM: I haven't interviewed him yet.

FL: Oh, Arden Peach will probably tell you about the mouse races. George Snell would choose his favorite mouse and we would choose our favorite mice and we would line them up in the corridors and we would see who was going to win the race down the corridor. And George always bet on his favorite C-58 or B-10.

SM: C-58 was his prize in animal ...

FL: Didn't often win, but.

SM: It is just so different today. My...

FL: The whole environment was very very different.

SM: Now how many people were there at that time? Around 54?

FL: I can't even make a guess. There are about

500 now. The staff scientists numbered maybe 20 and you can look it up in Jean Holstein's book here. Elizabeth Fekete was here then and Katrina Hummel. Roy Stevens was here too, so was Andy. And Seldon Bernstein came later, he came about '55 or '56 or so. And Doug Coleman also came later in about '55 or '56, George of course was here and Nate Kaliss and Bill Murray. Prexy was still reigning in the open-toed sneakers he always wore no matter what the weather. White sneakers with his toes sticking out; we finally imagined that he just cut those off, and maybe he had corns or something, but he never had sneakers that were intact.

SM: And have them wear out to the point of that.

FL: So he'd be in brown chinos and white sneakers with his toes hanging out and then he would have on a very nice tweed jacket and a pipe hanging out of his mouth. He was a symphony of incongruity.

SM: Marvelous. But a very charismatic figure?

FL: Oh, fantastic. Father figure, a PR man, a brilliant mind, a personnel leader. We used to, for example, have lab-wide parties. There were no ranks then. Nobody had any rank. There wasn't a technician or a research assistant or a senior research assistant or a senior staff scientist or a junior or associate anything. Everybody was just a lab employee. And we would have employee parties and Allen Salisbury would take the

lobsters and the clams and stick them in the autoclave. Autoclave the lobsters and clams, that's how they steamed them and then we would take them out on the grass and have a lobster and clam bake.

SM: That's funny.

FL: Wonderful. Used to be great and...

SM: It had a real family atmosphere.

FL: A real family atmosphere. Yeah. There were lots of lab-wide parties. Some of the things that wouldn't go over well today. There was a men's group that met at the Pot and Kettle--just a men's dinner in a group. That wouldn't do today. In fact, I think the men's group is banned so that there will not be any sexual discrimination at the laboratory. But that's good.

SM: Well, couldn't, I have gathered from a variety of, Holstein's book and also speaking with people that Prexy himself was rather progressive in his attitude about women and women's groups.

FL: Oh, yes he was. He definitely was. There was no doubt about it, there was no malice of forethought, as they say, in his separating, he just thought it was a good idea for the guys to get together every so often and down a few. There were a lot of drinking parties here, in fact, we used to have competitions in making home brew. Has anybody told you about those competitions?

SM: No, no.

FL: Oh my goodness.

SM: Do you remember who won at the...

FL: Oh, we always did, of course, Tibby's .....

FL: Others may remember other winners. I'm not sure who won the competition. I remember once Ed Murphy thought that he was going to do it real scientifically and bubble the carbon dioxide out the window. They were going to use the scientific approach to make the home brew. Not us, we just threw things in. Theirs was awful and ours was just elegant. And then we actually made some wine at one time. We took the first initials of all of the people who worked in the laboratory and put them together and named the wine, SEWIGAMITI. SE was Seldon Bernstein, and then GA Gail Adams, Abigail Adams who later married Will Silvers who is now a member of our Board of Scientific Overseers and then Willy himself was there. Gail was here as a summer student and Willy was here as a post-doctoral fellow, so that's the WI. The MI is Mike. I was called Mike at that point because anytime anybody wanted to find me they said, "Well, oh where is Fay?" "Oh she is at the microscope." And finally it just became Mike Lawson. SEWIGAMITI, TI was Tibby. So it was Seldon, Willy, Gail, Mike and Tibby. SEWIGAMITI. And that was quite a brew. We invited people from far and wide to sample that. Things like that went on all the time, so that you couldn't wait to come into work, to see what was happening next. There was always something going on. And people worked a lot harder, I think too. Because they were all these little things to stay later for, to see how your brew was coming or to join George's mouse race, or

take the lobsters out of the autoclave or...

SM: See C.C. Little in a Santa Claus suit.

FL: Yeah.

SM: Or, some people tell me that Allen Salisbury himself was Santa.

FL: Oh yes, Allen was Santa quite a bit and then Dody Foley who was Bill Murray's secretary was the main elf as I recall. Dody is still in town, you might look her up. She must have some stories from way back when too.

SM: Now, was she any relation to Dale Foley.

FL: Yes, his sister, Dale's sister. She is now married, she is no longer Dody Foley but Charity and Tibby can help you with that. They have been going through the archives and they found some old pictures of a party that we had, the Hoxie party.

SM: Hoxie party?

FL: Yes, and in one photo was Dody Foley. And they asked me "Who is this?" They didn't recognize her. Because I hadn't seen Dody in thirty years and the photo was thirty years old, it was obvious to me it was Dody, but they had seen her right through the current time and couldn't recognize her.

SM: Isn't that funny. That is really very funny.

FL: Yeah, the Hoxie party, there was this guy operating out of Texas I think and he had, he claimed, the cure for cancer. The FDA had warned him about his operations, but somehow or other he got himself set up and he was doing business, I believe, by mail order. Now Tibby will be able to give

give you more of the detail on this. Because this took place just as I was leaving in '59 to go to Brown. Anyway the guy had a cure for cancer, right. And I think the FDA or some agency, hired the lab to test out the compounds. I was in on the early part of it giving the compound to mice with tumors to see if any regressions could indeed occur. The ultimate result, of course, was that he was a total fraud. But at the end of the whole testing they had what they called the "Hoxie party," at which Tibby dressed up as a mouse and Ann Gould (who was here then on a post-doctoral fellowship working with Doug Coleman), dressed up as Hoxie himself and she was injecting Tibby with this miraculous tumor cure and Bill Murray was dressed as the judge at the Hoxie trial. Dody Foley was there as a magistrate of the court or something and they had this dress-up Hoxie party for the end of the testing for the miraculous cancer cure.

SM: That's funny.

FL: And then there was another "miraculous cancer cure" that came around; it was called the orgone box.

SM: Oh, oh, oh, is that this... Wilhelm Reich.

FL: Oh, yes. That also got tested at the Lab. Taking mice with tumors and sitting them in the orgone box. Which of course didn't work at all either. So that was some fun doing that and I think that one day somebody came in and said, "Oh, my God, Tibby, one of the mice in the orgone box now doesn't have a tumor!"

and Tibby said, "I don't believe it. It can't be." So they went in and found out that the mouse box changer had screwed up the boxes and put a normal mouse in there. "Oh, thank goodness we don't have to report that we have a miraculous cure."

SM: I wonder what that would have meant. It sounds as if every day a new...

FL: A lot of fun.

SM: A new... incredible ...

FL: Back in the early '50's we first got isotopes into the lab. Radioactive isotopes had not been used here before that time and Tibby got a license to use Iron 59, and later on carbon, but first it was Iron 59 to check the incorporation of the radioactive iron into the hememoiety hemoglobin. But we couldn't use the isotope in the laboratory. So we rented a greenhouse up on the hill and Tibby and I would go out in the dead of night to the greenhouse to do our isotope work, because we couldn't bring the animals back in here and we couldn't bring the isotope into the lab. So we had this greenhouse set up with microscopes, mice and the isotopes behind lead bricks. We always brought a Geiger counter with us to see if there was any radiation around the lab. And every night when we left I would check Tibby and every night when we left, her belly and the soles of her feet were radioactive. She would lean up against the bench and and walk over spilled material, so she was always radioactive at that point.

SM: Now, was this a long--does this have any kind of half life?

This isotope of iron?

FL: Iron 59 has a very short half life. I have forgotten exactly what it is, but it is a matter of maybe a month, I have forgetten exactly. Something like iodine has a half life of seven days and iron 59 a little bit longer, maybe 30 days or something like that. So it is very short lived molecule.

SM: But eventually they must have overcome their fear because they are all kinds of...

FL: Everybody has an isotope license and now there are rules and regulations. Governing the use of isotopes then was the old AEC; they used to come up to the greenhouse and take away the carcases of the animals that we had injected with Iron 59. One day for some reason, I happened to be there when they came to pick up the radioactive waste, and I said, "What do you with this stuff, by the way? I know we can't bring it back to the lab, obviously we can't take it to the local dump, what do you do with it anyway?" "Oh, we take it out into the ocean and sink it." So. Nobody knew about regulations and they still don't know what to do with it. Thirty years later they still don't know what to do with this stuff. One night we went out there, Tibby and I, (this is in the anecdotal category) and we were bringing mice with us in the dead of winter through deep snow almost up to our knees as we were trudging out to the greenhouse. Tibby was carrying mice and I was carrying, I think, a book, or equipment. Tibby had the mice and I looked up and I stopped and said, "Tibby, my God look at this."

It was a most beautiful aurora borealis I had ever seen. "Look at this." She looked up and she said, "Oh, my goodness!" And stumbled and fell down into the snow. She had on a fur coat and there lying in the snow was someone who looked like a little bear. Tibby lying on her back in the snow with mice running up and down her belly. Wonderful, just wonderful.

SM: Now...

FL: We gathered them up and used them in the experiment. Of course, we would never do that today.

SM: Sure.

FL: They would be discarded and that would be the end of that.

SM: Yeah. Why was this at night? Why did you have to do this at night?

FL: At that time, I got one of the first fellowships that the Jackson Laboratory awarded for graduate study. And I was off to the Univeristy of Maine during the days getting my master's degree, so that a lot of the work that I did was night work then, and Tibby did her ordinary work during the day and then when I would come in to do my night work we would go out to the green-house and work with the isotope experiments. We each felt like Madame Curie out there in the wilderness.

SM: Sure, sure indeed.

FL: Indeed we did.

SM: You were the pioneers at the lab.

FL: Yup.

SM: Isotope pioneers.

FL: Yup.

FL: I think Tibby's one. She came when she was a young woman, also straight out of grad school. George Snell likewise. Nate Kaliss, Andy, Doug Coleman--never been any place else. Dave Harrison was a student of Tibby's when I was here, and here he still is now, as a Senior Staff Scientist. Dick Fox was a summer student here; he's still here. Margaret Dickey was another one who never worked any place else. A great many people come here and just stay right here. It's a whole way of life, and the whole situation fits in very easily to that. The pressures on the scientific staff however, are great. And it's not a laid-back group. They are up and scrambling. They have to be. They have to be out there scrambling for their grant money. They have to prepare a grant proposal every three years. They've got to get money to support themselves.

SM: But this is a pressure of the profession. It's not a pressure of the place.

FL: That's right; it's a professional pressure, but it is self-imposed. If you want to stay in the field, you've got to do this. So it's not the sort of place that you can come and relax, you have to perform.

SM: Would you personally like to see the Jax grow.

FL: I don't know. It's hard to say what the optimal size would be. I think that we are fairly close to it now. I know that in long-range planning, as far as I hear people talking, a research staff of about 50 researchers would be the upper limit.

We now have 39 full-time research staff scientists, and for those 39 people there are more than ten times that many personnel to support the research of those people, counting the people at Morrell Park in mouse production. There are about 500, just under 500 employees. And all those other people are essentially support personnel. The research staff sometimes wonders what we are all doing. The Director, and the administrators and the managers are all trying to do the paper work that can free them up to be in the Lab to do research. I would presently say 45 or so research staff members would seem to be optimal. It's hard to say. You can't tell how many new wings would be jutting out from this place in various ways. It's on the verge of loosing that tight-knittedness, I think, so you don't want to have a General Electric plant here. People still know one another. You still recognize people, but it's getting a little tough. People at Morrell Park don't always recognize people up here and vice versa. So it is spread out enough so that it's lost some of that closeness, so I would say that it is probably close to its optimal size, if it isn't already. It probably shouldn't grow too much larger.

DM: Do you know if the administration in general shares that view that there's a limit to growth?

FL: I don't know if they share the point of view that there's a limit to growth. I know that the administration projects, that it believes, the optimal size of the research staff to be between 45 and 50, and that would mean, then, that probably 600 employees

would be involved, but nobody ever suggests anything like that in the very near future. I can't imagine that one would be able to make a hard and fast recommendation for the future. Probably in 1950, somebody would have said, "Gee, if we have 120 people, we can do a lot." Can't tell. Right now, the Lab people have been very lucky, because in the outside world, other people have not been so lucky as we have in winning grant awards. The requests for mice at Morrell Park are down a bit because outside researchers are not getting grants and they don't have the money to pay for the costs of shipping, and the cost of rearing those animals, so requests are down somewhat. In that regard, you can't tell what the economy is going to do. Perhaps that will go down even further, and the scientific end will rise higher. Perhaps the balance will swing the other way, in another ten years--who knows? But it's holding steady about 50-50 in contributions from the Morrell Park and the grants.

So, let's see. Lab's role in twentieth-century science, especially genetics. I have felt ever since George won the Nobel that the Lab ought to be doing a lot more in immunology and molecular genetics than it was doing, because that was George's baby, the whole H-2 business, and the ball was being carried elsewhere. But now, things are changing under Barbara Sanford's direction; she feels the same way, apparently, because the emphasis now has been to hire molecular biologists, and

immunologists, who are able to pick up the work that George started on a more macro level, and focus it down to a more molecular level, and carry on the work that he started with the genes in the histocompatibility complex, and the major and minor histocompatibility genes. They are working on these problems now--after kind of a hiatus. George was involved with congenic strains, and people elsewhere were doing that research, and ... gee, that work should have been done at the Lab, because that's where the strains were developed. And now it is being done, and that was one of Barbara's major priorities, to get molecular people in here... That's happening. I think that we have budding young people. We have 1,2,3,4,5,6,7 Associate Staff Scientists of, I think, quite remarkable quality. And they will pick up the ball. And a couple of other newer ones, Charles Sidman, an immunologist, he is a nephew of the Sidman, the Richard Sidman, who is famed for his research in neurobiology, he's a super guy in immunology. He can pick up a lot of the work that was initiated, or that grew out of George's H-2 work, and certainly these young fellows we just lured now are remarkable. They will be able to do the job for us. So I think it's got a good future. I think we are really lucky to have somebody like Barbara Sanford here as the Director. I've known her since 1959 or 60, or so; I know her to be a very bright person. Beside that, I know her to be very compassionate and warm and caring, and, if anybody could restore to the Jackson Lab that feeling that Prexy had here, she

would be the one. She's the kind of lady who gives not a second chance or a third, you can have a 24th chance, and all the understanding warmth. But she's very patient, and she's gentle. So, I think she'll do her part.

SM: It's very interesting how Directors set a tone, so you can never be sure if this particular thing would have happened with this Director or that Director, but it happens, but there's a tone that a Director sets. It's interesting in terms of the phases of an institution.

FL: Yes, very definitely.

SM: And, it's been interesting to see how, in the four Directors, there's been a swing back and forth.

FL: I think that Barbara would not have perpetuated the formality and the name tag on the right hand side that Earl had; there's a tendency to a more relaxed environment.

SM: But not so administratively that you had when Rich was. Rich did not like administration at all.

FL: He was not an administrator at all, from what I understand. I never knew Rich, so that I can't comment on that. I am only parroting things that I've heard from other people.

SM: I have interviewed him, and he said that he just didn't like administration. He really liked to be a scientific director, but that was not the same thing as supervising somebody counting mice in the Lab.

FL: ... Barbara Sanford the first time. She had come to Brown University with a degree in business administration. She's got

the perfect background for--she's a scientist par excellence. She's got the business head. She knows how to deal with people. She can deal with the Board on a very friendly level. She can deal with the employees on that same compassionate feeling, warm caring level. She's got the scientific expertise. I think she's the right person... Just what the Lab needed right now, and she doesn't let things fall through cracks. She pays attention to the detail, and the Lab has its first long-range plan ever, as I told you, and it's continually updated annually, now almost a five-year projection. We've recently got a CORE grant, in which the Jackson Lab has been named a Cancer Research Center by the NCI, National Cancer Institute; we got the first one three years ago, a three year proposal, we just submitted a second proposal, for a five-year designation as a Cancer Research Center. The advanced notice is out that we have gotten that, too, for $4 million. And that was Barbara's work.

SM: Now that's institution-wide, right?

FL: Yes. That supports things like shared services, the shared resources, the support for the genetic resource, the embryo freezing. It supports the mouse resource, the mouse colony, the mouse mutant resource, and the maintenance of the strains and the mutant stocks that are sent out to other investigators who request them. It supports services within the Lab like the electron microscopy service, and so forth, and a couple of new services that we are going to instigate: a transgenic mouse resource.

that we're going to start, and also a DNA synthesizing resource that will be begun. These are things that are in the offing. So lots of things have happened. It picks up some of the salaries of the people who are in charge of those operations, and we just recently got a grant for a new electron microscope, and a grant for a couple hundred thousand dollars to update the cell sorter service, and quite a few institution grants.

SM: I think if C.C. Little came back he would be proud.

FL: I think he would be very pleased. He would be very pleased to see what's happened to his Laboratory, shocked perhaps. He would need a map, as I did when I came back five years ago, and he would be pretty surprised. That first day I was back here I discovered the Lab had an elevator. So I saw it and thought "I better take that!" I knew they used to have an old freight elevator that you used to go out to the mouse rooms to get it, and I thought, "I'd better take this new elevator, go to the top and see what kind of a view there is from that window, I bet it's great," and so, on the elevator I met a janitor. I looked at him, and he looked at me, and he said, "Mike?" And I said, "Yes, is that Reggie?" And he was the same guy who used to come by in the '50's, when I'd be here until 4 or 5 or 6 o'clock in the morning, after I'd come home from school. I'd come into the Lab and work at night, of course, out in the mouse room. And I can't tell you how many nights he and I watched the sun rise together. "Look at that sunrise this morning!" We'd go out to the mouse room in Unit 1, and we'd look out over the ocean, "But Reggie, look at

look at that!" And he'd say, "Are you awake in here?" And I'd say "Yup, I'm awake." And Reggie would say, "Look out that window!" And there would be the sun coming up out of the ocean. And he said, "My god, you're back at last!" I said, "You're still here!" "Yup." he said, "thirty years."

SM: Wonderful. That's wonderful.

FL: So, if Prexy came back and took the elevator, he'd see some of the same people that were here, for they're still here. Roy McFarland is probably somebody that you should talk to. He just got an award, I think, for 35 years of service, and he worked with Tibby on the Inbred Nucleus, and he's now Assistant Manager of Production over at Morrell Park. The Inbred Nucleus evolved into that production unit. He's like Allen Salisbury. He'll have tales for you. He'll have a lot of anecdotes, and a good Maine accent too. I don't think that I can add any more.

SM: I think this has been wonderful. I think you've had wonderful anecdotes yourself. Some of those were just vivid, Tibby and the coat.

FL: I tell that one every time at parties. The first year when I came back here, when I was sitting at Pretty Marsh writing my text, was Tibby's retirement, and Barbara called me up and said "I'm sure you'll want to come over. We're having this retirement party for Tibby." And I said, "You bet I do, thank you." I was not affliated with the Lab in any way then, but she said "Come over anyway. I'm sure she'd be happy to see you there at her

retirement party at the Lab." So I came over and people were recalling anecdotes, and things about Tibby, and Seldon was telling his anecdotes, and he saw me come in and sit down, and he motioned to me and what he was asking was, did I want to get up and say something about Tibby, too, and I didn't realize that I had said yes, but I did. He understood that I had said yes, but I didn't want to get up and say anything, but then he said "Now Fay wants to say something." And I thought, "Oh, I do?" So, I got to my feet very slowly, and I thought of the anecdote about the aurora borealis, and the mice, and then I also said that Tibby had been that one very important person in my life, had really been a role model for me to look at and see what she had done with her life, and what it would be possible to do. Really profound influence. So that was my reintroduction five years ago.

SM: It's interesting how, when I ask people what has been the role of the Lab in your life, that, for everyone I've spoken to so far, is that it has been the central focus.

FL: Is that right?

SM: Yes. Either it's the only place people have ever worked...

END OF SIDE TWO

FL: The labels, yes. A lot of people will tell you about that, because they still say, at parties, "Have you got it on the right-hand side or the left?".....

SM: Was there a reaction afterwards, when Earl Green was to retire?

FL: I wasn't here at that time. I know that Earl won everybody over, over the years; whereas the initial reaction was being painfully aware of the contrast in operating style, during the years, he won everybody over. It was clear. He accomplished many things: the Clarence Cook Little Conference Center, the unit we're sitting in now, Unit 5; this unit wasn't here when I left, in 1959. There were just Units 1,2,3,4. And Morrell Park was a paper idea until Earl got it completed. So, he did a lot, as far as planning, and as far as getting institutional grants and money, and building up the reputation of the Laboratory, as well as building up its size, and number of employees, so that he did a lot--I cannot speak much about his tenure as Director because I wasn't here.

SM: When did you come back?

FL: I've only been back here for five years. I taught for twenty years in the interim. And just came back here, on a sabbatical leave to write a textbook. Actually, I was planning to be in Massachusetts to do

the writing, and I thought, "Gee. Where would I most like to be sitting and doing this writing?" And it was at once apparent. So that got me back on the Island. I rented a house in Pretty Marsh, and in the process of being here, I discovered that my former classmate, Barbara Sanford, was the Director of The Jackson Lab, so I came over one day to say Hi to her.

I had read that the Director of the Lab is Barbara H. Sanford, and I thought "I wonder if that can be the same little red-headed Barbara Sanford that we were all so worried about in graduate school?" So I came out to the switchboard and said, " Do you know your Director, who has just come last month?" So the switchboard lady said " Yes, yes, I do, Barbara Sanford." I said, "Is she tiny and have red hair?" And the switchboard lady said, 'No, she's not. She's tiny, but she has white hair." And I thought, "Well, that's possible." So I came upstairs to her office, and asked her secretary--I didn't recognize anybody, in fact, I needed a map to find my way around the building, by that time, with all the new wings and everything-- This Barbara Sanford, the Director--did she get her degree from Brown University with Herman Chase?" "Yes," said the secretary. I said, "Put me on her calendar, the first open moment she has today." "In a half-

an hour she'll be here." So, I went around and saw Tibby and other people and then I came back; it was indeed, Barbara Sanford. So, while I was in Pretty Marsh doing my writing, Barbara asked me if I would like to come over and do some consulting work on putting together a long-range plan. Well, the Lab had never had a long-range plan. Not even under Earl. You would have thought that Earl would have had a long-range plan, but he never hard. Barbara decided she was going to put together a five-year plan for the Lab. I had been a Dean at Simon's Rock of Bard College, so I had had a lot of administrative experience. So she asked me if I would like to come in on a consulting basis, to work on a long-range plan, and I said, "Sure. I'd like to do that." In the meantime, there had been an ad in the Bar Harbor Times for the Director of the Abby Museum across the way, and, by that time, I was feeling that somehow or other, I would like to stay here. The next thing I knew, I was hired as Director of the Abby Museum.

So now I've got a part-time job at the Abby Museum, as its Director, and now here, I'm not a consultant any longer. I'm called the Coordinator of Scientific Resources. So I have two part-time jobs-

SM: Two three-quarter time jobs.

FL: Yes. You've got it.

SM: You'd better clone yourself! Isn't it amazing how things work out?

FL: It is. It is really amazing how things work out. We stray however.

SM: That's OK. Interviews rarely are straight and narrow.

FL: In your "general recollections" you mentioned atmosphere, esprit de corps, rivalries, politicking and so on, there never was any during Prexy's reign, when I was here early on. The esprit de corps was great. If there were rivalries, they weren't at all obvious. There was no obvious politicking, because it was a totally apolitical atmosphere, with no ranks and there was just no sense in politicking- -who would you politick? Tibby, while I was here, was Scientific Director, of the Lab. At that time, the Scientific Director did essentially what Manager of Grants and Contracts does now,

look at grant proposals before they go out, and help people prepare their budgets and things of that sort. The quality or nature of the support the Lab has given me has been superb. The Lab represented really, in my life, a chance, a turning point. More specifically, Tibby was. When you read the psychology journals, you learn that each of has one or two people in our lives who make a really big difference. For me, Tibby was, definitely that presence. I probably would not have gone on to graduate school. I bet I could have sat on my butt here for another ten years: I had bought a nice little house, had a boat and a car and was very comfortable. Probably without her nudging, I would not have gone on and gotten a Ph.D. I probably would not have done that right away. But because I did, I discovered that I liked to teach ... I spent twenty years teaching at the University of Rhode Island, and Mt. Holyoke College, Windham College, and, finally, Simon's Rock of Bard. And went through the ranks, from Instructor to Professor, to Dean. And then out!. That was enough though. Having had the administrative experience, I found that that has its rewards too, and I was ready to get out of the classroom. Simon's Rock was an early college, dealt with youngsters after their sophomore year in high school. They'd come to Simon's Rock ready to start college at fifteen. And I had enough dealing with that.

Twenty years is a burn-out time, I think. Probably earlier than that. So now, I'm dealing with grants, staff scientists, pH water problems and things of that sort. The change is good.

END OF SIDE ONE

SM: Did you have frustrations at all, ever?

FL: No, totally rewarding. There wasn't anything that went on here--everything was so, just so nice. There was nothing to be frustrated about. Opportunities presented themselves everywhere. It was due to Tibby, mostly. People in other labs said that they were frustrated because their sponsors wouldn't let them do this, or, or didn't encourage them to do that, but Tibby always said, if I came up with some wild, off-the-wall idea, "Give it a try, Go ahead."..... doing this and that, doing a little experiment on trying to get rid of some kind of worm our colonies had, trying various kinds of antibiotics and things, and wrote a paper on that...do things. She was so bright, and like Barbara Sanford, in many, many ways; we had to laugh, you know, how Tibby would shuffle in, "Can I help you fellas in the lab today?" And we'd say, "Why don't you go in your office and write a paper, Tibby? Stay out of the Lab!" Every time she'd come in, she'd do something horrendous; if she were supposed to be adding saline to a solution, she'd add water. So we'd say "Tibby, get out of the lab. Go into your office. Write another paper." But she always encouraged us in anything we wanted to do,

and in things we didn't want to do. For example, I never thought that I would be a very good teacher, and when she sent me off to grad school, she said, "I always knew you'd be a good teacher. I always knew that, you would be great in the classroom."

SM: She was able to see the potential of people.

FL: She's absolutely wonderful. I never thought about it. I never thought about teaching, even when I was at Brown, and Herman would say, "Well, you know, what are your plans?" He'd go around and ask the graduate students, "What are your plans?" And I said "I'm going to get my Ph.D. and go back to Bar Harbor, to the research staff at Bar Harbor." That was always my plan. But one year Herman came in one morning and said, "I'm going to go to Australia, for a semester, and I'm looking for somebody to teach my genetics course for me. Who is going to do it?" And everybody said, "Not me. Not me." "But, how about you, Fay?" And I said, "Not on your life." And nobody would. And finally he came back to me, and said, "You've got to help me out here. I've got nobody to do this. If I can't find somebody, I won't be able to go to Australia." I said, "Oh, all right. I'll do it." And so, I taught his genetics course for him. He came back from Australia. I said, "Herman, why don't you go away again? Have you got anything else you want me to teach?" And I kept leaping back into the classroom: I loved it. Just loved it. And he said, "I knew it. I knew it. And Tibby knew it. How come you were so slow in knowing it?"

So I did. I loved teaching.

Now, let's see. What else have we got here? We had a softball team early on. Now that was a team to remember. I can't tell you who all was on it, except for a few memorable positions. Tibby played on this team. I don't know what position she played, but I think it must have been infield because she didn't have a very strong arm. And Charity Waymouth played on it. Now she was on one of the bases, first, I believe. And Joan Staats played on it. The team was called the "Lab Lovelies," by the way. Margaret Dickey played on it. Who else was on this marvelous team?

SM: It was all women?

FL: It was a women's team, the "Lab Lovelies." We played the U.S. Navy when the ships came in. And we played the summer students. It was hilarious. It was just as funny as it could be. Tibby getting up to bat, and all she could do was bunt. She never did anything but that. It was hilarious. Did you talk to Joan Staats?

SM: I do her next week.

FL: She will have recollections of the "Lab Lovelies." That softball team, I'm sure.

SM: Did you ever win a game?

FL: I don't recall ever. I think probably we never won a game! No. But we did have a lot of fun doing it.

SM: A lot of fun loosing, eh?

FL: And the high school students who lived down at Highseas--only the high school students were down at Highseas then--and the

college students lived out in the dormitory complex in back here which is now, unfortunately, in disrepair, I hope that they will fix that up. Well, the Highseas students, we played them once. I remember they came with a car done up with a red cross like an ambulance, a big red cross on it, for us old folks.

SM: Did they give you something of a handicap?

FL: Yes, I think. Well, the U.S. Navy used to play with one hand tied behind their backs. They'd bat left-handed, or things like that, and still they won.

SM: Oh my goodness! That's precious. I can see Tibby playing softball.

FL: Oh, it was hilarious, absolutely hilarious.

SM: I'll ask them: I do Tibby and Joan next week.

FL: Oh, I'm sure they will remember all of those things.

SM: Did you have any sense of, that there was any different treatment of women?

FL: None whatsoever. I have no sense of that at all. I heard after I left that people thought that Earl Green did not have quite the same attitude that Prexy did, but that didn't seem to be true. Particularly with Margaret being so active in science herself. And certainly there was no purge of women scientists, and there had always been a number of women scientists on the staff, and it didn't seem any handicap here at all. That had to be one of the good things about the Lab, that there was women's

equality before it was fashionable.

SM: That's what everyone has said.

FL: Very definitely.

SM: Do you think that's attributable to C.C. Little?

FL: I think so. I do. I defintely think so. Most of the research assistants around here, I think, were women. That has probably changed now. Several of the very well know staff scientists were women, of course, Tibby, and Katrina Hummel, and then there was Flavia Richardson, Margaret Dickey, and--who else was there?--Emilia Vickery, another lady, and, the histologist, why can't I think of her? Elizabeth Fekete, of course, who came here as one of the original people, original five or six, or however many came with C.C., as a member of his original staff. She was still here when I was here. A lovely little lady, with a Hungarian accent, fascinating. So there were quite a lot of women. The kind of work that is being done is totally non-sexist work, one didn't have to lift a hundred pounds, one could sit and work ... a man or a woman, didn't matter. So there was no difference, as far as I could see. In fact, I think I have been very lucky throughout my career: I've never noticed any sex discrimination in academia either, so maybe it was the choice of career that I made, or was made for me. I think I have not met in my career any discrimination at all. It's been very fortunate.

SM: What are some of the Lab's weaknesses?

FL: Now, then or whenever? Certainly not its accomplishments, because those are its strengths. And its strengths have been a sense of community within the Laboratory. Some of the

weaknesses, I think, are that the transfering of those good things to the outside world has maybe not been done as strongly as they could be; by this, I really mean the town as well. I think, maybe, that the image of the Jackson Lab in the town is not as good as it should be--I won't say can be--should be, because people don't understand what is being done here, and I think that there's probably not enough effort being made to--not win over--but to educate the people who are here as to what exactly is being done here. Certainly, the world-wide community has a much better opinion of the Lab than the local people do, but isn't that always the case, I guess.

SM: Sure. Well, early people tell me that there was initial skepticism.

FL: Oh yes. Yes. I hear of that again and again when C.C. Little first started the Laboratory: "What the hell is going to happen here? All these mice are going to be dropped in Bar Harbor. The town's going to be overridden with stray mice, and are we going to have the plague here? And what the hell are these scientists possibly going to accomplish out here in the woods?" Great skepticism, I'm sure. C.C Little, I find out now, in my role as Director of the Abby Museum, was also a founder, one of the founding Directors, of the Abby Museum. I have in my files there much of the early correspondence with Robert Abby, and John D. Rockefeller, and George B. Dorr, who were all buddies, about the founding of the Abby Museum, which was founded just one year before this Lab was founded, in 1928. And so, Prexy was active in getting money and

and support to found the Laboratory at the same time the Museum was just getting going, and Robert Abby and Rockefeller and George B. Dorr had contributed money for the Abby Museum, and Rockefeller also was involved with the Jackson Lab at the same time. So it was all tied in together. Prexy had a great variety of interests.

SM: And interesting contacts.

FL: Yes. The very beginnings Tibby can tell you about because she was here, when the summer students were housed in tents out on the lawn, out in the woods. And she was one of those summer students, and also Herman Chase, my Ph.D. professor; they were out here in tents, as some of the first summer students of the Jackson Lab.

SM: I know George Snell tells the story of his first coming to the Lab, being housed in a tent. Sound very amazing, when you think about it.

FL: It was kind of like a summer expedition or field trip. Prexy was going to have the kids, the graduate students come up here and they would do a little science for the summer. And I think that even he didn't realize the potential of the thing.

SM: This was quite innovative at the time, wasn't it?

FL: There were some other programs like it. For example, Woods Hole. The Woods Hole program always took students in the summer to work with established investigators, who were in residence, on their particular problems. And I suspect that Prexy knew this, and many of the people who had gone there, and had some connections with it, but he always had both an interest in

education and research, being a college president, and being on faculties as he was. So, it's quite natural that he would combine education with the research, and, of course, it's a major part of our mission today. We have a triangular logo, emphasizing "Research, Training and Resource," so one-third of our mission is educational mission. Barbara, I know, is very committed to that educational leg of the triangle, and will maintain it, as all the other Directors have.

SM: Have you ever heard, or thought yourself before, that the Lab is inbred?

FL: In what regard?

SM: Well, in terms of its...Well, some scientists have said to me that they felt it was difficult, for example, to bring new strains of mice from other labs, and that could hinder research. If we weren't careful, we could get too inbred in what we could do here.

FL: That criticism is not entirely not unfounded. We are working now on a new importation facility, which will allow new strains from other laboratories to be brought in and I wonder if the people who are saying that they have tried to get mice in have really perservered--it takes a while nowadays, I can tell you an anecdote about that, back in the '50's, too. When I was working for Tibby, again, in the '50's, about '56 or '57, I was going to say, while I was a graduate student at the University of Maine, and also working part-time for Tibby, one of the people that I met in one of my classes at the University of Maine was a young undergraduate

woman named Jane Barker. And Janie and I were lab partners in embryology, and we got to talking in June, and I started telling her about the Jackson Lab, and how I was working there, and how great it was, and how wonderful it was, and she said, "Gee, I'm going to apply for the summer student program, and see if I can get going." And I told her, went on and on at great length about Tibby, and what a grand person Tibby was, so she got in touch with Tibby, and sure enough, she ended up being involved with Tibby. Well, this particular summer that I'm was thinking about, Tibby was going to import some mice--I'm going to be very vague about details--I think from Hans Grunenberg, but maybe not from Hans. Hans had been here several summers, as a visiting investigator. He wrote the book, The Genetics of Mice, and is a very interesting guy. But Tibby was importing a new mutant and in Europe there was a big scare of salmonella, which is kind of like mouse pox, the "dread disease" of mice, and so, the idea was not to bring the animals in to the Lab because if all of our animals got salmonella, the Lab would be in very bad shape, research-wise, and also in regard to distributing animals to other investigators in other places, so it was very important that we screen the animals for salmonella. So Janie Barker's job was to collect these mice as they were imported, and keep them in isolation and do the salmonella testing. That was Janie's first job for the Jackson Laboratory. And it happened that her parents had a cabin on Sebago Lake or Moosehead--some lake in the middle part of the state. So Janie collected these animals and brought them down to

the lake and put them in a little shack there and there she changed and fed, and salmonella-tested these mice for Tibby until they were clean and then they got imported into the Lab. One of our first importation facilities was Jane Barker's. Now we have a very, very tough importation policy, even for cell lines. If anybody wants to import cell lines, they've got to go through the importation process, and it may take months before you can get the cell lines, or strains in, so we recognize that that's been a problem, and we are addressing it by updating the importation facilities, getting more isolators. It has been going on in a trailer, actually, an importation trailer, and it has been limited by size. Anybody is allowed to import a mutant or cell line if they've got themselves organized. They have to plan usually on six months before they would have it, and that time probably should be cut down, not tomorrow, but when we have that new importation facility. So, I don't think that that criticism is, or will be, longstanding. And, certainly, in the old days, it wasn't. It was tough to get animals in because you wanted to be careful you didn't bring in any unknown diseases and everybody was aware of that. At least, they were aware that we had a rigorous healthy colony. We didn't want to bring in any "dread diseases." That's only prudent, when you are looking at millions of mice being produced annually; you don't want to kill the hen that lays the golden egg, do you? You can't indiscriminately import. We've

got so many inbred lines and so many hundreds of different stocks, and mutant genes, and they didn't all originate here. A great many of them were imported, so I don't think...

SM: Has the Lab ever had a problem in terms of its sense of identity as a scientific research institution vs. a mouse-breeding production?

FL: When I think back--Morrell Park existed all of a sudden, it's that big building out there where animals are being produced for distribution to other institutions--suddenly there was a morale problem at Morrell Park. The people down there felt, well, that they were just mouse breeders, and that they were second-class citizens, and up here, at the main lab, is where the big guys are and big stuff is going on.

SM: I interviewed some people who were scientists here who felt that because those folks were making bucks, and science was more ephemeral, the Trustees ...both sides were looking at each other, and I wondered if you had ever heard that.

FL: Oh, yes. One hears it all the time, ever since Morrell Park came into being: now there's this dichotomy of research vs. production, and of course, it's all a part of the same bag, and even the IRS recognizes that, for God's sake! It is research-related income but it is money that is generated from mice. It is not an insignificant amount of revenue that is generated from the distribution of mice. It is approximately equal to revenues generated from research grants, so it's about 50-50, and the monies that are generated from the distribution of animals

are ploughed back into that facility for keeping it updated, and into research. That increases the research income. The people at Morrell Park say "Well, the monies that we make here are going up there, and it's partly true, but they are also going back into improving that whole facility. The main thrust is to make available to other scientists the resources that we have here, the great variety of genetic material that is available for our people to use, and now that's not only in the form of live animals, but in the form of frozen embryos as well. Frozen embryos are now available to investigators, or one can go to Ben Taylor and get DNA from the DNA bank. So mutant genes are available not only in live bodies but in the form of frozen embryos, or in the form of DNA. I know that the NIH has said of the Jackson Lab that, if the Jackson Lab hadn't evolved this resource function, they would have had to create it, that it is a service to the world-wide scientific community, and, again, I think here, being right on top of it, we might have trouble seeing it that way, but there is no doubt in my mind that that is the way it is, that each is important, and neither one here is a second-class citizen. Both are ...

SM: I think that some scientists wonder if Trustees tend to look at the bottom line.

FL: Trustees always look at budgets, ...so no one can see that as much money is being generated from that operation as this operation, without seeing it as all one operation. They would have to say, "Hey, we got to keep that thing afloat and..." I think, "that both are equally important."

SM: What do you think the Jax will be known for? or what has the Jax been known for? What major scientific achievements are associated with it?

FL: Well, right now, it probably is known for George Snell, as our in-house Nobel laureate, and also two summer students who won the Nobel Prize, David Baltimore and Howard Temin, who were summer students here, I guess, in the early fifties. I'm not sure about that, you can check. We got world-wide recognition in the popular press, for these individuals, but in the scientific press, the Jackson Laboratory is known for careful research. It is known for its ability to attract good staff members, good researchers. It's known for its experimental material, and it is a place where, in the summer, people meet for conferences, because it has a very good reputation in the scientific community. Not nearly as good in the popular. I think a lot more could be done in terms of the public relations for the Jackson Laboratory.

SM: Its commitment to mammalian genetics--is that being overtaken by the scientific community's interest in molecular genetics?

FL: Not at all. Because they are not incompatible. Mammalian genetics is being investigated at the molecular level, so it is not an incompatible relationship. That is what it has evolved into: there was mammalian genetics in the '40's.That was breeding two animals and counting offspring. Now it is looking at the DNA. It's just gone to a different level of investigation, but molecular biology is a tool for continuing work in mammalian genetics, so the Jackson Laboratory is, and I'm sure always will be, a center for mammalian

genetics, and mammalian development. Genetics and embryology, those were the main two thrusts of investigation, and what has happened now is that we have people who are biochemists, molecular biologists, people who are immunologists, and they are all working on, at various levels, these problems, which are clearly related to cancer and all kinds of other "in-born" errors of metabolism. It gets down to the genetic, or the developmental component.

SM: If you had a magic wand, and you could wave it, and change the Jax however you might wish, what would you do?

FL: That's a tough one. I would like to see it get more recognition for what it does. I would like to see a bit more of the relaxed atmosphere back. You can see it's relaxed: How many places can you go to work dressed the way you see most of us dressed around here? So I can't say that it's an uptight place, but I think more of the "family" atmosphere could be brought to bear, but there's still a lot of it; given that we now have 500 employees, it's still a pretty good place to work. I can't think that I would change an awful lot. There's very little I think, that I would change. Oh, we have little problems with this and that. We'd like to have this, if we could, and everybody wants to have a computer, and we actually all need more space (as you can see, I'm about to branch out beyond that little sign). There are all kinds of little problems, but in a larger context, I think the Lab has found its place; it's being recognized by the fact that, in terms of research grants that are being made, the national average is something like 25%, and we're getting 50% of the grants

we submit, so certainly the peer review system recognizes the worth... Our scientific staff is publishing in the best peer reviewed journals. Our staff is being invited to give seminars and participate in meetings world-wide. In the scientific community, the recognition is great. They realize the quality stuff that we've done. I just sat on a search committee where we were looking for new young staff scientists, and we weeded through 69 candidates, and invited a dozen or so of those to come, and give seminars, and finally chose five. We couldn't make up our minds--they were all so darned good! The quality of applicants was truly astounding. And they came from all over, not only within the United States, but many foreign applicants as well, so we were able to choose some really super young folks.

SM: Do you have a problem in doing that, in terms of location? Some people wouldn't want a rural area, I wouldn't think.

FL: I think we're lucky in that way too, because we get people who do like it: We get people who want this way of life, people who appreciate the environment, who appreciate being able to drive down Ocean Drive on their way to work, and look at the changing seasons, and who eventually feel the same way we all do about the summer and all the tourists who are on **our** island.

SM: Yes. It's quite an unusual group, I think.

FL: There aren't very many single people who choose to come here because they think that they had

better go to the city where they have a better chance of meeting mates, and so all of the new young scientists came together with their partners, and they all have a great appreciation for nature, and I think it is a very sensitive, unique group. They are very self-selected, definitely. People aren't going to apply here if they'd rather be in The Bronx. If they want to go to Albert Einstein, they'll go to Albert Einstein. If they want to apply to the Jackson Lab, is your suggestion that you think that this means that we are not getting high-powered people, is that it?

SM: No, but I have heard other people say that people who came here at one point found they couldn't take rural life. There does seem to be a problem unless people select themselves in or out.

FL: I think it's a good practice. I think it's good if they select themselves in or out. If they don't fit into rural life, certainly that would affect their productivity on the job as well, if they are unhappy with that environment. People do choose to stay, and we have an unusual longevity of employment here, not only for the scientific staff, but for the support staff as well. The average length of employment, for everybody on the support staff, is fifteen years. That's very unusual in a place, and I'm talking now about secretaries, mouse box changers and handlers... I think that people have a great sense of committment and dedication to the Lab, once they get into ...

SM: There are many people here who have only worked here. They've never worked anywhere else.

SM: That's great.

FL: This cooperative program had just evolved with the University of Maine and only a few people had taken advantage of these scholarships. I had come up here right from Tufts, fresh with a degree in my hand and wasn't interested in going back to graduate school right away. I wanted to get away from school for a few years, so I guess I was up here a couple of years before Tibby nudged and pushed and she said, "Why don't you get on with it now? Now, if you could just go get your degree you wouldn't have to ask me all these questions. You would know. You would be able to figure them out for yourself." So finally, out of desperation, I said, "Oh all right." I was having too good a time, really. The job was such fun, you know, the area was so great, the atmosphere was so wonderful. It was just a very pleasant place to live and work and be. And I wasn't anxious to go back to school at that point. Start working again. But Tibby nudged and pushed and finally, she said, "Now you have got to go to the University of Maine, because I've got a laboratory fellowship for you.

SM: Wonderful.

FL: So there I went. I worked here half time then and went up to University of Maine half time. I'd come home from school and I'd have my dinner and then I'd come out to the Lab and I'd go home and catch a couple hours sleep, go back to school.

Thank goodness I was younger.

SM: Right.

FL: I'm not sure how I did it.

SM: Sounds like you never really rested.

FL: There was too much to do here.

SM: Other people had those scholarships.

FL: Margaret Dickey, who was the geneticist here before Eva Eicher, had one of those fellowships. Ed Les who is still here working in animal health working over at Morrell Park got one. He's in laboratory animal science, the Supervisor of laboratory animal science. Off we went to our various schools to get our degrees. Then after I had gotten the M.S., Tibby nudged and pushed some more and off I went to Brown University for my Ph.D., working with Herman Chase who was a classmate of Tibby's, as a matter of fact. Herman Chase and Tibby were both students of Sewall Wright.

SM: Oh, sure enough.

FL: Sewall Wright is still alive you know.

SM: Yes, indeed he is.

FL: Sewall's name must have come up in many of your interviews. He was one of the fathers of mammalian genetics, he and his guinea pig work. Tibby had done work with Sewell on guinea pig coat color in her younger days and then shifted from coat color in guinea pigs to coat color in mice. After her initial work with pigmentation in mice, she got into the blood work for which she is so well known because one of the genes she was

working with on coat color also happened to affect the gonads and the germ cell production and blood production. One gene affected those three things. So she went from coat color into the anemia question quite normally, just swung right into it. Herman Chase also worked on pigmentation problems in guinea pigs and he stayed with pigment problems in mice and he was chairman of the Biology Department at Brown University and Herman and Tibby were good friends. So, one day Tibby said to me, "You know I have been talking to Herman and told him about you and told him that he ought to take you on as a Ph.D. candidate and he is willing. Why don't you go down and talk to him." So I did and the next thing I knew I was enrolled at Brown University and a graduate student of Herman Chase's in physiological genetics in the Ph.D. program. Where enrolled in the same program was another young graduate student named Barbara Sanford.

SM: Oh, no, really! My goodness. That's amazing.

FL: She and I were classmates at Brown.

SM: That's incredible. Wow! Small world.

FL: And I have some interesting Barbara Sandford anecdotes. Barbara came into Brown the year after I did. And Herman took all of us graduate students aside and said, "Now I've got this woman coming here, a little red headed woman, the mother of four young children and she wants to be a biologist and she has a degree in business administration, so now I don't want you to laugh at her and I want you folks to help her as much as you can because she hasn't had biology courses and she is going to have to take some

undergraduate biology courses to catch up and I want you folks to give her a hand." And we all looked at one another and thought, poor woman, how is she going to make it. This is tough stuff we are talking about. And she's got to go back and take some undergraduate courses and then she came in and shy woman, very self effacing and we thought, she'll never make it. Poor thing. We got through the first semester and she seemed to be doing okay. She must be working hard, she must be bright and then the second semester after she had had a few courses, we'd sit there with our mouths open listening to her. We don't need to worry about this lady. She is going to outshine all of us, there is no doubt about it. She has got it.

SM: And this was Barbara?

FL: That was Barbara.

SM: My goodness.

FL: That was Barbara.

SM: That's amazing.

FL: Came to Brown with a degreee in Business Administration, decided she wanted to learn some biology and by God, she did it. Very bright. She's probably got one of the highest IQ's of anybody I know, except for Tibby. Really bright lady. She would look at something once and she would know it. That would be it. And pretty soon we found that we were asking Barbara, "Did you read the paper on-so-and so, about this?" "Oh, well now his idea is..." She just had it. She just looked at it once and she had it. Very bright, very clever lady.

SM: My goodness.

FL: She and I used to be lab partners in some of the many courses we took together and Barbara was never very good with her hands, so what she would do is read me the directions and I would do the pipetting and things of that sort. Or she would say, "Now I think we ought to try this or something else." I did the mechanical work and she made suggestions and said, "Well, maybe we ought to alter the procedure this way or that way." "Oh, Barbara that's not in the instructions." "But I think it would work if we tried it." Of course, she was always right.

SM: Sounds like she was highly intuitive.

FL: Oh yeah. Definitely. You could see right off the bat. I came back here after I had been at Brown for a couple of years to use the library one summer as a visiting investigator. They called everybody who visited the Lab at that time a visiting investigator. Then I didn't investigate anything, I was just sitting in the library. And I brought Barbara up with me to attend some of the lectures in the summer. I introduced her to Tibby and we were sitting listening to one particular lecture and Barbara raised her hand and asked a few questions of the lecturer. Tibby gave me a nudge and said, "She has got exactly the right questions."

SM: That's wonderful. It's so ironic too, that years later, here she is back again.

FL: Yes, back again as Director. And that was the first time she had

ever come to Bar Harbor when I brought her up here for that summer.

SM: Oh, wow.

FL: Gee. Incredible

SM: Now, when you left to go to Brown was C. C. Little still the director?

FL: No, in the meantime Earl Green had arrived on the scene to replace Prexy. Prexy had retired and Earl had arrived and his style was so different. Prexy, as you heard, promoted a loose environment, the family feeling and he was just one of the guys. He was everywhere. I don't know when he ever sat in his office to get anything done. He was always in the lab talking to someone or, with a hard hat on, walking around outside, or you would see him out fishing. He was just everywhere. Just everywhere. And Earl's style was so different. Prexy let a lot of the things fall through the cracks. He saw the bigger picture and he didn't pay attention to details and so sometimes people...

SM: Like your letter?

FL: Yeah,

SM: For three weeks for an important letter.

FL: Yeah and it doesn't come and it doesn't come. And Earl's style was so different. He was so meticulous about organization that at first everybody was very much put off. Earl, for example, at his parties wanted us all to wear name tags and we all thought

Oh well, he wants us all to wear name tags we'll wear name tags. So we'd slap a name tag here, "Wrong," he said, "I would like you to wear your name tags on the righthand side."

SM: Oh no.

FL: And somebody had the courage to ask why the righthand side. He said, "Well, when you are introduced to somebody, you put out your right hand and the eye follows the arm up and it comes naturally to your right shoulder not your left. So you will wear the name tag on the righthand side." We thought, are we going to have to put up with this? Now he is just too picky for words. And the contrast in styles was quite amazing but Earl got things done. He had maybe not all of the vision that Prexy had, but a lot of it, plus the organizational ability. Things that people didn't like were things like the name tags and also the fact that ranks were introduced; suddenly there were lab technicians and there were research assistants and senior research assistants and categories of staff members and so forth. Everybody used to joke, "Well, shall I get chevrons and wear them on my lab coat sleeve so that you know what my rank is?" It was a time of growth when organization was needed. The larger script played itself out very nicely. The time for the looseness and family feeling was right and the time of growth when organization was required was also right. So it fitted in quite nicely. Very good.

SM: It is interesting little anecdotes like that though, the labels...