RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY

NEW BRUNSWICK

AN INTERVIEW WITH PETER LINDENFELD

FOR THE

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INTERVIEW CONDUCTED BY

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TRANSCRIPT BY

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Kathryn Tracy Rizzi: This begins an oral history interview with Dr. Peter Lindenfeld on January 15, 2020, in Princeton, New Jersey, with Kate Rizzi. Thank you so much, Dr. Lindenfeld, for having me to your home to do this oral history interview.

Peter Lindenfeld: Well, thank you for coming.

KR: To begin, for the record, where and when were you born?

PL: I was born in Vienna, Austria in 1925. I lived there for the first thirteen years of my life, until the *Anschluss*, the taking over of Austria by Germany, Hitler's Germany, and then leaving soon after that with my mother, spending the next year in various places, ending up in Canada, in Vancouver, where my mother had a friend who made it possible for us to get there. At that point, I started going to high school. I went to high school for two years and later to the University of British Columbia in Vancouver, until I left there in 1948. [Editor's Note: On March 12, 1938, Nazi Germany annexed Austria. This event is referred to as the *Anschluss*.]

KR: I was wondering if you could please talk briefly about your parents' backgrounds. I understand that your father was from Budapest, Hungary and your mother was from Trieste.

PL: Yes, both of these places were parts of the Austro-Hungarian Empire, and they gravitated to the capital, Vienna, to go to university there. I don't know exactly when they got there, I only knew them as they made their life in Vienna. They were both physicians. My father was a dermatologist. My mother also started as a skin specialist but then became a psychiatrist, mainly because of her contact with women patients who had a poor image of themselves. That's what she was for the last part of her life in Vancouver. My father was fifteen years older than my mother, but she was the dominant person in the family. Whatever happened was to a large extent what she planned, what she did.

That's true also for our leaving Vienna. My father made no move; few people were ready to leave. It was a place that you came to rather than that you left. It was the center of the universe for them, but my mother understood right away that her effort had to be to leave and to get me out. I was an only child. My father was more reluctant and, in fact, stayed behind, was picked up by the police two weeks later and spent the largest part of the next year in a concentration camp, in Buchenwald, but was fortunate still to be able to get out. He lived in Vancouver until he was ninety. My mother left with me and also spent the rest of her life in Vancouver, and they both died there. [Editor's Note: Established in 1937, Buchenwald was a concentration camp located in Weimar, Germany.]

KR: I was wondering if you can talk about your experience leaving Austria after the *Anschluss*. It was Nazi German policy to encourage the emigration of Jews at that point. Could you trace how you left Austria?

PL: On the one hand, that may be true. On the other hand, they made it difficult, and it was impossible to find out just what the regulations were. They were shifting and changing and not easily known to the people who were involved. For example, some people were sent back from the border if they went by train, and as a result, my mother left with me by plane for the short ride, first to Venice and then to Trieste, where she had family. The family legend at least is that the rest of the people in the plane were sent back, and my mother's cousins bribed the people at the airport to make it possible for us to stay. [laughter] I really don't know whether that's really how it happened. She said to them that if she's sent back, she'll jump out of the plane and she was a very determined lady, and I wouldn't be surprised if they believed it. She was ready to do almost anything, and that determination is what carried us through in many ways.

I was thirteen. So, I knew what was going on, but I was not an aggressive child. I was simply doing whatever it was that I had to do. She was very eager to show me Trieste as her birthplace and the place where her mother lived at that time and some cousins. But it turned out that I was getting sick and, in fact, that turned out to be tuberculosis, and she found a committee that paid for my stay in a sanatorium in Switzerland. That's where I spent the next eight months until she said to the people at the sanatorium to send me to where she was, which at that time was in England. They did not do that. They said I was not cured but then had to let me go at her insistence, and that's what happened. A couple of weeks later, we took a boat to Canada, docking in Montreal, spending the next four days and four nights in a coach train, and ending up where her friend was in British Columbia. I lived in B.C. until 1948.

I remember some details of what Vienna was like. It was clear that the takeover was complete, and as has been documented many times, although the Austrians have often portrayed themselves after that as the victims, they in fact were very enthusiastic in their welcome of the Germans and have, on the whole, behaved very badly since--well, at least in the years just after that time. In other words, while the Germans have done a great deal to, if you like, atone for their actions at that time toward Jews, in the sense of reparations, in the sense of teaching about it in their schools, the Austrians on the whole have done very little of that. I remember the city very vividly, but I've only been back once, in 1984, for three days with my wife. I got married to her the same year that I came to Rutgers, in 1953.

KR: When you and your mother flew to Trieste, why did your father not go along with you?

PL: He didn't think--it was true for many--he didn't think that it could last. He said, "We need to sell the furniture …" We lived on a minimal scale. He was a physician but the kind of physician that he was, the level at which both of them worked, is unknown today. There was none of the sort of industrial operation with nurses and secretaries and telephones. They were just by themselves, each of them in their office. When a patient came and rang the doorbell, one of my parents [laughter] would go to receive them, and that's all there was. There was a waiting room, a very narrow waiting room, perhaps not much more than six-feet wide, next to my father's office, and in the evening, it was turned into a bedroom for me --that's where I slept. There was a bed that came out of the wall, if I remember this correctly. It was a very modest apartment, and my life was very prescribed. It followed a pattern that seemed--before we left--that seemed as if it would go on in its chosen, pre-determined path forever, and that was true for the lives of the people that I knew. In fact, that life ended abruptly and completely. I was thirteen and adaptable. My mother was born in 1897, so she was in the middle of her career, my father in 1882, so he was a little further along and much less flexible. But they had built up a life for themselves, and what happened was a total disruption for them, as it was for all Jews there.

I had been in school, in a "Gymnasium," in other words, a high school, in what would here be the fifth and sixth grade. I was in the middle of the seventh, when all Jewish students were transferred to the single Jewish high school. I don't remember learning anything during that next time. It was a totally disruptive time until we left, and that was so for everybody else that I knew or got to know.

KR: You said your father was in Buchenwald, the concentration camp.

PL: Yes.

KR: How was it that he got out and was able to immigrate to Vancouver?

PL: I don't know, as I said, what the regulations were and how things worked. A certain number of people, at that time, this was still 1938, were able to get out if they had a place to go. You had to have a visa, and after a short time it became impossibly difficult to get a visa to anywhere. There was only one place that I know about where you didn't need one, and that was Shanghai. A number of people left to go there. The most famous one that I know of is W. Michael Blumenthal, who became Secretary of the Treasury and signed everybody's dollar bills. [Editor's Note: From 1933 to 1941, Shanghai, an open port city, accepted over 30,000 European Jews who fled Europe during the Holocaust. W. Michael Blumenthal served the U.S. Secretary of the Treasury from 1977 to 1979.

He escaped Nazi Germany at age thirteen with his family and lived in Shanghai from 1939 to 1947, after which he came to the U.S. at the age of twenty-one.]

My mother found somebody who paid for that ticket for my father, and he got out and went as far as Trieste also, to follow in our footsteps, and then threw the ticket away. He was a little dramatic about this and said he threw it in the ocean. He followed us to England, where he was promptly interned as an enemy alien, applied to go overseas, which you could, thinking he would be sent to Canada, where we were by that time, and instead was sent to Australia. I don't know where in Australia. He never talked about his time in the German camp or wherever he was in England or in Australia. He just simply never talked about that. I regret that I wasn't more insistent--in order to spare him and spare his feelings. That was a big mistake because now I know nothing about what that was like for him. He eventually came to Vancouver about two years later, and we can talk about that.

KR: What was it like when you were reunited with your father in Vancouver? It had been a number of years since you had seen him.

PL: Well, I had finished high school, and it was the year after I had graduated from high school, and I was working. Some committee or person paid for a room and my earnings paid for everything else that we did. I was very proud of the fact that I was the only one in the family that earned any money that year. How was it when I met him? I don't think it was terribly emotional. He was more emotional than I was. I simply did what I thought I needed to do. I was pleased and proud that I could take care of him, and I tried to do that. He had to adjust to where he was. He had much more difficulty learning English than my mother or I. He worked at that, and both of them eventually got their medical licenses back.

The most difficult thing for my mother, who came first, was that just to get the permission to take the medical exam was a process. She was asked to spend a year at a medical school in Canada before she could even take the exam, the only person that I know of who was asked to do that. There were some number of others in the same situation, including my father, and nobody else was asked to do that. Was that because she was a woman? Or because she was the first, I don't know that. It turned out that she had a good time. She liked the idea of being in medical school after many years of having more responsibilities. She was free of her family obligations. I was somewhere else. She was free to have new associations, do new things, and at the end of that time, she took the exam. It took her three times. She stayed for another year and did not come back until she had passed the exam and was able to begin practicing medicine again. Eventually, she also took a specialist exam, became a psychiatrist and an instructor in the new medical school, which opened in Vancouver. At the time when she had to go to

medical school for a year, there wasn't one in Vancouver. She had to go to Winnipeg, in the middle of the country, and she did not come back until she had passed.

I was in high school in the meantime and then spent a year working in somewhat menial jobs, and during that year, that's when my father came. It was also the year when she was in Winnipeg in medical school. At first, I was on my own, and when he came, I went to the boat, took him to that room and did the best I could to get him started. By that time, I was, let's see, I graduated--I was sixteen when I graduated--so, by that time, I was probably seventeen.

KR: Your mother's extended family in Trieste and your father's extended family in Hungary, what were their experiences during World War II?

PL: I never knew any of the family that was in Hungary. I knew my father's mother briefly in Vienna, and only while she was ill and in bed, and one of his siblings. He was one of five. But, basically, I knew nothing about them. He came from a very poor background. He and one of his nephews were the only ones that raised themselves out of that poverty, both by becoming physicians. His nephew Herbert was somebody that I knew well. He settled in California and became a public health officer in the biggest county in California. He was a wonderful person whom I loved, who died at 104. I'm not quite there, but I'm working on it. [laughter] He was somebody I liked a lot, and I'm in touch with one of his sons and some members of the family. I never knew any of the family in Hungary.

I did know and continue to be in touch with the part of my mother's family that had lived in Trieste. Two, a nephew and a niece, now live in Jerusalem. I'm in touch with them and like them very much. But they're very different. They characterized themselves most recently by saying, he at least--there's a boy and a girl; now, a retired man and woman--he said, "We are a minority in a minority. We are observant but liberal." I like the liberal part. The observant part was something I did not grow up with. The house was very secular but always consciously Jewish. It was never denied.

An interesting side note on that is that like so many, my parents considered becoming Christian, but I resolutely refused to have anything to do with that, not because I knew anything about the Jewish religion or Jewish history, but because I wasn't going to change who I was. That was my identity, and even at a very early age, I was resistant to any thought of changing that and it didn't happen. It happened to some of my friends, not that it changed their life. It certainly did not do what many of the people who converted had expected, namely that they were going to be saved, freed from persecution of the various sorts. That certainly did not happen for anybody, as far as I know.

KR: When you took the boat from England to Montreal, what do you remember about that voyage? The Battle of the Atlantic was going on at that time between the German U-boats and the various ships that were crossing the Atlantic.

PL: I was not really aware of that. I was also seasick on all but the first and last days. I remember very little. We had whatever third-class was and not much access to the deck. I think there was a small portion of the deck that we could go on but not much. I remember very little. We got to Montreal as the first boat in the spring that could get there and climbed up some stairs to the train and got into the train and left. My mother organized all that, as she did everything else at that time.

KR: What were your feelings and your mother's feelings when you reached Canada? Was there a sense of relief?

PL: I don't really know that. As far as I know, she looked at a map while we were on the boat to see where we were going. She had no idea what that was going to be like. Nobody in the family had really any experience of traveling anywhere. When they lived in Vienna at that time and the kind of circumstances that we had, your life was set right there. If they went on vacations, it was to other holiday places in Austria. I don't know of any other trips, any places that they would go outside the, by that time, very small country. So, their horizon was very limited, and I sometimes wonder what would have happened to me if everything had gone on and I had stayed there. Would my life have been as circumscribed and as limited as it was at that time? For me, leaving was a liberation. I remember the atmosphere in Vienna as confining. I went to three different schools, the Gymnasium, in other words, the high school, was not very pleasant, and in some ways, aggressively awful. I was happy to be away in a place that immediately let me live and breathe in a different way and also have some hand in shaping my own life, which I could in no way do before I got to Canada. The schooling at the Gymnasium in Vienna was not very friendly and not very warm. The atmosphere was brutal in some ways, but I must have learned a lot because I knew more than the other kids my age when I got to high school in Vancouver. The school in Vancouver was pretty good. As I look at schools today, I see how different the atmosphere was. There was a considerable emphasis on learning, not as disciplined in the way it had been in Vienna, but rather open, and there was none of the social part that I see here. There were no dances. There was no outside activity. There was none of the sexualized atmosphere that I see for kids of that age in the last years of high school. My memory of learning things, at that time, during those two years, is very good.

I came into the class; I sat in the front row. I literally didn't understand a single word, but after the first semester, I was functioning. It was much easier for me than for my parents, of course. I remember an English teacher who basically gave me the foundation for

everything I say or have said since, and I've spent my life talking as a teacher and professor, after all. I haven't lost my accent--my voice had changed by that time--and I always regretted that. I eventually met somebody who said, "I think we can do something about that." But I said by that time, it was too late. I was living with the way I talked. I can't hear it as much as others. I remember one time my son told me about a friend who said, "Why does your mother talk funny?" He answered, "I don't know what you're talking about. That's the way she talks. That's who she is." That was her identity. That's the way I felt about myself, and I became comfortable with it. It's better if I don't hear it. When you put on your tape recorder, I can hear it much more strongly than otherwise. I'm not that happy about that, but it's been that way for a long time.

KR: On the topic of languages, when you were growing up, what languages did your parents speak, and what did you learn?

PL: My first language was German, and that's all I heard my father speak. My mother spoke some Italian to her mother. Otherwise, it was always German. My German has remained good, partly because my father insisted that I speak either English or German. He said, "Speak English or speak German but don't mix them up." That helped me retain really good German. I would read in German. I spent some time during my university years making extra money as a translator of scientific articles and occasionally still get asked to translate for people. My German remains good, and I think my father had a good deal to do with that.

But the foundation of English usage and grammar, I got in high school. I spent two years in high school. The first year was grade nine, when I first got to Vancouver. Without my doing anything about it or anybody else pressing for that, I was put in grade twelve the next year. At the end of that year, there was a contest to write something, and my mother, again, who dominated I think whatever I did, said I should write something for it and even made some suggestions. I have no idea how that happened, but I won that contest. I have no idea who else applied or what the rest of the story might have been.

KR: What did you write about?

PL: I discussed that with my mother and said, "How could I write anything?" She said, "Well, we talked about stories and you could write something about them." It was called "Fables that my mother told me," and I did the writing but I didn't invent the stories. I've enjoyed writing ever since, and sometimes wondered whether if there had not been the economic pressure, whether I wouldn't have done something else, other than the physics that I spent my life with.

Let me just stop there and say that I first studied engineering and then switched to physics and barely knew what I was getting into. When I came to Rutgers also, there was this conflict. I had no idea what I was getting into really, but I knew that I needed some human contact and the pure research jobs weren't going to do that for me. But we can come back to that, when I talk more about Rutgers.

KR: How was it that you originally got interested in engineering?

PL: I needed something that would lead to a job, and I was good in mathematics and scientific things. I had no role models. There was nobody I knew who did anything other than what my parents did. So, it was a stab in the dark and an accident, if you like, but it did fulfill that requirement of the prospect of a job. It was practical. It was something where I understood the context, or I thought I did. I don't think I ever considered alternatives. It was going to be chemical engineering because I understood that that meant materials and you did things with materials of one sort or another, and it was something that I could see happening. I knew nothing about other possibilities.

KR: You went to the University of British Columbia.

PL: Yes.

KR: You got your bachelor's in electrical engineering.

PL: Yes, it was going to be chemical at first, but the first three years were the same. It's a five-year curriculum. It was sort of an elite curriculum. The first three years were common to all engineering curricula, and they had some substantive courses that I remember and that I thought were good. The last two years were in the specialty, in my case, electrical engineering, at a time when electrical engineering was nothing like it is today. Today, the subject is dominated by computers. They didn't exist at that time. There were no transistors. They didn't exist. No computers certainly, other than adding machines that you cranked. I learned about motors and generators, and in the summer I worked in substations for the British Columbia Electric Railway Company, the local utility, but none of that turned out to be of any practical application for me. I think a number of people expected me to get a job at the BC Electric, and I could have. I worked during the summers in their transmission and distribution department, and I knew a certain amount about what to do, but didn't stay with that. [Editor's Note: The British Columbia Electric Railway Company operated railways, streetcars and buses in British Columbia between 1897 and 1979. It later became a division of BC Electric, the primary utility supplier of the region, which has since evolved into BC Hydro.]

When I graduated, it was no longer so important to get a job right away. My parents were settled in their different ways. I wanted to go on to graduate school, and that's when I switched to physics. There was no Ph.D. program in Vancouver, so I got a master's degree. It took two years, and then I applied to go to graduate school and ended up in New York at Columbia University and, after another several years, got a Ph.D. there.

I said that the high school was very good, and I learned a lot. The universities that I attended taught me much less, and the level of what I learned was very limited. I was not a good student at Columbia. I was surrounded by famous important physicists, including my advisor, but the fit was not very good. I graduated, and what I learned came mainly later, when I taught the subjects myself and did work myself. That took a long time, because I was not well prepared for any of that, so I stumbled around for a long time.

KR: Who was your advisor at Columbia, and what was your area of physics that you studied?

PL: I had done some work in nuclear physics in Vancouver for a master's degree. That is still a subject that I am quite comfortable with. I started out doing that kind of thing in New York at Columbia for the first couple of years. I really didn't have an advisor. There was a nominal advisor, but he really did not stay in touch. I worked with somebody else, another student, and the agreement was that I would help him with his thesis and then he would help me. Well, I helped him with his and then he left.

I stumbled around, and that's when a new professor came to Columbia, who was not much older than I was. That was Jack Steinberger, who was a Jewish refugee from Germany and an extraordinary person who eventually got the Nobel Prize. But, for me, as an advisor, I'm unable to think of much advice that he ever gave me. When I wrote my physics book, I asked him whether he would write something about that, and he said, "Oh, I don't know anything about teaching." He eventually did, and I got a really nice blurb from him and that put us in touch again. I admired him enormously, but he wasn't going to stop what he was doing to look over his shoulder to see if I knew anything about what was going on. As an apprenticeship, it wasn't very good for me, and in fact, when I got to Rutgers, I did completely different things. I made no effort to continue. He is in his late nineties and lives in Geneva, near their big cyclotron establishment. As far as I know, he goes to lunch either every day or often and holds court among the rest of the group of physicists. I mean, he's a famous person. [Editor's Note: Jack Steinberger joined the faculty at Columbia University in 1950. He was born in 1921 and escaped Nazi Germany at the age of thirteen. He was awarded the Nobel Prize in Physics in 1988. The European Organization for Nuclear Research, or CERN, is a particle physics laboratory in Geneva, Switzerland. A cyclotron is a particle accelerator used for research by physicists.]

He's a really special person, but, for me, that was not a good fit. I tried to learn from him, but that was difficult. One day, I looked at what he was doing. At that time, what now is a little board with transistors and other circuit elements, was a large metal chassis and you turned it upside down and there were the bottoms of the radio tubes, the electronic tubes that were used, and you soldered wires to them and tested them and so on. I came over to him and watched him do that. He looked up after a minute and said, "No, we're not going to do that." He described his first advisor, who said, "Now, we're going to pick up this instrument and carry it over here, and now we will attach this wire." He said he could stand it for an hour or two and then he left and found somebody else to work with, and he wasn't going to start with me doing anything like that. That was fine for him, but I learned nothing. I mean, I learned things otherwise but not really from him.

KR: What was life like for you living in New York City?

PL: I lived in International House for two years, and that was great. I made many friends from different countries and began to have some girlfriends, but that's another story. [Editor's Note: Founded in 1924, International House of New York is a non-profit organization that houses international graduate students and researchers. It is located at 500 Riverside Drive in Morningside Heights, Manhattan.]

Actually, my first girlfriend was just after high school. My mother was in Winnipeg in medical school. As a result, I spent one year there also at the University of Manitoba, and during that year, we were friends. After I don't know how many years, I got a message from her on Facebook, and we've talked recently and revived our memories of that time. I haven't seen her since those early years.

I had other friends, male and female, in their different roles while I was in New York. The studying was totally consuming, but I did get around, to the Museum of Modern Art and went to plays. International House had discount tickets for students. I got to know a lot of people and a lot about the city and made use of that, even though I can't really imagine anymore how I found the time for all of that. That was a very interesting time, even though I thought that my fit at Columbia was not so good and I was not a very good student. I did learn a certain amount outside of school just by living there.

That had also been true at the University of British Columbia. I joined various groups. There was a Social Problems Club and an International Relations Club, and I became the president of one and something else in the other one. Through that, I got to know a lot of fellow students who were not engineers. The engineers did their thing and sang songs about drinking beer, and I didn't really join in on that. But I got around the campus in many ways. I wanted to write for the newspaper. That was impossible, because all the

students who did that had the afternoons and most of their days free. The engineering curriculum, even though it didn't teach me much, required a lot of time. There were laboratories every day, and the idea of taking as much time off as that would require was basically impossible. I must've made a nuisance of myself, because there was an annual spoof issue of the student newspaper, and there was a letter to the editor in it, signed, "Peter Limburger," which clearly was a takeoff on whatever I made them think about me.

Yes, I got around a lot, but I didn't really make that much progress in my supposedly chosen field. Whatever I learned about engineering and physics and anything else came primarily when I started teaching and when I could shape my own life, rather than struggling for more and more homework, which took all the time that I had, but was, in retrospect, or even at that time, not very productive.

KR: After you got your Ph.D., what was your next step?

PL: While I was still working and had not finished, I had one year's temporary job at Drew University in Madison, New Jersey, and I lived there in a rented a room. I liked that. There was a Physics Department where there was one person and that one person was on leave and I took his place. He'd been there for decades. I had more responsibility there than for many years after that. I was the Physics Department. There was no one else, except for a man who cleaned the apparatus for student laboratories. I could do what I wanted. I taught the kind of course for which I had been a teaching assistant in Vancouver and at Columbia, but I had no experience giving lectures or anything like that. So, I had the responsibility for that Physics Department for a year and had more responsibility then than for a long time afterwards. So, that was the first job.

During that year I, let's see, I was going to say I applied for a job at Rutgers, but that's not quite the way it went. I was in the Columbia Physics Department, and one day I was walking in the hallway. Coming across from some door was the chair of the department. That was Charles Townes, who was the inventor of the maser, that led to the laser. I didn't know whether he would know who I was. It was a large department with many students. He stopped me and said, "How would you like a job at Rutgers?" I had no idea where that was or what it was. I said, "Well, sure," and that set it into motion. I was invited to give a talk and got the job. [Editor's Note: Dr. Charles Hard Townes (1915-2015) served as a professor at Columbia University from 1950 to 1961, during which time he chaired the Physics Department from 1952 to 1955. In 1961, he became a professor and provost at MIT, where he stayed until 1967. He spent the last portion of his career at the University of California, Berkeley, becoming a professor emeritus. In 1964, Townes and two others won the Nobel Prize in Physics for their developments in microwave-emitting devices, called masers, and their light-emitting successors, lasers.]

I did not apply for any other jobs. Most of my fellow graduates wanted and got jobs in industrial labs, which paid more and were very different, and I said, "No, I don't want that." I just needed more human interaction, and that's the way it worked out. I think that the human interaction was very important to me. It also misled me in some ways because at that time, the Rutgers Physics Department, if I can jump to that, was intent on becoming much more seriously a research department. From then on and to this day, people get hired at Rutgers in the Physics Department only for their research experience and promise. I had neither. I thought that, yes, I was going to do research, but it wasn't as if that was going to be the only thing.

I started something completely new. I went to a person that I liked and knew and said, "Can I work in your laboratory?" and that's basically what happened. Today, I would never get a job at Rutgers because any applicant has to demonstrate that he or she has already done research and was going to help put the department on the map in some way. Well, hey, I wasn't anywhere close to that. Today, also, it's not likely that anybody would get hired just straight out of school. They do post-docs and sometimes several post-docs before that happens.

My first years at Rutgers were so that I really had no idea what was expected of me, and at one point I was told that I would not be kept. By that time, I was an assistant professor. I had a three-year term, and after the second of those, the chair of the department came to me and said, "This is it and we're not going to reappoint you." I went through a total decline. I shut myself off from the rest of the world. At the same time, I said to myself, "I really need to get something done." I was in the middle of doing some work in the laboratory. I didn't talk to anybody. I was angry at my wife for even asking about that, asking me, and asking the people in the department. I must have been pretty tough to live with and to work with when I shut myself off and just worked in the laboratory. I didn't apply for any other jobs, although I talked to some people about that. I really got some research work done and got some papers written. One day, I was told, "Yes, we'll keep you after all." That's how I'm still here. I still have an office, but I don't really do much there. Yes, that was the beginning, and things were a lot easier after that.

KR: What research did you do that led to your promotion?

PL: When I came initially, the first person that I had heard about at Rutgers was Bernie Serin, because he had done work in superconductivity that people knew about and described to me. It was very straightforward, and I could understand it. I went to him and said, "Can I work in your laboratory?" and he said, "No, I'm getting out of the field. There is nothing left to do." That's, of course, not what happened; he stayed in the field, and it had some number of resurrections. It's a field that's been declared dead ever since its first years after being discovered in 1911 and is still a field more full of promise than

results. Yes, it continues to be of great interest for various fundamental reasons, as well as practical reasons. I started working in that lab and got some advice from him and tried a few things, which didn't work, and then eventually got going on work which resulted in papers, of which I had too few by that time. I was running out of time but then recovered and had quite a few after that. [Editor's Note: Bernard Serin served as a professor of physics at Rutgers for twenty-six years. According to Allen B. Robbins in the departmental history, in 1950, Serin and collaborators demonstrated the isotope effect in superconductivity, one of the great research accomplishments of the Physics Department at Rutgers University. He died in 1974 at age fifty-two, one year after leaving Rutgers for the University of Manchester in England.]

KR: What were some of your research accomplishments?

PL: They're not easy to describe. They were not newsworthy things. They were small advances, but several times they were insights that other people did not have. There were puzzles discussed in the literature and I occasionally found solutions. I was working on heat conduction in superconducting materials. At the superconducting transition, a material changes from being an ordinary metal to a superconducting one, and loses all of its electrical resistance. There are other changes in the materials, so that there is a true transition from one material with set properties to still the same material but with quite different properties. The transition is still interesting and still not completely understood. It's still a field where materials have properties that are unexpected. I used that transition to superconductivity to find out some fundamental properties of the interaction of the electrons in the material. I could describe that in great detail, but it's a tough thing to get into without elaborating on technical details. But, yes, some of that was successful and some was so that I was pleased with it, and some of it was published in journals that are reserved for special achievements. It took a while, but that was the part that showed that I was not just doing totally routine things.

KR: I want to ask you about your early years at Rutgers, in the 1950s. When you came to Rutgers, you were at what was then called the College of Arts and Sciences.

PL: Yes. It was part of Rutgers College. The University was still trying to be a small colonial college in many ways. The logo had 1766 on it, and for many years afterwards still, to show when the University was founded. The Dean of Men supervised a whole fraternity system. He had a house on Easton Avenue, and the fraternity system was important. The tension between trying to be a small and perhaps personal college to the students, and becoming the large University that it is today, the State University in a real sense, which it really wasn't then, that tension has remained and I think still remains. I lived through the time when the University changed dramatically.

At the beginning, there was Rutgers College with male students on one side of the city of New Brunswick, and the women's college, initially called the New Jersey College for Women, on the other side. They were separated by many things and certainly by the city of New Brunswick. There was an evening college, called University College, and that was it for the first years when I was there. [Editor's Note: The New Jersey College for Women (NJC) was founded in 1918 as the coordinate women's college to Rutgers College. It was renamed Douglass College in 1955, in honor of its first dean Mabel Smith Douglass. In 1934, University College was founded to serve nontraditional students. The other undergraduate colleges at Rutgers-New Brunswick were Livingston and Cook (the former Agriculture School). In 2007, Rutgers University consolidated undergraduate education, and the colleges were merged into the School of Arts and Sciences and School of Environmental and Biological Sciences.]

The dean of each of these colleges had close to total control over what was happening and who was hired. He or she had to negotiate the budget with the higher administration, but basically what happened in the college was decided by the dean in consultation with the faculty. Faculty meetings were looked down on by most of my colleagues. I liked them. That's where I felt I was part of what was happening, and the fact that I was active there had some influence on my life and what I was doing and the people that I got to know. I had much more contact with the people outside the Physics Department than most of my colleagues and felt myself much more part of the University than they did. The normal thing was for a faculty member in the Physics Department to concentrate on his research, I should say his and her, but there were no women until some years after I came. The committees that people were on and the outside activities were mostly minimized and not looked at by my colleagues with much interest. It was different for me. My contact with the rest of the University was through the faculty meetings and the committees that I was on. I was very involved in all of that and felt myself, as a result, to be part of the University in a way that others usually did not. There were many that were just totally hostile to the administration, looking at the administration as a foreign body really. I didn't feel that way, and that shaped a good deal of my interactions with other people.

KR: Who was the dean of Rutgers College then?

PL: My first communication from the dean was about two months after I came and he said, approximately, "You've been hired for one year as an instructor and there is no commitment that we'll reappoint you. If you want help finding other jobs, you can consult your colleagues." Well, of course, I did nothing, because I didn't know what to do. That was part of the context. Who was the dean? I will probably remember, but names are difficult for me. [Editor's Note: From 1952 to 1965, Harry G. Owen, of the

English Department, served as the Dean of the College of Arts and Sciences, also known as Rutgers College.]

KR: Was it McCormick?

PL: No. I knew both McCormicks. No, it was much before that. Dick McCormick, Sr. was in the History Department, and later Dick McCormick, Jr. was also. I did get to know both of them. [Editor's Note: Richard P. McCormick (1916-2006) served as a history professor and administrator at Rutgers University. He joined the faculty in 1945 and retired in 1982. He held the post of Dean of Rutgers College from 1974 to 1977. His son, Dr. Richard L. McCormick, a history professor, served as the President of Rutgers University from 2002 to 2012.]

One thing that had happened just before I came was that during the presidency of Lewis Webster Jones, there was the question of the loyalty oaths. I think three people were fired at the time. That was very traumatic, and all of that remained very much a subject of discussion after I came. Although I was not directly involved, my interest in free speech and the American Civil Liberties Union probably started at that time. That had a huge effect on the atmosphere at the University. [Editor's Note: Lewis Webster Jones (1899-1975) served as the President of Rutgers University from 1951 to 1958. In 1952, when called to testify before the Senate Subcommittee on Internal Security regarding alleged ties to the Communist Party, Moses I. Finley, a history professor at Rutgers-Newark, and Simon W. Heimlich, a physics and mathematics professor at the College of Pharmacy at Rutgers-Newark, invoked their Fifth Amendment rights and refused to testify. The Rutgers Board of Trustees issued a resolution that called for the immediate dismissal of faculty members who invoked their rights against self-incrimination in front of an anti-Communist investigatory body, a position advocated by President Jones. Despite a faculty committee (including Richard P. McCormick) that contested the University's position as being antithetical to academic freedom, the administration of Rutgers succumbed to the conservative pressures brought on by McCarthyism and enforced the dismissal of Finley and Heimlich. Abraham Glasser, a law professor at Rutgers-Newark, refused to testify when called before the House Committee on Un-American Activities (HUAC). In 1953, President Jones suspended Glasser, after which he resigned.]

KR: That was Finley and …

PL: Heimlich.

KR: That really impacted you.

PL: Yes, but there was another one, the one that, in fact, became the most famous. That was Eugene Genovese. I knew him slightly. He became a well-known history professor elsewhere, specializing in black history. He became the one of the group who continued a productive career. The others basically were pushed out of the way and I don't know what happened to them. [Editor's Note: Eugene Genovese (1930-2012) served as a history professor and scholar of slavery and the American South at Rutgers from 1963 to 1967. On April 23, 1965, at a teach-in at Scott Hall dedicated to discussing U.S. foreign policy in Vietnam, Genovese declared, "… I do not fear or regret the impending Viet Cong victory in Vietnam. I welcome it." Amidst the firestorm of controversy that ensued, Rutgers President Mason Gross, with the support of the faculty, resisted public pressure to dismiss Genovese and staunchly defended the principle of academic freedom. Genovese later resigned and moved to Canada, where he taught at Sir George Williams University.]

KR: What was the climate like on campus with the issues of the McCarthy era that were going on?

PL: The faculty was not unanimous, but there was a very strong liberal element. There was also a strong conservative element in the college and a good deal of tension between the two. I'm not sure I can say that there was a lot of influence on day-to-day activities, but it was very much something that people were aware of and talked about.

After Lewis Webster Jones came Mason Gross, and he was certainly known for his liberal leanings. That encouraged a strongly liberal direction at the University. I don't know how much of the University he actually ran. He was sort of a benign presence, but I think it was Dick Schlatter, his provost, who really ran the place and who was known as the person who would enforce difficult things. He was the one who did the firing if somebody needed to be fired. He was the one who would try to shape departments. But he was also very much an intellectual, who from time to time got people together in one of the otherwise more or less empty houses on College Avenue and would host dinners there. I was occasionally invited to one of those and they were really interesting. People talked about intellectual matters and I felt privileged to be there. I got to know Dick Schlatter and later Henry Winkler and eventually Ed Bloustein, through my associations with the college and the larger environment and had a variety of interactions and chances to be involved. All of that was before my time with Livingston College, which I think you know about, because I sent you some of what I wrote about that. [Editor's Note: Mason Gross served as the president of Rutgers from 1959 to 1971. Richard Schlatter served as a history professor at Rutgers from 1946 to 1962, after which he served as provost and vice president until his resignation in 1971. Edward Bloustein became the president of Rutgers in 1971 and held the post until his death in 1989. From 1947 to 1977, Henry Winkler served as a history professor and vice president at Rutgers.]

Let me just get back to the Physics Department for a moment. I was among the last people who were hired without a specific research plan, and I started early on giving courses for high school teachers, getting grants to do that, and being involved in the American Association of Physics Teachers, in other words, in a context beyond the department. I saw myself as a kind of bridge between the high school teachers and the University, with meetings and other activities. I was not the only one; I was not even the first one. This was the time when new curricula were being started in high schools largely by professors, and the first one was mostly by people at MIT. I participated later and had a lot of interaction with physics teachers. I think at one time I knew most of the physics teachers in the state through my activities, through the meetings and the courses that I taught. That was different from what was true for most others, who were more confined in their interests and in their interactions. So, that became an important part of my life and fulfilled to a larger extent than my research activities, my interest in having a set of human interactions.

KR: You were really a pioneer in that regard, because now there is a lot of emphasis in different departments at the University in bridging the gap and providing education for secondary school teachers. You were doing that fifty years ago, sixty years ago.

PL: There was very little of that; that's true. I knew people in the School of Education. I recommended somebody to be a professor of science education. There was very little support for that kind of position, not in the Physics Department and not anywhere else. I think there were people in the administration who recognized that more than the people in the Physics Department. I think I was something of an outsider throughout that time. People remember me now as somebody involved in teaching and often only that. The fact that I had a substantial research career is sort of ignored. It has no effect on my life now and perhaps didn't ever, but it distorted the view people had of me and also led to some number of difficulties. But, yes, I was involved with teachers from the time a couple of years after I came to Rutgers.

KR: Can you go into some of the programs that you established? I am thinking specifically that you were involved in establishing the Master of Arts for Teachers and the Master of Science for Teachers.

PL: Yes, they were master's programs that recognized undergraduate courses more than anybody thought was possible. It was an interesting political development in the college to get the members of the college to vote for something like that, because it went against the whole hierarchical structure. There were graduate courses and there were undergraduate courses, and the point that I managed to get accepted is that for high school teachers, the undergraduate courses in a science department would be at a level

which for others would be a graduate course. Before that, they were made to take graduate courses for a master's degree. They were largely inaccessible to them because of their mathematical level, and, secondly, useless to them in their work and in what they wanted to learn and do. By broadening that and allowing nominally undergraduate courses to be counted towards a master's degree, the whole sense of what a graduate degree might do for them changed. I am excited about the fact that these degrees are still used by teachers. These teaching degrees were a problem in the Physics Department. They were regarded as easier degrees, and students who flunked out of regular courses were sometimes shunted into them. That was not what was intended.

One of the innovations that did work and continues to work is that Bernie Serin and I started a separate undergraduate program for physics majors, one that was less mathematically demanding and less focused on preparing students for graduate school. It's called the General Major. It still exists and has made it possible for the Physics Department and others, but primarily the Physics Department, to have many more major students than they had before. There was also a collaborative program with the Engineering College, which took a lot of meetings with engineers before that was approved, because there are all kinds of uninteresting bureaucratic problems that arise when you try to work out programs between different departments. At that time, the number of undergraduates increased a lot in the Physics Department.

There was no such position as undergraduate director. I was the first person who had basically that job, but I didn't want to call it that. I wasn't going to direct anybody. As the first person, I called it undergraduate coordinator. It had to do with advising and talking to people about the courses that they taught and having some influence on the curriculum. I did that as an extra, in addition to my regular teaching assignment. I liked it and continued until I was told, "You've really done this long enough." I helped choose the next person. One of his first actions was to free himself from all previous associations and shut me out from discussions about courses and teaching. That was tough for me, but that was a personal problem between us.

KR: What other innovative courses were you involved in designing and teaching?

PL: This was an era when the so-called self-paced courses, in the '60s, I think, became important all over the country. The idea was no longer to have lectures and to make the students more self-reliant. They would get a program, would read books and so on, and they would "master" the assigned material. "Mastery" was a big word; what it meant was that you would advance at your own pace, from exam to exam. I remember one of my colleagues, in another university, who outfitted a space for that kind of course. There were sort of phone booths scattered around. A teacher or assistant was in the phone booth as a "resource person," and the student could go there for information. Well, that

lasted for some time. The self-paced system meant that there was much more reliance on what the students did themselves. Well, that didn't work. Not only did the teachers and professors find that they were underused and didn't have a forum to do their thing, but the kids didn't like it. To have that responsibility of shaping a course by themselves basically did not work very well for most. After a brief time, this kind of program disappeared in most universities.

A course like that remains in the Physics Department. I introduced it, but never taught it. It's a core course in the General Physics curriculum. I don't think it has progressed as I had imagined it might. I thought I could take it further, but I never did.

KR: What was the name of that course?

PL: It is called "Advanced General Physics," and it has a little piece of various subjects in physics. The normal undergraduate curriculum has courses in mechanics, electricity, optics and so on, and you take a course in each. But for the general major, this one course has some of each, and the idea was that it could be tailored for different students, depending on their background and interests.

KR: You established a course or some sort of a seminar with Seymour Zenchelsky in chemistry.

PL: That was my first job when I came. The former chair of the Physics Department, Frank Dunnington, wanted to modernize the department. This was the time when radioactive isotopes were first used in industry. He got industrial support for setting up a lab from companies like Johnson & Johnson and the oil company that became Exxon. About twenty of them gave a thousand dollars each, enough to set up a lab. He needed somebody who could do that, and that's when I was hired. Seymour Zenchelsky in the Chemistry Department and I set up the lab together. [Editor's Note: Frank Dunnington chaired the Physics Department from 1946 to 1952, followed by Charles Whitmer from 1952 to 1959.]

Anybody who wanted to use radioactive materials in the University had to take that course. It was primarily populated by students much older than we were, who had been professors or scientists in industry. As far as I know, all that went well. I was comfortable with the subject and knew what I was doing. The two of us taught it for several years. I think that the course was quite successful and fulfilled its function of preparing people to work independently with radioactive materials.

KR: When you first came to the Physics Department, where was that department located?

PL: It was in Van Dyck Hall, named after the first physics professor in the University, in the 19th century. A big oil painting of him is in the chair's office. [Editor's Note: Van Dyck Hall is located on Seminary Place and is part of Voorhees Mall on the College Avenue Campus. Van Dyck Hall now houses the Department of History. Built in 1928, it is named in honor of Francis Cuyler Van Dyck, who joined Rutgers in 1871 as a Professor of Analytical Chemistry and founded the Physics Department. He was Dean of Rutgers College from 1901 to 1912.]

At that time, the science campus was projected to be on what is now the Busch Campus. There was a model with many buildings on a tabletop, all of them in the Georgian style of the Microbiology Building. Microbiology was there first and part of what is now the Chemistry Building. The model had other science departments there also in a cluster, all looking the same. Well, that's, of course, not what happened.

Bernie Serin, who was a very modern person, was primarily responsible for having a totally different style for the Physics Building, half of the present Physics Building. The other half was added later. He took a direct interest in all of the architectural features, such as bare cement walls with simple patterns. He found somebody to do the wooden railings by hand.

KR: What was it like moving to the new Physics Building on Busch Campus in the 1960s?

PL: Well, it was traumatic for many of us. For a theoretical physicist there were no problems. They would just have to transport pencils, but for somebody with large pieces of equipment, as for liquid helium, it was a big investment in time and energy. But, yes, it was more or less routine, and everybody was very happy that there was more space and more modern surroundings.

The space in Van Dyck Hall was, I think, good for a small Physics Department. When I came, there were maybe ten or twelve faculty members, and now, and I think stably for some years, there have been more like sixty or so. The number of graduate students was also eight to ten perhaps, with active faculty members each having about one graduate student. Well, that's on a different scale today. [Editor's Note: In June of 1963, the Physics Department left Van Dyck Hall and moved to Busch Campus into the new Physics Building, which had, at the time, the Physics Research Laboratory, Physics Lecture Hall and Nuclear Physics Laboratory.]

We've talked about the involvement with teaching and the atmosphere for that. The senior people in the department took pride in teaching elementary courses and rotating

through them. Today, the situation is more complicated. For a time, there was little emphasis on that. Recently a new kind of position was created, of teaching professor, by Ronald Ransome, when he became dean. [Editor's Note: Ronald Ransome is a Professor of Physics at Rutgers. He joined the faculty in 1985. Since 2013, he has served as Dean of Mathematical and Physical Sciences. He was chair of the Physics Department from 2010 to 2013.]

The first one of these was given to Suzanne Brahmia, the co-author with me of a physics text. It made it possible for her to have a more stable job, and to become better recognized than she had been without a faculty position. Now, there are several people with this kind of position. It's a creative but double-edged development. On the one hand, it gives a better status to people who do teaching and no research. On the other, it creates a group of second-class citizens who are confined to teaching elementary courses. [Editor's Note: Suzanne White Brahmia is an Assistant Professor of Physics at the University of Washington. Lindenfeld and Brahmia co-authored *Physics: The First Science*, published by Rutgers University Press in 2011.]

KR: The 1960s was a time of expanding resources in terms of money that the University gave to physics, in terms of building projects, such as the new Physics Building going up on Busch. That was also the start of external research support, for example, from the National Science Foundation. What do you remember about that? [Editor's Note: The National Science Foundation is a federal agency that provides funding for research and education in science and engineering.]

PL: That started before I came. In the year or two before I came, the department got a special grant that was meant to bring the whole department to a new level. It paid half of the salaries of the research faculty and freed them from half of their teaching assignment. It also paid for two major pieces of equipment, a helium liquefier and a large electromagnet, which became central to the research effort in the department. When Robert "Duke" Sells and I came to the department in 1953, we were not part of that salary arrangement and didn't know about it. We eventually realized that we were teaching twice as much as the others. That difference gradually disappeared over the next years.

University resources are generally not adequate for doing things with liquid helium and with strong magnetic fields, which were two of the things that we are talking about. If somebody is going to do experimental research as a faculty member, he or she has to get outside grants. I got my first grants together with more senior persons, primarily Bernie Serin, and without that I couldn't have gotten started. He did most of the work of applying and securing the grants, and he knew the people in the granting agencies. It was not until he left that I had to get my own grants. Bernie Serin made a suggestion of an

experiment that I could start with but after that left me alone and didn't help any further. That made it a slow start for me.

He was interested and involved in the atmosphere of the department and also in the country. He had a visitor from England and became friendly with him. A short time later, he decided that he didn't want to live in this country anymore. I think he was looking for a quieter, more reflective, and less competitive atmosphere. He left for England and a position at the University of Manchester, where his friend was. It was a promising start to a new life for him. Unfortunately, he could not enjoy his time in England for very long. He had to take a train to Manchester and the University from his home, and one day when he was late and running for the train, he had a heart attack and died.

I co-wrote an obituary with another member of the department and said in it that he did not want to live in this country anymore because of what he considered an unhealthy atmosphere. The chair, Harry Zapolsky at the time, cut that out without telling me. He didn't want me to write that anybody was so critical of this country that he left. I was outraged of course, but that's the way it appeared in *Physics Today*.

In many ways Bernie was the moral center of the Physics Department. At the time of the student unrest, he took on a strong role. When he was acting chair of the department for one year before he left, he was conflicted because the trend in the Physics Department was to emphasize research over everything else. He got more involved in University affairs at that time, reflecting his interest and advocacy of civil liberties.

KR: Let us talk about the 1960s and the student protest movement. During 1964 and 1965, what was going on, on campus?

PL: I was only peripherally involved, but I knew a number of the people who were more active. That was the time when I had retreated to some extent into the laboratory because I knew that I had to do this in order to survive in the department. I was not active in the protest movement, but I was in contact with many of the involved people.

KR: In 1965, there were three days of teach-ins in Scott Hall. Some professors and students were speaking in favor of the Vietnam War. Some were speaking against the war.

PL: I was not there.

KR: Genovese said comments about welcoming a Vietcong victory, and then there was the whole controversy about academic freedom. Mason Gross got involved. What do you remember about that?

PL: I was not directly involved. I kept in touch with what was happening, but I can't tell you about details. I was too far away from that.

KR: He left Rutgers. He went to a university in Canada.

PL: Yes, I do remember the story about him and the fact that he was basically hounded out.

KR: In the 1960s, the Physics Department started to diversify a little bit and recruit women faculty and later black faculty members.

PL: Well, there was one black faculty member. One at a time, let's say. There were two that were important, and I knew them well. In 1960, they hired the first woman. It was Noémie Koller, who is still a friend today. [Editor's Note: Noémie Koller joined the Rutgers Physics Department in 1960. She was the first female professor in the department. In 1965, she became the first tenured female faculty member of Rutgers College. She also served as an Associate Dean for Sciences of the Faculty of Arts and Sciences from 1992 to 1996.] We were friends throughout that time and until today. I saw her a week or two ago, when she and a few others had dinner at her house. She could have been a lot more of an administrator than she was. She was courted to be dean of the Faculty of Arts and Sciences and, as far as I could tell, could have had that job for the asking, but said, "No, I want to work in the laboratory." Before that, Dick McCormick, Jr. asked her to be an associate dean. She was very successful in that because she could bring people together without getting emotionally involved, in ways that I think nobody else did. Separately, she had an extraordinary influence in that she was singlehandedly, I think, responsible for raising the salaries of women, as a class, at Rutgers.

There were two black faculty members, Shirley Jackson and Joe Johnson, and they were both special in their ways. Shirley had a remarkable career, first becoming a member of the Nuclear Regulatory Commission, then its chair, and eventually the highest paid university president in the country, at RPI (Rensselaer Polytechnic Institute), which she is still. [Editor's Note: Shirley Jackson worked at Bell Labs from 1976 to 1991 and then joined the faculty of the Rutgers Physics Department from 1991 to 1995. In 1995, President Bill Clinton appointed Jackson to serve as the chair of the U.S. Nuclear Regulatory Commission. Since 1999, she has served as the President of Rensselaer

Polytechnic Institute. She is the first African American woman to earn a doctorate at MIT.]

Joe Johnson worked very hard to find black graduate students and to mentor them on their way to get Ph.Ds. None of them ever got a Ph.D. at Rutgers, as far as I know. He left and had a successful career elsewhere, in Florida. He later got a prize from the Physical Society for his efforts in helping black students. [Editor's Note: Joseph A. Johnson III (1940-2018), who earned his Ph.D. at Yale, came to Rutgers as an Associate Professor in 1973. He went on to Florida A&M University, as Distinguished Professor of Science and Engineering, Professor of Physics and Professor of Mechanical Engineering.]

KR: I want to ask you about graduate students that you worked with. Who sticks out in your mind? What graduate students stick out in your mind that you worked with over the years?

PL: Well, there were about twenty Ph.D. students who worked with me, or whose supervision I shared with others. Last summer, I saw my second graduate student. I went to see him in Burlington, Vermont, where he now lives with his daughter and her family. He has Parkinson's disease and has slowed down a lot. He spent his working life at IBM after he graduated, and did a thesis which was quite special. It was also my first major successful research. I won't count my own graduate work, which was really not adequate. I remember the day of the first results of his experiment. He said, "I'm going home now because I don't understand what I'm doing. I have to take several months off to try to understand what this is all about." I was upset that just as he had some results, he wanted to go away. I had a serious discussion with him and told him that that the two things had to come at the same time, on the one hand, the work in the lab and, on the other hand, the understanding of what it's about. To leave at the point where he was finally successful was just not realistic. When you first get a result, it is often only partly or not at all understood. You can't just leave it then. This is the achievement. This is what you've been working for.

I remember others. Two students are mentioned in a flyer from the University's publication office. One of them is Milind Kunchur, who is at the University of South Carolina and has won many honors there for his work on superconductivity and for his teaching. We have been friends for many years. I've been in South Carolina to visit him, and he's been here and stayed with us with his wife and daughter.

He sat at this table, and we talked about the fact that he had always been interested in audio systems and that he is writing a book about that. He said that few people really understand the subject, but that there is someone near here who does and he picked up the

phone. Ten minutes later, the person he had in mind was sitting right here. A while later, he installed an audio system for me. I had never had a decent one. Now I do, but it turned out to be so complicated that whatever engineering degrees I have are not always sufficient to run it. I really wanted something with a simple switch, and this one requires a lot more than that.

KR: Wow, that is fascinating.

PL: The second person who wrote in that folder together with Milind is one whom I knew as an undergraduate, and who became a professor at Ohio State University. He became well known for his teaching innovations with an award from the American Association of Physics Teachers. Sadly, he died a few years ago from cancer. He was also someone that I was close to and continued to be friends with.

KR: What is his name?

PL: Gordon Aubrecht. [Editor's Note: Gordon Aubrecht (1943-2016) was Professor Emeritus of Physics at Ohio State University. He graduated from Rutgers with a bachelor's degree in 1965 and earned his Ph.D. at Princeton in 1971.]

One student had a job at the Office of Naval Research in Washington. In his later years, he had multiple sclerosis, was in a wheelchair, and still from his wheelchair coached a sports team. I regret that I didn't go to see him at that time. We talked on the phone, and I admired what he was doing.

I'll tell you about one more. She was a young woman from Taiwan, an original Taiwanese, not one of the Chinese who came with Chiang Kai-shek. [Editor's Note: Chiang Kai-shek was the leader of the Republic of China, the government of mainland China, from 1928 to 1949. After his defeat in 1949 to the Chinese Communists led by Mao Zedong, he fled to Taiwan and led the island nation until his death in 1975.] She had begun to work in our lab, but then failed her qualifying exam. The chair of the committee that had examined her came to me and said, "Don't bring her back. This will never work." She sat in my office and cried. I said, "Let's just see about that." When she started with me, I showed her a place where she could work. There was a wooden platform with some apparatus, and I said, "Okay, this is yours. You can arrange it any way you want." The next thing I knew was that this tiny person was sawing on the platform with a saw bigger than she was. I said to myself, "This one is going to be okay." When she failed the exam, I said, "If you want to go on, I'll try to help you. We'll get together each week and I'll ask you questions. The first time, I'll tell you what the questions are going to be, and I'll also tell you the answers. The next time, I'll give you the questions, and you can do the answers, and so on, more each week." I asked a

Chinese post-doc to come along to make her a little more comfortable. Of course, she passed.

When she was close to finishing, she said, "I'm taking some computer science courses because I don't know whether I will get a job in physics. I have to go where my husband goes." He was studying physics at Princeton. What happened is that she got a job in charge of a superconducting magnet facility, which she had until she retired recently. He is the one who did not work in physics. When their daughter graduated from Princeton, they asked me where the best place was for dinner and took me there.

Another woman was from Ecuador and said, "I want to work on a master's degree, but I'm not sure how that's going to work. I'm pregnant and working." I gave her something that she could do in the evening and on weekends. She got the kid; she got the degree and went on to a Ph.D. I'm sorry that I lost touch with her. She was brought up Catholic, and one day she said to me, "You're my father confessor."

KR: I read that you had a graduate student who studied under you who went on to win a Nobel Prize in Physics.

PL: He was a post-doc, Heinrich Rohrer. He was just graduating in Switzerland at ETH [Swiss Federal Institute of Technology]. We worked for a couple of years, and at first, he had a project in thermal conductivity, which I was still involved with, and it was not that interesting. But then, I was following up a puzzle with a different material, and made a sample. I put it in the apparatus. I found a graduate student, I said, "This can be your work." That worked out very well because we found something new. Rohrer was already in the lab working on this other experiment, which was not so interesting. He became involved in interpreting the new results and had his name on a couple papers that came out of that. It turned out that it had to do with a different kind of superconductivity that had just been discovered, and we were able to show what was happening. I was very happy that he had something that was more interesting than the routine stuff he had been working with earlier.

After two years, he went back to Switzerland and worked on what became known as the scanning tunneling microscope. The apparatus that he made consisted of a needle, basically like this pen that I'm holding, and it could travel along a surface of a material and follow the up and down of the surface. He was really interested in studying the surface. What turned out unexpectedly to be the case was that this device followed the presence of every atom and became the first device ever to see individual atoms, to "see" them in a sense of detecting the presence of one atom after the other.

KR: Wow.

PL: It revolutionized the physics of materials and became the forerunner of other devices, which depend on the same principle. He got the Nobel Prize. [Editor's Note: Heinrich Rohrer (1933-2013) was awarded the Nobel Prize in Physics in 1986.]

KR: That is amazing.

PL: Rutgers was the first place that gave him an honorary degree, and he stayed with us when he got it. Later, we visited him in Zurich. Unfortunately, he died young. But he became famous. I'll tell you one more thing. He was here for two years. When he came, he said, "Well, I need a car." He came from Europe. I say, "Well, you may want a small car like in Europe." He goes, "No, I want an American car." I met with him in New Brunswick to buy a car, and he got some great big clunker. He said, "Well, it doesn't have to go very far. I'm just going from the place we're living," he and his wife, "to the campus and it'll last for a while." Well, he was here for two years. The car worked fine.

Then he said, "I want to see the rest of the country. I want to go to California." I said, "You're going in this car?" He said, "Yes, I'll go as far as I can." He and his wife went. I would get postcards from time to time, first as they went across the country, then from California to Texas and back. At some point, he called and said, "Okay, the car won't go any further, and I'm sending all of our stuff back. It will be put on the ground in Princeton at Cox's on Nassau Street." There was no station or anything like that at the time. Even the bus system was somewhat questionable. I looked a couple of days in a row, and sure enough, Monday, the bus came and deposited a vast number of boxes, old suitcases that were put together with string. I scratched my head and I said, "Well, I don't know what to do with all of this." Both of us were there, my wife and I. I went to the smallest thing that I could see, which was a toolbox, and I took the toolbox and tried to lift it and it was so heavy that I almost couldn't. It turned out it was full with one piece of petrified wood, which he said he did not get it in the national park but outside, where you could pick up stuff. I didn't quiz him too carefully about this, but that's all that was in that toolbox. Eventually, when I visited him in Zurich, there it was, next to his fireplace. Yes, we had a substantial friendship, and I followed his career in some detail.

KR: Let us pause.

[TAPE PAUSED]

KR: Okay, we are back on. We are recording. We are going to talk about the planning years of Livingston College, in which Dr. Lindenfeld was involved in as a member of the Planning Committee. My first question is that you knew Ernest Lynton very well as a colleague in the Physics Department. What was he like as a person? [Editor's Note: Dr.

Ernest Lynton became a physics professor at Rutgers in 1952 and then served the first Dean of Livingston College, starting with the planning phase for the new college in 1964-1965 and continuing with the opening of the college in 1969. Lynton resigned in 1973. Thereafter, he became senior vice president for academic affairs at the University of Massachusetts. He died in 1998 at the age of seventy-one.]

PL: Well, first of all, the reason we're sitting in this house, in this place, is because shortly after I came to Rutgers, he was already living in a house on the same block but just around the corner. He and his wife invited my wife and me to stay in his house over the summer while they were in Europe, and it was during that time that we found the lot here. There was mostly empty space. We bought the lot; what happened is that I went to the township hall and asked who owned all of this empty land and we got in touch with the owner. He said, "Yes, I'm willing to subdivide." He had hoped that his kids would live here, but, of course, children don't, even then, didn't do that, and that's how we got this lot and, eventually, after another couple of years, the house.

He was a colleague. He had the office next to mine in the Physics Building. He had come the year before, and we shared some background. He came from Germany as a Jewish refugee. He had gotten a Ph.D. at Yale. We were friends. Now, I knew different kinds of friends. There are friends that you share different things with, and we shared events but not intimate thoughts, I would say. He came from a background that was more affluent, and so did his wife. Because he came a year earlier and came as a person to work in the low temperature lab, he was part of the group that had the lower teaching load and better start in the lab. He worked with Bernie Serin, who was the senior researcher in that area and also, as I said before, a senior person in the department really in many ways.

We would, for a long time, share rides from here to Rutgers. There were three or four of us, four of us that I remember right now, who would share the ride, with sometimes complicated arrangements, because not everybody had two cars. That worked for some years. We talked in the car about whatever happened.

Eventually, when he was asked to start a new college, that's when the whole Livingston story started. When he became dean and was asked to start that college, he started to move in different circles, and my association with him became more distant. But he did ask me to be on that Planning Committee, and that started my involvement with the college, Livingston, named for the first governor of New Jersey. He had hoped for a more universal name, talked about Erasmus and people like that. He said, "Well, Rutgers has this Dutch background." He had grand ideas. He had grand ideas about a number of things, and that's, of course, what made it possible for Livingston to be the quite extraordinary place that it was or was hoping to be. [Editor's Note: William Livingston

(1723-1790) served the first Governor of New Jersey from 1776 to 1790. Erasmus was a Dutch philosopher who lived from 1466 to 1536.]

KR: Why was Lynton, of all people, chosen to be dean of what would become Livingston College?

PL: The reason I think is that he became quite active at Rutgers College faculty meetings. He got up and talked about things that caught, I think, Dick Schlatter's eye. Both in his manner and in what he talked about, he looked like somebody who had that promise. Schlatter and Gross presumably had considered a new college, and he was somebody that they looked to. He had the bearing and the manner of somebody who was brought up to look as if he owned the place. He was very different from me. I mean, I was struggling every inch of the way, but he seemed only to be getting his due.

But he did something totally extraordinary and out of character. He said, "This is going to be a special place, different from any other." I admired it at the time and continue to do so. It was an extraordinary coming out of his shell and going beyond the environment that he was raised in. He didn't have to do anything that was out of the ordinary, but he had that vision of a college that would have the features that we know. It would be student-centered. It would have more representation from underserved communities. It would also be more intellectual. In the Planning Committee, we started to talk about what it might be like. We talked about the kind of college that we would have liked to be at, which was great but unrealistic. The students that we thought of didn't exist. They didn't exist because time had gone on and because the population is different, and our vision didn't account for that. Nevertheless, we talked about things that were important and that we hoped to see in the new college.

In the meantime, Lynton was dealing with the nitty-gritty stuff. He had to hire people. I don't know how he did that, but part of it was that he eventually, when it became time to do that, when he had a budget and a mandate, he put out ads that said that he was looking for people in the various departments who would have a special interest in working with students. That was the origin of his being totally ostracized in the Departments of Physics, Chemistry and Mathematics, all of which said, "We want nothing to do with that kind of approach. That's the way to get the worst faculty, people who are not interested in progress in their fields because they're going to be diverted to this amorphous goal" that he described in the ad. Some influential people said, "We want nothing to do with that." They got their way, in that there were at Livingston no departments of physics, chemistry, or mathematics. The college was born with a major disease, if you want to call it that, flawed, at any rate, in being limited in what it could do and what it could offer, which was especially ironic with Ernie Lynton as a physicist at the head of it.

That was true for other departments. Some of the departments that were instituted got names that were sort of subterfuges, like saying there's a Department of Urban Education. What is urban education? What sense does that make? They wanted it to be black education, and calling it Urban Education was sort of a euphemism. Education in cities and in rural areas should not be different. A number of departments were given names that were euphemistic, rather than descriptive. You may know them better than I do.

The other part of his hiring was that he got some extraordinary faculty members. These people that were supposed to be lower-level professors, according to the opposition from the three departments, some of them became the most important faculty members that the University had, influential in ways far beyond what could be reasonably expected. You know the names of some of them. When eventually--and this is mentioned by some of the others in their interviews--when there was a consolidation and a department that went beyond the college and somebody had to be chosen for being chair of the combined department, a number of them became these rather more important chairs and were influential far beyond the confines of Livingston College. George Levine was one of them, and I read his interview. I was surprised not to see John Gillis, whom I know better than the others, and who now lives in Berkeley and lived around the corner from here at the time. Do you know of an interview with him, or are you planning one? We sometimes talk on the telephone. He put me in touch with a couple of other people, whom I didn't know at the time and who came later. But the idea that these would be lower-class people turned out to be false for a very good reason. Ernie wanted people who had more than this self-centered approach of only furthering their own position in their discipline. They had the broader view, not in all cases, but in a significant number, the broader view that expressed itself in the interest in teaching and in having a wider view of the field, and that part was extraordinarily successful. [Editor's Note: George Levine, Professor Emeritus of English at Rutgers, came to Rutgers in 1968 as the first chair of the Livingston College English Department. He served as the first chair of the unified English Department of the Faculty of Arts and Sciences. Levine also served as Associate Provost for the Humanities for three years and co-founded and directed what is now called the Center for Cultural Analysis (CCA). Levine's three-part oral history interview is archived at the Rutgers Oral History Archives. John Gillis, a member of the history faculty at Livingston College, is a Professor Emeritus of History. Gillis chaired the unified History Department in the 1980s and served as the first project director of the Rutgers Center for Historical Analysis (RCHA).]

I had sort of an ambiguous position. I wanted to be there. I wanted to be involved. I saw this as a really special place, particularly in that it was a small and therefore human and personal place within the larger university. The quest for that kind of thing is very active today still. I don't know where it has been realized, but there have been many attempts in that direction. Livingston College may have been the first or one of the first to attempt

that, and I still see that as an extremely important development, which still has not reached its best or final form. So, that's what I saw there.

There were various problems. The student didn't turn out to be the students that were expected. To find students today or then who had that degree of self-motivation and intellectual interest, that's pretty tough and it didn't happen enough. I'll tell you about the first things that happened when students came. In the Planning Committee, we talked about the bookstore, for example. We thought, "Oh, this is going to be a bookstore with books and an intellectual atmosphere. We're not going to have mugs with football team slogans on them. We're not going to have football gear and jockstraps or whatever you find in bookstores nowadays." Well, none of that happened. Finally, the students showed up, and there was a faculty. I only met one faculty member before Ernie hired them. We were at lunch, and he introduced me to a woman in the social sciences. I don't know how he did that, but later he said, "Well, I don't think she's the right person for the chair's job," that he had in mind, "Maybe as a professor but not that." I had looked at her and spent a little time with her. I wouldn't have been able to say that and I don't know whether he was right, but he had his judgement and, obviously, in some large number of cases, it was good judgment. One of the features that he expected was that there would be shared governance. There would be equal voices in a faculty meeting for students and faculty, regardless of the numbers involved. Do you know about the first faculty meetings? Did anybody talk about them?

KR: A little bit. I would like to hear your take on it also.

PL: Sure. Ernie had been a vocal faculty member of Rutgers College. He took an active part, and I think that is what led to his being chosen, as we said. So, there was a faculty meeting, in a big hall, and there were students and faculty. He went through the motions that he was familiar with. There were committee reports and motions, and the first time the students just sat there and watched and had no idea what was going on. Some weeks later, there was a second meeting. He again went through this business with his agenda and his committee reports and whatever else went on. At one point, a student got up in the back, a big black student, who said, "What is all this bullshit?" which is presumably how all the other students felt also who had no idea what was going on. At that point, the whole college almost fell apart and did to some extent, in fact, fall apart. All of a sudden, there was a lot of discussion, everybody wanted to speak, and they said, "Well, this is not what we came here for, this sort of pre-packaged agenda that we are supposed to rubberstamp." They had never been in any decision-making forum of any sort. It wasn't going to work without some preparation or some discussion and some knowledge of the history of this kind of activity. So, all of a sudden, there were a lot of accusations about the process. I remember getting up at some point, saying, "What you're seeing here is the result of extraordinary efforts by Ernest Lynton to involve everybody and give everybody

a voice and a chance," and I talked a little about what that took and what it meant. But I think it was too late. The dissension and the opposition, not knowing what was going on, not knowing where this was going, was too great. The meeting broke up and it was decided to spend the next few days discussing what was going to happen. The result was that the system was changed. From then on, there was a student chamber, and there was a faculty chamber. They were going to be separate, and joint governance was dead. A really incredible experiment was at an end, and there were good reasons. The new situation was not prepared. It was not thought about. It was not clear how it would work, with people who had no idea what was being talked about, on the one hand, and others who had experience, to some extent, as faculty members and knew what it might take. The simple solution was to go back to square one and say, "Here are the students. Here is the faculty. And they will continue to be separate and to meet separately." That's how it has been ever since. I'm not sure that there's an example anywhere where joint faculty-student governance has ever happened.

All right, so, these were several problems. One was the opposition from other departments. One was the lack of preparation and thought really in how the place was going to be governed. The third was that there were administrators, who were also new to the concepts. Ernest was the only one who knew what he wanted, and they had no experience and no preparation to what his vision was. He had the vision. He knew something about what he wanted to do, and I think the assistant deans were somewhere else.

There were faculty members who gave themselves completely to the college. There were some wonderful people. George Levine mentions Krauss--I knew some of these people quite well--but he only stayed for a short time. But he was quite an extraordinary person. [Editor's Note: Robert Krauss served as the chairman of the Department of Psychology at Livingston College from 1968 to 1970.]

Some people just burned themselves out. They were spending evenings and weekends with the students doing things in their courses, but some did the opposite. There was one guy who was a bit of a guru to some, who came once a week for his course, which was a seminar where he asked students to take over. So, it went both ways. What I learned from that is that if you're going to have a free and open atmosphere, the people who run that, the faculty or whoever is going to do that, they have to be twice as disciplined as everybody else, to give structure and meaning to what happens, and that was not always there.

Ernie tried to make that work. He left four years after the college opened. I know somebody who spent time at his house and described how when he would come home in the late afternoon he did not want to talk to anybody. He would come home in a big funk

about what happened at work. So, he must have had struggles that I really don't know about. It could not have been an easy time for him, with support from the upper administration, such as Dick Schlatter, but not always where it mattered. I don't know the details of budgets, buildings, creating an atmosphere. There were obvious flaws. The place was not kept up very well. It wasn't swept up. It wasn't cleaned. The campus was a mess.

There were extremes. Some of what happened was very special and wonderful. I didn't go to classes, but I went to the faculty meetings. There was a lot that I admired, some that went off in strange directions. The administrative context was obviously difficult. Here is a place with great ambitions and visions really of something quite wonderful, which, had flaws built in that were just so difficult, too difficult, it turned out, to overcome. Among the administrators, as far as I know, he did not have a peer. I didn't know all of them. I knew some, and I think he was the only one who really knew where he wanted to go. He tried to find his own way. In the Physics Department, everybody called him Ernie. He was now no longer Ernie. He was called Ernest and more formal and more distant, as we said, trying to make all of this go, and it worked only partially. There was strong opposition from other departments, people who drove towards a university that did not have this compartmentalization into different colleges, and eventually of course, they won. By some, the consolidation of that time was seen as a way to get rid of Livingston College.

I was not as involved as I had hoped. I did not teach a course. I tried to get involved. There was a time when the faculty voted to include me as a faculty member. I was the only outsider, as far as I know. What did that mean? It means I could go to the faculty meetings and vote. I didn't really have a place. There was the time when I discussed this with Ernie Lynton and he said, "Well, you could never be a real faculty member here because you are not subject to the system of rewards and punishment of the college." I was flabbergasted, first of all, that he could say that with a straight face. But that's how he ruled, so to speak. He came from above, and he created an atmosphere and a way to deal with things that mattered. That was the time that I really saw something that I thought was from a region of his inner being that I had not anticipated. The other time was when he resigned. I don't know to what extent life was just made too difficult for him, to what extent he was just burned out. I just don't know that. I know that, yes, he got a good job at the University of Massachusetts. I also think that, to my knowledge, he never did anything adventurous in education or in anything else again. I talked to him on two or three occasions when he came back, but that was very difficult. He didn't talk about anything basically. It was just a few polite phrases.

He had come out of the milieu in which he was raised, the bourgeois, upper-class milieu that he was born into. He had done something totally extraordinary and had a vision of

something that I still admire enormously. There are people who know much more than I do. But I think he reverted back to a place where that imagination and that vision no longer had a place. It's a tragic story in some ways. It's also a wonderfully positive story showing what can be done. I think that with more support of various sorts, it could have been more.

KR: When the planning phase was going on for Livingston, what was the Planning Committee like in terms of faculty representation and student representation? What were the meetings like?

PL: The meetings were intellectual discussions, which were really interesting to me as a participant. Whether they were relevant, whether they actually planned anything that had any relevance to what then happened, I don't know, probably not. They were just meetings of like-minded people who struggled with what might happen in a new college. I don't remember any students. There may have been some, but they didn't play much of a part.

KR: In 1968 and 1969, the black student movement was going on at Rutgers.

PL: Yes.

KR: There was the takeover over Conklin Hall at Rutgers-Newark, and then the Board of Governors decided that a greater effort was going to be made on all three Rutgers campuses to recruit black students, to recruit from cities throughout New Jersey, because there was underrepresentation of black students at the University.

PL: Sure.

KR: Then, at that point, Livingston became where many black students were recruited to go in New Brunswick. What discussions went on at the Planning Committee, during the planning phase of Livingston, about that, before Livingston opened?

PL: Well, it was understood that it would be a more open place, but there was no realistic discussion or understanding or preparation for that. I remember nothing that showed a knowledge on anybody's part that that was going to be a big change from what had been there before, that the sociology of the campus would be affected, and that one had to know something about where people came from. I just don't think--I really don't remember--but I don't think that was a part of what anybody was thinking about. As a result, it wasn't very well done. What could have been done differently? It's an interesting question, and I'm not sure I know any answers. Certainly, more preparation

and more discussion and more understanding, but beyond generalities, I'm not sure what to say.

KR: In your particular case, Dr. Lynton asked you to be on the Planning Committee. At that point, was it presumed that there would be a Physics Department at Livingston?

PL: No, never.

KR: There was never going to be a Physics Department at Livingston.

PL: No.

KR: Was that because the Physics Department was always New Brunswick-wide? Because the Douglass Physics Department was really part of the Rutgers College Physics Department.

PL: The Physics Department at Rutgers College, the department that I was in, was one of the three departments that said, "We want nothing to do with Livingston College." It was just a few people who said that, and the rest were passive and not interested. At Douglass, there was a Physics Department of three or four people, and they had no contact with the Rutgers department until consolidation when they became part of the one department.

The most significant thing that happened is that George Horton, who was the most important member and chair of that department, became a member of the Physics Department that I was in and had an enormous influence. He deserves a special story all by himself. He was an extraordinary person. The first impressive thing he did was to create the Rutgers Community Health Plan, as a result of the fact that his fourth child was born with a number of medical difficulties, which cost more than the earlier insurance plan could handle. He said, "We have to change the system," and he did. He created one of the first HMOs, and it was very successful. Later, according to him, it was mismanaged, and finally disappeared. Most relevant to me, he was very active in the AAUP [American Association of University Professors] and was for a time its president. [Editor's Note: George Horton served as a physics professor at Rutgers from 1960 until his death in 2009.]

To me, his most important innovation was a whole new set of courses [called Gateway courses], which were designed to be more accepting of underprepared students with much more support for them. I taught in one of these courses briefly. It was two-thirds black, and of those two-thirds black students, two-thirds of them were women. It was very successful. It opened up, not so much positions as physicists, but in medical fields,

to people who were normally shut out from that kind of career. For him to bring that through the Physics Department, to get people to agree that there would be special courses with different programs, and more support, was an incredible achievement. The courses still exist. [Editor's Note: In the Physics Department, the Gateway Program was administered along with the extended courses.]

It is a whole set of what are called extended courses, paralleling the normal courses in introductory physics. There are more hours during the week, extensive support and hand-holding of various sorts and personal interaction. The teaching assistants were specially chosen and trained. A teaching assistant, normally, from the time when I started, was told, "Here, this is the hour when you're in charge. Go!" without much description of what was expected and what they should know. In the extended courses, there were extensive meetings and close interaction between the professors and the teaching assistants. It was, and I think continues to be, a program unlike any other with labs, where there are group discussions and interactions. That was all initially George Horton's creation, and he was often vilified for lowering the standards of the department.

The chair of the department at that time was a friend of mine. George Horton, I don't know whether to say that he was a close friend. He was focused on what he wanted to achieve. He knew he could not ever have created what he did if he hadn't been focused on the work toward his achievements, one after the other. So, he was not the easiest person to be with. The chairman of my department was a friend, as I said. He said to me, "If he wants anything from me, you talk to him. I don't want to see him in this office again." No doubt George was a very strong defender of his point of view. Did he stretch boundaries sometimes? Probably. He knew what he wanted, and he achieved an incredible amount. He didn't use standard, friendly methods like some of us might have been content with. I didn't know how to do that. I have recollections of times when somebody with a little more push could have achieved more. The Physics Department had its main body of people, people who were intent on their research and knew that their salaries, their promotions, their whole being was dependent on their research and nothing else. Yes, they were supposed to teach and they did, but that's not what did anything for them on these matters. People were not hired and not promoted and not given special perks except for their research. I was treated well enough. I had a good job. I did what I wanted to do. I have no complaints, but that was the atmosphere in the department. It was considered natural, as it is today.

KR: Regarding Livingston ...

PL: Yes, I went into a different direction.

KR: That is okay. At what point was Livingston actually named Livingston because originally, in the planning phase, it was referred to as Kilmer?

PL: Well, it was the Kilmer Campus. [Editor's Note: In 1942, Camp Kilmer in Piscataway opened as an embarkation base to process soldiers being sent oversees to Europe during the World War. In 1964, Rutgers acquired 540 acres of land of Camp Kilmer and developed the Kilmer Campus, upon which Livingston College was constructed and opened in 1969. In 1991, the campus was renamed Livingston Campus.]

KR: What do you remember about the campus in the very early years?

PL: Well, Camp Kilmer existed with huts and nothing else. I knew it from that time, and it was a long time before anything that could be called a building appeared. I only know that I talked with Ernie once about the eventual Livingston dormitory buildings, which I thought were average. I don't know whether he regretted that. He had so many things to deal with, that this was presumably not at the top of his agenda. It's too bad, because it was a missed opportunity to have something better.

KR: People referred to it as the mudflats.

PL: I haven't heard that but yes. Visiting there, in all the times that I knew it, it was not a good experience. The surroundings were not taken care of. There were papers thrown around and not cleaned up and not taken care of, so that when you came, you had the feeling that the campus simply was not cared for, leading to the name that you gave it.

KR: In Livingston's second year, there was an infamous incident of a Livingston student, who was a commuter, being kidnapped by other students. He was taken somewhere in New Jersey and let go. [Editor's Note: On March 12, 1971, armed men abducted Livingston student DeForest Blake "Buster" Soaries, Jr., a leader of the Organization of Black Unity (OBU), and then released him later that day in Princeton. (See Rutgers history professor Dr. Paul Clemens' article "The Early Years of Livingston College, 1964-1973: Revisiting the 'College of Good Intentions.'" The article appears in *The Journal of the Rutgers University Libraries* and is co-authored by Carla Yanni.)]

PL: I don't think I know anything about that.

KR: Okay, all right. I was just going to ask you if you had any memory about that.

PL: No, I don't.

KR: Okay. When Lynton resigned in 1973, was it a surprise?

PL: By that time, I was really out of it. I had no contact with the college, and to me, yes, it was a surprise. I've always wanted to know the backstory, but I don't. You probably know much more about that. I don't know to what extent it was something he wanted, which can only be a reflection of the fact that it was very difficult, as described by my friend who knew his family, or that the administration pushed him out, for which there was a lot of faculty support, possibly with an unstoppable amalgamation, which would, as it finally did, destroy the college system. I mean, today's college deans are dormitory supervisors, and we talked about that then, "Consolidation will make them just dormitory supervisors." Well, that's what happened.

To compare that to the imperious deans--one of the things we haven't talked about is that I was the chair of Committee A of the AAUP, which defended faculty members primarily when they didn't get tenure. As a result, I appeared before a Douglass committee with one of these imperious chairs, who was the dean, and I would recognize her name right away but can't remember it right now. Those deans were totally autonomous. They had to deal with the upper administration, with the president and provost, but after getting their budget, they were alone and autonomous. I have to say that that system has totally disappeared. It's sort of a shock even today. I knew one person, a woman who wanted to be dean, and I know another one who was in fact nominated to be dean and turned down by Lawrence, at a time, when he got a bunch of proposals. The system was, there was a search committee, it proposes a number of names and then the president picks one. Well, at that time, Lawrence said, "No, send it back to the committee. I want more nominations." Today, that's not a likely sequence. The only administrator that I knew very slightly and reconnected with at the fiftieth Livingston reunion is Arnold Hyndman, but I really know very little about how things worked out for him. I think he was the last Livingston dean with any independence. [Editor's Note: Francis Lawrence (1937-2013) served as the President of Rutgers from 1990 to 2002. Arnold Hyndman, who earned his Ph.D. in philosophy and neuroscience at the University of California, Los Angeles, became assistant professor in the Department of Biological Science at Rutgers in 1981. He served as the founding director of what was originally called the Minority Advancement Program and held this position until becoming associate provost in 1990. He then served as the Dean of Livingston College from 1993 until 2007, when the undergraduate colleges were eliminated and merged into the School of Arts and Sciences and School of Environmental and Biological Sciences. Dr. Hyndman is a professor in the Department of Cell Biology and Neuroscience. On October 25, 2019, Rutgers University Libraries held an event in commemoration of the fiftieth anniversary of the opening of Livingston College in 1969. The event, called Livi 50, took place at Carr Library on Livingston Campus.]

KR: Yes.

PL: I knew other people, I knew Frank Jenifer, Franklyn Jenifer, who became the president of Howard University and left under difficult circumstances there. He was a biologist, and I wish I had kept up with him. I was just pretty much overwhelmed with what I saw as my job. [Editor's Note: Franklyn Jenifer served as the President of Howard University from 1990 to 1994 and then as President of the University of Texas at Dallas from 1994 to 2005. Earlier in his career, he was a professor of biology at Rutgers for nine years, before becoming vice chancellor of the New Jersey Department of Higher Education.]

KR: Before we move on, is there anything else you would like to add about Livingston and your involvement?

PL: Well, only to reiterate that it's an unfinished story. I don't know that it will be taken up anywhere else, but there are other places where things have been tried with a small unit, sometimes an honors college, as at Rutgers for that matter, where attempts have been made to have a more personal interaction on a small scale within a larger unit. I still think of that as a very positive development, which needs to be worked on some more. No, that's it, at the moment.

KR: One of the things I want to talk to you about is your involvement in the AAUP. How did you first get involved?

PL: I went to meetings, and the people who got most involved were those who worked on negotiations, salary negotiations, and things connected with that. I never did that. That was a very political assignment, of course.

At the AAUP, I became a member of the Executive Council and was that for a number of decades. For a long time, I was chair of Committee A, the Committee on Academic Freedom and Tenure. There were not so many people interested, so I did a lot of the work myself. There was one famous incident where there was a big to-do about what was confidential in letters of recommendation. At that time, I remember the dean was Arnold Grobman. [Editor's Note: Arnold Grobman held the post of Dean of Rutgers College from 1967 to 1972.] We were on fairly good terms, and he said, yes, I could see the confidential letters as long as it was in his office. I spent an afternoon in his office and made some notes. A certain amount of what was in my notes came out in a hearing because I talked about it. He was outraged. He said that was not what he expected me to do. But there was never any mention of what was so confidential that I could never mention it. He never said, "No, you can't ever say anything about that." It was material where I found stuff relevant to a promotion. I said, "You didn't follow your own rules," which is basically the only thing you could do. You can't say, "This person is better than

you think." It doesn't help. You can't say, "This guy is really a good guy." You have to have something where there's a procedural part that you can follow up and say you did not follow your own rules. I was able to do that some number of times. I learned from George Horton, who did much more than I did on that. So, here I had a case. I won that case, but Arnold Goldman was very upset, in a very nasty way.

I didn't do an enormous amount of that kind of work. George Horton did more. He had been president. He was basically my mentor, and some cases I worked on with him. I was pretty good at that. I was sort of an amateur lawyer when I did that.

There was one time when somebody, who had a Livingston job, asked me, "Well, will you defend me?" when he got notice that he would not be reappointed. I said, "Sure." Well, he also got a famous lawyer. I just sat in the meetings and had to listen to this lawyer, who strung out things for meeting after meeting. You know how lawyers work, in a detailed, meticulous way. I thought it was just a waste of time. I was totally uninvolved, but I spent my time there because of what I had promised him. In the end, he lost his case. The only thing the faculty member ever got was the result of a side conversation that I had with an administrator. He got an extra year. The lawyer only strung things out. He didn't really understand the system. He just knew his lawyerly ways, which slowed things down, but didn't lead anywhere.

KR: How long did your involvement in the committee in the AAUP continue?

PL: I tried to think about that. I don't know. I think it was counted in decades rather than years. There was one time when somebody in a language department was kept way beyond the AAUP limit of six years. He was kept twice as long and then fired. I went to the Vice President, Henry Winkler, at the time, and I described the situation to him. He said, "Yes, this really shouldn't be." That's it. That's all it took.

Later on, the process was bureaucratized to an extent where no administrator would talk to me. I worked on George Horton's promotion to what was called Professor II. He was turned down. I went to Alec Pond, who was a physics professor, Vice President, and the chair of the committee that made the final decision. He said, "You shouldn't even be talking to me. The rules are against that." He turned him down. The next year, there was a new system and a new review committee. It took three years, two presidents and then a different system of review committees, which I finally was able to work with, to help to get him promoted. That was one of my achievements. [laughter] I wish I could've done more for him, because he was somebody who brought extraordinary, revolutionary change to a number of areas in the University. The details of how long I was there, I don't know. I don't remember that. I didn't keep notes or records very well, but that kind of information is probably available somewhere.

KR: When you came to the Physics Department originally, there were eleven full-time professors, and by 1995, the Physics Department at Rutgers-New Brunswick was one of the top departments of physics in the country.

PL: I wouldn't use these words, but we can talk about that.

KR: Please, go ahead.

PL: There are certain departments which were then and are now the top departments in the country. They are places like Princeton and Harvard and maybe a small number of others. Rutgers was never in that class. It was a good member of the next group, and that was true for the whole University and for a few departments. The Physics Department has always struggled to get closer to that group, and individuals have gotten close but not many. In the time we are talking about, it was never ranked, either by those who knew what was going on or by the rating agencies and magazines, in the top group. It has seen its vision and salvation in getting there to the exclusion of anything else, and my point here, as all through our talk, is that that this is too narrow a view.

Let me go into just a little more detail on that. The Physics Department has been favored by the administration at Rutgers in many ways through the years. The faculty has always complained that it doesn't have enough resources, but it was generally treated well. There have been downturns of state support and so on, but on the whole the Physics Department has had favored status, compared to other departments in the University.

I don't know whether there is somebody in the administration who cares how many papers are written in the department. They may look at the list of prizes and stuff like that, perhaps. But they do care whether the students are treated decently. I think an important part of the success of the Physics Department, in taking care of itself, has been that it has, in various ways, treated its students well. The students were always well cared for, and I want to come back to that and talk about what the situation is now. The number of faculty members who have made that possible has been small, but they have made a difference in the reputation of the teaching of the Physics Department that has generally not been acknowledged. I think that it has played a large part in the resources that the department has been given by the administration. It was known that the Physics Department cares about its students. They come out well trained. I just don't think that that has always been recognized.

Now regular faculty members have been, to a large extent, relieved of the responsibility for the elementary courses, with the introduction of the new category of teaching professors. I think the students are still being taught well, but the system has changed.

When Henry Torrey and Bernie Serin and a half dozen others were in the department, they taught these courses and took them seriously. Bernie Serin developed a whole new lab for biology students, created a whole new series of experiments on blood and I don't know what else. [Editor's Note: Henry Torrey (1911-1998) served as the chair of the Physics Department at Rutgers from 1959 to 1964. He joined the faculty at Rutgers in 1946 and retired in 1976.]

KR: On that note, I want to talk about the awards that you have won. You won the Susman Award in 1988. [Editor's Note: Warren Susman served as a history professor at Rutgers from 1960 to 1985. He died of a heart attack while addressing the national convention of the Organization of American Historians in Minneapolis. The Warren I. Susman Award for Excellence in Teaching is Rutgers University's highest honor for tenured faculty being noted for their teaching.]

PL: Warren Susman was a friend. I totally admired and liked him. I wish I had had more time to spend with him. He died, as you know, at a meeting of historians. He was in full flight, as somebody said. He was recognized as someone who worked on changing the offerings and the atmosphere of the University for students. His "Susman Report" was an extraordinary document, intended to bring about major changes. Most of it was never enacted or taken seriously.

KR: What did it mean to you when you won the Susman Award?

PL: Well, first of all, I was excited about it. I thought that it was a recognition for something that I had done and that I knew I was doing well. I don't think it came as a huge surprise to me. I thought, "Yes, that's the right thing for me." That was more than I could say about what I got the following year. The following year, I got an award and medal from the American Association of Physics Teachers. That was a recognition outside the University. I thought it would change my life, but what it did was to give me a feeling of having made the right choices and validating them.

KR: For the record, that is the Millikan Medal. [Editor's Note: The Robert A. Millikan Medal was established in 1962 by the American Association of Physics Teachers. In the words of the AAPT, "It recognizes those who have made notable and intellectually creative contributions to the teaching of physics." Dr. Lindenfeld was awarded the medal in 1989.]

KR: Why did you think that would change your life?

PL: Well, it's only given once every year, and it's a rather select group of people. I thought people would take me more seriously. They would listen to me more. I'm not

sure any of that has happened. I thought I might get invited to give talks more, which I really haven't. None of that happened. Some very good people have gotten that prize and some marginal ones. If people ask what did I get it for, I'm not sure I have a simple way of describing that. Reflecting on it now, I felt more secure in myself. I was going against the grain by doing some of the things I did that we've talked about. The support from the Physics Department was mixed, and the award gave external validation to my activities.

Recently, one of my Ph. D. students, Tom Grenslade, got that award also. Bernie Serin didn't think that he was sufficiently committed to his work in physics and told me of his doubts about his progress. Tom got an honorary degree from his institution when he retired and now this award.

KR: You are now Professor Emeritus.

PL: Yes, that's sort of automatic; that just means that you're retired. The only other thing that happened--it also has no meaning--is that what used to be called Professor II is now called Distinguished Professor. I personally don't think that the gradation of the various steps is helpful. There are places where you're hired, you go through a probationary period, and at some point, rather soon, you become a professor and that's it. To then say, "Well, there can be different kinds of professor and there can be further distinctions," just creates divisions and jealousies, and I do not favor that. The endowed professorships also create inappropriate divisions, it seems to me.

I'll tell you about one relevant story still. I don't know how close to the end we are. One of the great achievements of the AAUP was they went to the president, it may have been Mason Gross, and said, "If we're going to be a university past the lowest level, we have to have salaries on the A-level of the AAUP." At that time, there were levels A, B, C, and D. I don't think that exists anymore, but each year there was a published list of every college and university in the country and for each rank, whether they were in the A, B, C, or D-range, as established by the AAUP. Rutgers basically had good levels at the assistant professor level, where people were hired, and not at all as you went up the scale. At the time, the administration was persuaded that the best thing they can do for the reputation of the faculty and the University is to try to achieve the A-level, and by whatever means of persuasion, that is what happened. There was a day when everybody was put at the A-level. Within each rank in each department, there was the possibility of extra increments, at the discretion of the department. At the risk, again, of self-aggrandizement, I will tell you what happened to me. The department gave me the lowest possible number of increments. The dean was Arnold Grobman, with whom I had tough relations. He was no friend of mine, but he gave me the extra increments, because of my involvement with the college.

He took the Susman Report, which I admired and thought of as one of the greatest works ever on the educational system, and distributed the various recommendations that Warren Susman had made to different committees, most of them with members that had no particular interest in educational innovation. Basically, he strangled the report and destroyed whatever Warren had done. There was a group of us who were going to fight that and have a super-committee to revive Warren's work. But an administrator can change things, so that nothing is going to happen. We tried to have one group that looks at the whole report and says, "Let's see what's most important and what sequence we can establish, what changes can be made." None of that happened, and the Susman Report, which was a document like no other, was not ever looked at as a whole, and not ever realized to the extent that it should have been. That was a project that some of us worked hard for, but almost nothing came of it. [Editor's Note: In 1968, Warren Susman produced a report entitled *The Reconstruction of an American College*, which came to be known as the "Susman Report" and called for the rethinking of higher education.]

KR: How did you become involved in that?

PL: I was involved through my associations with people who were interested in Susman and his work. I don't remember anything formal about that. Here is an example. One thing that was recommended and actually enacted was a Council for Educational Development. I saw enormous potential in that. It would be able to authorize individual majors. Students could design their own major and have it approved by the council, which was elected from the faculty. A number of people got appointed or elected to it who had no particular interest in it. They decided that this council had nothing to do, and it abolished itself. I was outraged and wrote some letters to try to show the potential importance of this group, including what we just talked about. I was by myself, and the people to whom I wrote were lukewarm. I never got anywhere, but I think the idea is still valid today. I think there are now mechanisms for individual majors, but I've been out of that effort for a long time.

KR: What other parts of the Susman Report do you think were real missed opportunities?

PL: I don't know whether the honors courses were part of that, but I'll mention them anyway. Honors courses were special courses that faculty members could design and give without having to go before the very lengthy, years-long process of faculty meetings and approval. There were also "Capstone courses" that were recommended. They were to be at the end of the four years. Others were special courses at the beginning.

I have the Susman Report here on my shelf; I can reach it, I think, in a moment. It was full of ideas, and it was full of a spirit that remains unique. The fact that it was not enacted, never got anywhere, basically because of the dean at the time, is a great loss and a missed opportunity. I don't remember them all, but it was just full of ideas. The result was that it was just squashed, although I have said and still think that in my relations with administrators, I found many who had a wider vision than I have found in the department and a broader vision of what's important. That did not always work, and in this case, that did not happen because of the narrowness of one dean.

KR: I have reached the end of my questions. At this point I want to ask you, would you like to add anything else?

PL: Thank you for your questions, your interest, and for doing what you are doing in a project that is worthwhile, not only in my case, but, as I've seen in other interviews, really a way to find out about personal involvement and personal ideas that would not otherwise be seen. So, thank you for that. No, I won't add anything more.

KR: Well, thank you so much. Thank you for being generous with your time and for doing this oral history interview.

PL: Of course, thank you.

----------END OF TRANSCRIPT----------

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