UFHC 50
Interviewee: Dr. C. Max Lang
Interviewer: Nina Stoyan-Rosenzweig
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R: This is Nina Stoyan-Rosenzweig interviewing Dr. C. Max Lang at Hershey, Pennsylvania. The date is December 28, 2001. Dr. Lang, we'll just start out by asking you about your early life, then we'll lead up to your professional career. Where were you born and when?

L: I was born in east central Illinois in 1937. I grew up on a farm there.

R: Was this a working farm?

L: Yes, [we raised] mainly corn, soybeans, raised a lot of pigs.

R: How many siblings did you have?

L: Three. Two brothers and a sister.

R: Did you grow up then as farmers or did your parents encourage you to get a higher education?

L: Well, my father was a farmer, but my parents kind of instilled in all of us [a desire] to go on to college.

R: Did you go to a local high school?

L: Yes, it was a small high school. There were nineteen in my graduating class.

R: That's amazing.

L: Typical of the Midwest at that time.

R: You didn't have a large regional high school, they just sent you to a local school. Did you walk to school or did they have a school bus that would pick you up?

L: In grade school, I walked to school. In fact, the first six years, I went to a two-room school house. Only one room was used, the other one was for storage. I started school when I was five because there was a girl who was a year older than me and she would have been the only one in the class. The teacher asked my parents if I could start a year early so there would be two of us in the class.

R: What was that sort of an education like?

L: Actually, I thought it was excellent, because all six classes were in the same room and I had the opportunity to hear what the older students were doing, so I had a much broader education than if I had just been in each grade by myself.

R: Did the older students also work with you and tutor you?

L: Not too much, that I recall anyway. [It was just] being able to overhear and [we] had a furnace in the room. The older students would help fire the furnace in the wintertime and carry out the ashes. It was sort of a community effort.

R: The high school was separate from that school?

L: Yes. I went to this one-room school for six years, then we went to what was called the consolidated school district for seventh and eighth [grades] and then moved to another building for high school.

R: Seeing that you went into veterinary medicine, did you participate in any sort of agricultural or county fair projects and things like that?

L: Yes, I was in what they call 4-H, which would show animals at the County Fair. I was also in FFA, Future Farmers of America. With a small school, there weren't that many opportunities for activities.

R: There weren't a lot of sports?

L: Weren't enough students to make up a team.

R: Obviously, you were exposed at an early age to animals. At what point did you know that you might be interested in becoming a veterinarian?

L: I would guess probably when I was in high school. It was just sort of a natural thing to do.

R: Did you parents call in a vet when your animals were ill?

L: Yes, so I knew the local veterinarian and saw what they did when they came out.

R: That was of more interest to you than becoming a physician or anything like that.

L: Yes, in fact it was interesting – physicians were not held in high regard where I grew up, because during the Depression, the local physicians who treated patients who couldn't pay ended up taking their farms. It was not an esteemed profession.

R: No. The veterinarians were helping you maintain what you had. You went to the University of Illinois at Urbana. What was your major?

L: It was pre-veterinary medicine. Normally, one would spend four years as an undergraduate before they would go to veterinary school, but I was able to get into veterinary school after two years.

R: You just went through two years of undergraduate school and then into veterinary school?

L: Yes.

R: You then went to vet school at the University of Illinois. How were you able to do that?

L: I guess [it was] determination. I ended up taking some courses by correspondence so I could meet the requirements. I took a history and a math course by correspondence and a physics course.

R: You did complete all the course work, but you just did it in two years. I know nowadays at least, vet schools are harder to get into than medical schools. Was that the case then as well?

L: Yes.

R: What impressed them about you or your background? Other than the fact that you'd gone through in two years and clearly were determined and interested.

L: I'm not real sure. I remember when I had my interview, the professor of parasitology asked me what I thought I might be interested in and I said, either large-animal practice or research. He sort of scoffed at the idea of research and told me I didn't know what I was talking about. I thought that was the end of the interview, but then I got a letter saying I was accepted.

R: Was the vet school at the time more focused on training people for large animal practice?

L: Large animal and small animal. It was oriented towards practice.

R: Either as an undergraduate or in the vet school, was there anyone who was particularly influential?

L: Not really that I recall at that stage. I was just a student.

R: What made you think about research at the time, especially when there really weren't people who were encouraging you to go into it?

L: As an undergraduate, a friend of mine took care of some rats in one of the science buildings for an investigator. When he wanted to go away for a weekend, he asked me to go and feed and water the animals and change the cages. I thought, this is rather intriguing what people are doing, but I realize now looking back that I was rather naive.

R: What was the program of education like in vet school?

L: Very much like the medical-school curriculum, except instead of dealing with one species you dealt with multiple species. In gross anatomy, instead of dissecting one cadaver, you dissected different species of animals. Basically, it was a similar type of experience.

R: How many years was it?

L: Four years. I received my bachelor's degree after the first two years [of] vet school. The D.V.M. came two years later, so it looks a little confusing.

R: You finished veterinary school in 1961?

L: Correct.

R: You started your undergraduate in 1957?

L: [No,] 1955.

R: Okay. In 1957 you started at the vet school.

L: Yes.

R: You did not work in a research lab while you were in vet school?

L: No.

R: In 1961, after you graduated and received your D.V.M., did you go into laboratory animal medicine and research?

L: I am here today because of the military draft. When I was in my fourth year of veterinary school, I received a draft notice. With the help of the dean, I was able to get a deferment. A lady at the draft board said, the day you graduate you'll get another notice. Seeing the handwriting on the wall, I applied for a

commission in both the Air Force and Army. I didn't want to take any chances. The general of the veterinary corps of the Army at about that time spoke to the students about careers in the military. I talked to him about my interests and perhaps research and he said, if you take the Army commission, he would arrange that. I received commissions in both. I could go in the Army in August, but the Air Force [commission] wasn't going to [start] until January and based on my discussion with the Army general, I took the Army commission. I was to go to the Redstone Arsenal after [an] eight-week orientation, learning how to salute and march, things like that. While I was there, I received a change of orders to inspect fish in California. Being rather naive, I thought, this isn't right. So I wrote a letter to the general reminding him of our discussion and his promise of putting me in a research-oriented program. People told me I should not have done that. You don't do this sort of thing in the Army. The last day I was at Fort Sam Houston, I received a telegram not to leave to go to California, but to await further orders. The next day I received orders to go to the Walter Reed Army Institute of Research in Washington, D.C. This was my first real exposure to laboratory-animal medicine. I didn't know it existed prior to that time. I went there. In addition to taking care of research animals, I was also asked by my colonel to run a VIP clinic. I took care of President [John F.] Kennedy's [U.S. President, 1961-1963] dogs. Basically, if you had a star or [was] a president or a member of the cabinet, [your] animals came out there for treatment. It was really a very exciting time. I met people that I never would have met in my life, otherwise. [I] sort of had a feel for how the government works in many respects.

R: Did you ever hear anything after this letter to the general, which obviously had some sort of an impact? Did you ever have any contact with that general again?

L: I did on a couple of occasions and he never raised the issue. He had a colonel who was his assistant, Colonel Shipley. I later learned that the general was in Europe at the time. Shipley made the decision to change my orders. What I was able to learn from my major, Colonel Shipley was very unhappy with me because when the general returned and saw the letter, he promptly ordered him to make a change. He felt that hurt his career in some respects. Whenever I met Colonel Shipley after that, relations were always very cold and formal.

R: But you had the general supporting you.

L: I guess being naive pays off sometimes. In the military, you don't go directly to the general.

R: That is amazing. Let me just ask you some about the VIP program, about your experiences with people like the president. This is of interest to me because I'm interested in human relations with animals – how did say President Kennedy relate to his animals. Did he bring the dog himself?

L: No, there was always an entourage of Secret Service people. They had two dogs, one was named Pushinka which was an offspring of the first dog that [was sent] up in space by the Russians. That was a gift to the President which happened just before I arrived. It was a great concern to the Secret Service because President Kennedy had small children. They knew the dog would be in contact. They wondered if it was carrying a poison or some sort of a transmitter. They were trying to keep that quiet because they did not want to embarrass the Russians. When the dog arrived, they brought it out to Walter Reed for a complete check-up and this was supposed to be top-secret. As typical things happen, they had MPs [military police] about every five hundred feet lining Walter Reed. This got the attention of the press, why all the MPs? In *The Washington Post,* when the story leaked, they said the dog was staying in the presidential suite at Walter Reed and that they were taking color x-rays. We don't have color x-rays even today. [It was] kind of glossed over because of the inaccuracies of the reporting. When I was there, they had this Welsh terrier named Charlie, which was one of the dumbest dogs I've ever seen in my life. This was Caroline [Kennedy's] favorite, Charlie was. When they would come out for their check-ups, there would be the entourage of Secret Service and MPs stationed at the gate. [They'd] take them out of the limousines and de-worm them or vaccinate them or whatever was necessary. I recall one 4th of July, they brought the dogs out because they were going to their summer retreat. At that time, the medication that you used to de-worm the dogs always caused diarrhea, that was just a side effect. So they brought the dogs out and I thought, well, I'll just go ahead and give that to them. About an hour later, I got a call from the White House that they were coming to pick up the dogs. I said, I don't think you want to, because I just treated them and there's this unfortunate side effect. They said, okay. A little while later, I got another call saying that Caroline refused to get on the helicopter without Charlie. I explained everything again to them and there was this conversation in the back. Finally it was decided that if I promised to send them up later, Caroline would get on the helicopter and go to Hyannisport, [Massachusetts]. Well, it wasn't long before the entourage showed up and the diarrhea still hadn't started. I tried to explain to the Secret Service that this was not a good idea. They told me very promptly, you don't argue with the President of the United States. Orders are orders. They had no longer put the dogs in the back of this limousine when the side effect took place – deep pile carpeting, plush seats, [it was] all over the place. Charlie just stood there in the middle of it, wondering what happened. Pushinka was bright enough that she jumped over the backseat and stood there looking at them. It had started to rain at that time. The Secret Service agent said, I can't go back to the White House like this. He said, get me a bucket. I wish I had a picture of this, but here he was bent over trying to scrub the floor. I'm holding an umbrella over his rear end so it doesn't get wet.

R: That's a wonderful story.

L: In general, the pets that we treated were almost like children to their owners. They were very, very concerned about everything. I know Lennartoon, who was the Assistant Secretary of Defense, had dalmatians. They had a trainer for the dogs. The trainer would take them to Florida every winter, because Washington was cold, would take them to Maine every summer where it was cooler. They were well-cared for.

R: Is that typical for everyone or do you think these people were even more concerned about their animals?

L: Both, I think. These were people who obviously lived under a lot of stress because of their job. Having animals as pets, I think, was sort of a safety valve for them. Your dog is always happy to see you.

R: Your dog thinks you're the most wonderful person on the face of the earth.

L: After that exposure, I decided that I would not return to Illinois to go into large-animal practice but I wanted to make laboratory animal medicine a career and that led me to Wake Forest University for a post-doc.

R: At the same time that you were taking care of the VIP animals, were you doing lab research?

L: Yes. Taking care of laboratory animals.

R: These would be mostly rats or primates?

L: Mostly mice, but we did have a lot of rats, a lot of dogs, and a lot of primates.

R: Were you concerned with the health of the lab animals or were you concerned with the daily maintenance? What would a daily routine be for you at that time?

L: The health of the animals, I think, was the primary thing. We bought dogs from commercial sources and they often had diseases that one had to treat. In the case of the monkeys and the mice, it was more or less making sure they stayed healthy, didn't pick up any diseases or anything.

R: At the veterinary school, did you have exposure to exotic large and small animals?

L: It was large and small animal. While I knew people used animals in research, I had no idea that there were opportunities for a career in this field until I was in the Army.

R: Did you have to take any courses for dealing with rats and mice?

L: Not in veterinary school, that just simply wasn't taught. In fact, even today I think in most veterinary schools, being a mouse doctor is kind of looked down upon. That's not really being a real veterinarian.

R: Today, do they deal even more with exotics?

L: Somewhat. Some veterinary schools today will have a single course on laboratory animals. Some do not. It's still not considered a primary focus.

R: You said you went on to a research fellowship at Wake Forest. What was the focus of that?

L: The focus there was coursework, learning more about typical laboratory animals. There was also a focus on research. I would say I probably spent half of my time learning about these species that I hadn't had knowledge of before, taking care of them, and the other half in research activities.

R: At what point did you start designing your research projects and becoming involved in research?

L: The focus in the training program where I went was atherosclerosis, so that was a given. I guess my mentor there had certain ideas of projects that I might work on relating to that. I was more or less involved in it.

R: How did you end up at Wake Forest?

L: As I was approaching the end of my Army stint, I learned that there was a program at Michigan. I applied to that program – I was getting out of the Army in August. But the program in Michigan did not have any openings until January. The head of the program at Michigan was a friend of the person who had the program at Wake Forest and said, I received this application from this fellow in the Army, we don't have any openings until January, would you be interested? Clarkson was on some committees at the National Academy of Science and he contacted me and said that he would be coming to Washington for a meeting and could he meet with me. I met with him and although his program started in July, he said it would be all right if I started the first of September. That's how I ended up there.

R: Your Army duty lasted two years?

L: Two years, and I thought seriously about making a career in the Army, because I'd had such a good experience at Walter Reed. I was single at that time and I

think still under the influence of Colonel Shipley. They decided that if I stayed in that, I would go first to paratroop school, jump out of airplanes. I'm deathly afraid of heights. Then I would be sent to Vietnam to jump out of airplanes to take care of pack mules. I thought about that and I told the person in charge, I said I don't like heights, I'm not jumping out of an airplane and I hear that they're shooting at people in Vietnam. That made the decision to get out quite easy.

R: What was your rank when you went in the Army and when you left?

L: I was commissioned as a first lieutenant and then I was promoted to captain, so I was a captain when I got out.

R: You were at Wake Forest from 1963 to 1966. It looks like the papers that you were publishing then were mostly focused on primates.

L: Yes, they had a very large colony of squirrel monkeys there up at Bowman Gray [School of Medicine, Wake Forest]. The animal models used to study atherosclerosis were either pigeons or primates and I chose to work with primates.

R: Why did they use pigeons?

L: There's a pigeon strain called the white carneau pigeon that has a predisposition to atherosclerosis, so it was a good model for us. While I was there, my mentor had this idea that he would study the effects of exercise on heart disease and housed a group of these pigeons with homing pigeons to teach them how to come back home. When he thought they were trained, they took them out in the countryside several miles away and turned them loose, never to be seen again.

R: They didn't have the homing instinct?

L: No.

R: That's curious. I didn't realize that birds, in general, had any predisposition to heart disease.

L: It's unusual, but this particular strain of pigeons did have that.

R: Were they bred specifically to develop that or was it just a chance mutation or something?

L: I think it was a chance mutation and once it was realized, they continued to be bred for that trait.

R: You chose primates, though. Was there any particular reason?

L: I guess I liked them. I've never been a great fan of things with feathers.

R: Did monkeys seem more human?

L: I just liked to work with them.

R: What sort of research did you do with them in terms of the atherosclerosis?

L: There were two primary projects I worked on. One was the effect of psychic stress on monkeys. The theory at that time was that there was type A and type B personalities. Type A would have heart disease. I had the thought that might not be the case. There was what's called the Skinner box, [which] up until that time had been used with rats – they could make a decision by pressing a lever to avoid a shock to their tail. I built a Skinner box that I could put monkeys in. There was one group that could press a lever to avoid a shock to the tail. There was another group that had no decision-making process and then a third group that stayed in the cage. As it turned out, the ones that could press the lever to avoid the shock had the lowest level of heart disease. It's probably the one paper that has been quoted the most over the years and still has been quoted in citation index. When you think about it, you know, the president of the company doesn't have the heart attack. It's the vice-presidents under him or her – the ones that have to perform but don't have the decision-making ability [which] causes the stress. The other project had to do with carbohydrates, whether simple sugars or complex carbohydrates showed a difference in atherosclerosis. As it turned out, those on the starch-carbohydrate had a much lower incidence of atherosclerosis than those on the sugar diet. When I came here, I put in a research grant to NIH [National Institutes of Health] to continue those studies. I asked for two years of support and one day I got a call from NIH to tell me that the grant had been approved, but it was approved for three years. The person who had called me said he had checked the records and, at that time, this was only the second time in the history of NIH that they gave an award for more money than was requested. After I did that, I decided I really wasn't that interested in atherosclerosis anyway. I did that study and that was the end of that. I switched more into environmental factors that can affect the interpretation of research data. [Such as] things in the water, types of feed, things in the air, caging.

R: With monkeys in particular, maybe even social interactions could be a factor.

L: Enrichment of their environment, right.

R: In this period at Wake Forest, you were doing work on the care of research animals. There was something, a project, where you were vaccinating monkeys.

L: Right, for monkey pox.

R: Is monkey pox related to smallpox?

L: It's interesting. What got my interest in that was when I was in the Army, they had an outbreak of monkey pox. Many of the people working with those monkeys developed vesicles on their smallpox scar, so obviously there is some relationship there.

R: I know that cow pox did seem to confer or did confer some immunity against smallpox. When I've heard people speculate, they're speculating about cow pox, having jumped between species. Is there a possibility that smallpox may have originated in monkeys and then jumped a species barrier?

L: It's hard to tell. I don't know that anyone has ever really investigated that. The virus is in the same family as smallpox and cow pox, so you would expect some genetic similarity. What came first, I have no idea.

R: We often think about how we've probably acquired many diseases from domestic animals. I've wondered how much it's ever gone the other way around, what animals we've given diseases to.

L: A fair amount, I suspect. It wasn't until we learned about recombinant DNA that we understood this. What we realize now is that this happens naturally. It's just that in the last twenty years, we've been able to do it in a controlled fashion in the laboratory instead of waiting for random events to happen – we have more control over it.

R: We're probably more aware now. Before, when something happened in an isolated part of the world, it might have just run its course and no one would ever know. When you were at Wake Forest, did you meet Dr. Harrell?

L: I did not meet him until I came up here for my interview. As I was finishing my program, I chose five places that I'd been invited to come for an interview, one of which was the University of Florida, another one was Harvard, another one was Indiana University, mainly because it was close to my home. Then I chose to interview at University Park of Penn State and here. This was the last place that I came to interview. Dr. Harrell met me and my wife at the airport. It was just almost immediate, I knew this was the place.

R: You knew this just from talking with him?

L: Yes. I came for my interview about a week before the groundbreaking here, so there literally was nothing. No other faculty had been hired and I realized that this would be a gamble. I thought, I'm young enough, if it doesn't pan out, and with all the other offers I had, I couldn't lose.

R: Did Dr. Harrell in particular inspire confidence or did it just seem like you had a creative opportunity?

L: No, he inspired a lot of confidence. In fact, he laid out the architectural blueprints. As he talked about it, in your mind, you started seeing students and faculty and patients. He made it come alive. A very convincing person. He could put things in a way that anyone could understand it.

R: From what I've heard about him, he also had a great attention to detail – he had thought everything through and really could meet any possible objections or questions.

L: Yes, his attention to detail was legendary. I recall we were having a site visit for the hospital. There was one site visitor coming who he didn't really know much about, which was unusual for Dr. Harrell, because he knew so many people. He acquired background information probably from the library, out of *Men of Science* or something like that, looked at where he had grown up and decided that this fellow probably would like Carolina pork, a Smithfield ham sandwich, because he noticed [that on] his plane, he would not have a meal. He would miss meals due to connections and would arrive on a Sunday night. He was raised in one of the Carolinas, he might like to have a Smithfield ham sandwich and probably would like a certain type of wine to go with it. So when that person arrived Sunday night for the site visit, this was soon delivered to his room and [that] made a big impact.

R: In fact, Dr. Harrell was right.

L: Yes. [It] turned out he did love Smithfield ham, the real stuff, which they used to serve in Hershey. That was one of his favorite wines, so it got things off to a good start. Dr. Harrell has encouraged me, in the history of the medical school, to write a book. I'm not sure I'll ever get it done. He suggested the title of *The Impossible Dream,* because this was a medical school at that time being built by a charitable foundation – not by a university, on land that the university would not own, and asking for NIH funds, which had never funded anything like that in its history. He convinced them all to do that, so it was an impossible dream.

R: Was the Hershey corporation funding it?

L: Let me tell you how the medical center started. Really, it started with a man named Milton Snavely Hershey [creator of Hershey Chocolate Company, 1894] who was born in the township of Derry. His father was a wanderer, always looking for the pot of gold at the end of the rainbow. His father was not [at] home very much, went to Colorado to pan for gold and different things. He was, in essence, raised by his mother. When he was a young boy, he was apprenticed to a newspaper, which he did not like at all and felt trapped in that. One day, he purposefully dropped a whole tray of type that had been set for the newspaper. That ended his apprenticeship. He always wanted to make candy and he went broke three times. His mother and aunt bailed him out. I think the influence of his mother and his father as caring people was one of Milton Hershey's attributes. The fact that her husband was a wanderer and money was short often had to be a topic of conversation in the family, the lack of money. He finally started the caramel business in Lancaster, [Pennsylvania] and was very successful. There's strong evidence to suggest that his goal was to make a lot of money to make his mother happy. When he did, it didn't change her a bit. That changed his interest in money. He married late in life, [was] raised as a Mennonite, he married a Catholic girl, which at that time was sort of unheard of. They had [no] children and his chocolate factory was very, very successful. They decided that they would start an orphanage for boys who had no father, sort of emulating his childhood. Although he had a father, he wasn't around much. He thought that if he could maybe have fifteen boys, this would be a goal, but it was much more successful than that. The second seminal [person] was Arthur Whiteman, who was orphan number eighteen. His father was from Pennsylvania, his mother was from North Carolina. He and his sister and mother were living in North Carolina and his father was working in the coal mines in Alabama when they got word that his father had been killed in a mine accident. The mother thought it would be better if she moved closer to the father's family, [and] moved to Harrisburg. She worked in a shirt factory along the Susquehanna [River] and came home from work one day to find the sister who was ten and young Arthur playing in the Susquehanna River. She decided right then and there, something had to change. The daughter was sent to what is now known as Messiah College, which was an orphanage for girls. Young Arthur, she brought him on the trolley to Hershey. I think he was about six at the time. He told me one time that he was overjoyed at the trolley ride out here, but once he realized there was no return trip for him, he was quite distraught. When he was in high school, the boys had summer jobs and he was on the paint crew. He decided he would be a house painter when he graduated from high school. At that time, Milton Hershey decided that his group was too small to give a good high-school education and he was going to send them to the public school. To make sure that they competed well, they would have to repeat a grade. Arthur was incensed. Apparently, as he was painting houses that summer, he did a lot of grumbling and complaining about having to repeat a grade, because he was number one in his class. [The] class was only two [people], but he was number

one. This obviously got back to Milton Hershey. One day the superintendent of the school stopped by and asked to speak to Arthur. [He] said, I understand you're unhappy. This embarrassed him to no end. He said, how would you like to work in the bank? [He was] embarrassed of his big mouth grumbling and complaining. I asked him one time if he looked upon Milton Hershey as a father and he gasped, oh no, he was a god. This information coming from Milton Hershey, he said, I'm much too young to know what is good for me, I will do what I'm told. So he went to work in the bank and I think he was the person who really made the money for the school. I have a copy of the memorandum of understanding in which they listed the assets of the school. Not to the nearest thousand, not to the nearest dollar, but to the penny. That was the type of person he was, and this was before computers, even before adding machines. He very quietly worked in the bank, the trust company, investing Mr. Hershey's money, and was very, very successful at doing so. He was the youngest person ever appointed to the board of managers. He retired six months early because he did not want to serve on that board longer than Milton Hershey. He just couldn't bring himself to do that.

R: Hershey was no longer there.

L: The next seminal [person] was Samuel Hinkle who was president of the chocolate factory and had been recruited personally by Milton Hershey. He was a chemist. Milton Hershey never knew any chemistry and decided he needed a chemist. When Sam Hinkle was appointed to the board of managers, he had heard that they had a great surplus, but he had no idea how much that surplus was until he was appointed to the board. When he realized in the mid-1950s that they had a $100,000,000 surplus, he wrote a memo to the president of the board suggesting that they put this on the next board agenda, to think of ways of using that money. His memo was never answered and it was never put on the agenda for the board. When the president of the board retired, by this time Arthur Whiteman and Samuel Hinkle had sort of become buddies, secretly talking about what might need to be done. As soon as this person retired, they immediately said, we have this surplus, the government may come in and say something, but also Mrs. Hershey had some nieces and nephews. While I don't have proof, [End of side 1, tape A] I think there was some concern that these nieces or nephews of Mrs. Hershey might get a lawyer to represent them to get some of that money. I have a copy of the memorandum of understanding; there were about seventy-five court cases referenced in this memorandum. About half of them had to do with situations of where money was given for a purpose that never materialized, like for a library that was going to cost more money than what had been given. Another case was to build a new church for a congregation, but before that could happen, two churches merged and they no longer needed a new building. The other half had to do with heirs of people who had given money, wanting to get that money back. That was about half the

cases. It has made me think that was a strong interest. The mid-1950s was a time when, throughout the country, there was a great concern about a shortage of physicians, which led to Congress appropriating money [for] over fourteen new medical schools [which were] built during that era. Just from reading the press, they were aware of the need for this.

Those who knew Mr. Hershey well, who had worked with him, knew that from the influence of his parents, especially his mother, that he was a very caring individual. He had actually built the first hospital in this area. They decided, before they did anything, they should make sure the school was taken care of. They brought in educators from around the country to look at the curriculum of the school. They hired more teachers, they brought people in. They either built new homes, or refurbished every home, every farm they had. They had roughly $100,000,000 surplus yet. The bulk of Mr. Hershey's money was stock in the chocolate company. At that time, they owned two-thirds of the stock. It was suggested that they take half of that money to build a memorial to Mr. Hershey, which resulted in Founder's Hall, which is a beautiful memorial, but also has administrative offices. The other half [was to] be used to build a medical school. There's a lot of controversy about the $50,000,000. Some say that they thought at that time, that would be enough to build and permanently endow a medical school. That was not their thought at all. Some wags said that this happened on the 50th anniversary of Mr. Whiteman's appointment to the school. Well, that was just a coincidence. It was really half of $100,000,000. Their thought at that time was that no more than $20,000,000 would be billed for construction and $30,000,000 as an endowment. They contacted Penn State because they knew they had to have the university affiliation. All of this was done in total secrecy. Only the Attorney General of the state, the Governor, and the head of the orphans' court knew that this was happening.

When this was announced in August of 1963, the legislators were incensed. At that time, the total appropriation to Penn State was $25,000,000 and here $50,000,000 was being given to build a medical school that they alleged the state did not need, could not afford, they already had five medical schools. This was announced in Congress. The local congressman – I have a copy of the *Congressional Record* – started out by saying, a bomb landed in Harrisburg, Hershey, and surrounding territory today, but it was a good bomb. Penn State set up a committee headed by a Dr. Carpenter, who was a psychologist. I think his intent was that he was going to be in charge of the medical school. They appointed a blue-ribbon committee, [including] the dean of Harvard, the head of NIH, the person who became head of the National Academy of Science and they only had one meeting. Mr. Hinkle later told me it was a [circus] – this fellow Carpenter had lights, camera, action. [Mr. Hinkle] said he would never go back to another meeting. It was interesting that each of these people were paid an honorarium of $2,500, which in early 1960s was a nice honorarium. They

became more and more disenchanted with Carpenter. I have a copy of a letter that Hinkle wrote to Walker saying, we're more interested in the product of our candy and not the glitter of the paper. Another letter he wrote, Carpenter had sent some people down to measure some rooms. Hinkle said, this is a waste of money, a simple phone call, I could have got the information to you.

Later, Carpenter received a fellowship at the University of North Carolina and Walker wrote a letter to Hinkle saying, the Carpenter situation is solved, with a copy of the news release. The Hershey people were very, very anxious to get the medical school started. Walker was not anxious to get it started. In fact, he wanted it built at University Park. But Mr. Hershey's trust was very explicit that his money could only be spent in this township, so there was no way. President Walker then tried to convince the Hershey people, if you want to get this school started, let's start the first two years at University Park so we can hire a dean and get things going. They refused to budge, so there was a stand-off between the Hershey people and the university. They insisted that Walker hire a dean as soon as possible. Walker drug his feet and so finally Hinkle wrote a letter to him and said, if you want us to roll over like a dog, we'll do that and the money will just earn interest. Walker replied that, with his fellow presidents, he'd heard lots of bad things about medical school deans – they're irascible, they're power-grabbers, and once you hire them, you're stuck with them. If they want one hundred spectrographs, you have to buy them. If they want one hundred students in the class when you only need fifty, the dean always wins. That's why he didn't want to hire one. Hinkle replied that the way things were done in Hershey, if they picked the wrong dean, he could be dispensed of. He could write his own termination. One of the people on this search committee was an internal medicine person from the University in Chicago. The Hershey people were really struck by him, but Walker didn't like him. They pushed very hard and Walker said, you might want to check this person out. Through their business contacts in Chicago, they discreetly inquired and found out that while this individual was very personable, he was arrogant, didn't treat people well, and was more interested in socializing. The Hershey people withdrew their nomination.

Walker then proposed a person who was trained as a pediatrician but [was] doing microbiology research at Hopkins and was assistant dean of students or something like that. He proposed him [as] the dean of the new school. I have records of minutes of where he came on two or three occasions, but he could not make up his mind to questions. He hedged on everything. He had a very large research group that he couldn't bring [if] where there was no building. Again, Walker suggested, come to University Park, bring your research people, we'll start the school there. Finally, at one meeting, the Hershey people asked this fellow, have you ever practiced as a physician? He had, but not a whole lot. [They] asked him quite pointedly, why can't you make up your mind? That was

the end of him. At that time, Dr. Harrell was called in as a consultant. At the first meeting where Dr. Harrell was telling Walker the kind of school he should plan and what he should do, Sam Hinkle, when he was leaving, walked over to President Walker and whispered in his ear that this is the man. Subsequently, President Walker did hire Dr. Harrell to be the founding dean. The Hershey people were very enthralled with him. In fact, a letter that John Hershey – no relation to [Milton] – wrote a letter to Sam Hinkle, who was on a business trip or traveling, [saying] how well things were going, how great Dr. Harrell was, and made a comment to the fact, what would have befallen us had we taken either one of the other two? That's how he came to be dean here.

R: Was that before 1964?

L: Dr. Harrell was hired in 1964. I believe he gave thirty-days notice at Florida. The president of the University of Florida who hired Dr. Harrell died before he arrived and his successor had never wanted a medical school. Many of the things that we have here, Dr. Harrell tried to get at Florida, but the president said no. It was not a happy thing. I think when Dr. Harrell said he was leaving, the president was only too glad. The shorter, the better. Dr. Harrell came in 1964. When he came, Walker had him at University Park to get to know the University, to get to know the people and things like that. After a short period of time, Dr. Harrell said, this is not working. I need to be in Hershey. I've got to recruit people, I can't do it from University Park. There is a building back here on the hill that was a former student home called Long Lane. That was where he set up office and started interviewing people and overseeing the medical school.

R: You said that you were the first hire. Does that reflect his priorities in terms of what he wanted to establish at the medical school?

L: Yes, he told me one time that there were fourteen new schools being built, existing schools were being expanded, so there was going to be very, very strong competition for faculty. He thought, what can I have at Hershey that will help recruit faculty? One of the things was research opportunity, of which animal research would be a big part. The animal research farm was actually the first building completed on this campus, as I was the first faculty member hired.

R: You were hired in 1966.

L: Correct.

R: What was your title?

L: I was hired as an assistant professor. One of the few people to be both a chair and assistant professor at the same time. I came for an interview in February.

I was asked to come back up in April because they were having the site visit for the animal research farm grant. Very early on, Dr. Harrell put me in a position that I really wasn't qualified for. He wrote me a letter and asked me what I thought of Evan Bathishall, who was then at the University of Florida and became the first chair of Behavioral Science. He really wanted my input on his recruitment. Well, I'd never heard of the person. When I arrived here in June, the Harrells were in England. Their son was in England and was getting married. Dr. Harrell had left me a memo apologizing that he wasn't here and that there would be a research grant arriving soon from the first chair of anatomy, Bryce Munger. Would I walk [his grant] through the university? At that time I had never seen a research grant, even the blank forms for one, yet he was trusting me and pointed out how important it was because this would be the first NIH grant [from our institution]. Well, it arrived and at that time, [it had] five copies with carbon paper. As is typical when somebody is leaving an institution, all of their resources suddenly disappear. The poor person who typed this [grant] was not very good. There were cross-overs and white-outs and it was barely readable. Being naive, I called University Park and asked if they could send me a blank NIH grant form. I rewrote his grant and had my secretary type it. We submitted it and then I got to thinking, what right did I have to do this? I barely knew anything about the subject material.

R: What was the subject?

L: It had to do with studying the exocrine pancreas. I'd done some work in diabetes, of course I knew what the pancreas was, but [these dealt with] the scientific aspects. I started worrying and I knew where Bryce was moving to. Every day I would drive by this brownstone house on my way home dreading the day when I would see the moving trucks arrive. One day it was there and I thought, the moment of truth has come. I drove up, got out of my car and introduced myself and said, I have to tell you something. I said, I retyped your grant and rewrote parts of it. [I was] expecting to be blistered out of sight. Bryce [said], no problem; fine, thank you for doing it. That was a great relief and it was funded.

R: Which I'm sure was a relief as well.

L: At that time, Dr. Harrell insisted that every prospective medical-school student be interviewed by three faculty. When we started getting applications, there were only three of us here, plus Dr. Harrell. I had never interviewed anybody in my life. Suddenly, I was assigned to interview students. There were a lot of things like that, that really turned into an opportunity that had I [gone to] any of the other places would have never fulfilled what I do today.

R: I think he tended to make judgments about people, then he would hire them and let them go or encourage them in areas, so that maybe disciplinary boundaries or what was sort of considered to be conventional work [were] important to him.

L: In many respects, he and his wife were like parents to us. My family lived in Illinois, my wife's family lived in North Carolina. Mrs. Harrell didn't know too many people, so she sort of adopted my wife.

R: When were you married?

L: In 1965.

R: You said your wife was from North Carolina.

L: I met her as a post-doc. I often kid her that she was an old maid schoolteacher. There was a lady who worked in the lab in the department that she had gone to college with. When I arrived as a single person, [she] suggested that I date this friend of hers. Gave me her phone number, so I called her one day and said, how about going out?

R: You were married in 1965.

L: January 10, 1965.

R: You have three children. I guess the first was born after you came to Hershey.

L: Yes, Karen was born in the Hershey Hospital, which was built by Mr. Hershey primarily for the school and the community. When we moved here, Hershey had its own credit card. You could buy your groceries, you could buy gas, go to the lumberyard, you could buy your ice cream, you could even pay your electric, telephone and hospital bill on the credit card. The boys' school provided the meals to the hospital, it was fantastic the food that you got. The Hershey Hospital was going to be closed because it no longer met JACHO requirements. That upset the local physicians to no end, especially when they learned they would not have admitting privileges here. That was one of the big battles of Hershey. It closed and the hospital here had not yet been built so my son was born in Harrisburg hospital. Then our youngest, Susan, was born here at the University hospital.

R: Hershey Hospital closed in what year?

L: They sort of closed it in stages. The obstetrics part and surgery were the first to be closed because they were very inadequate. It sort of started in 1967 and was completely closed when we opened in 1970.

R: You were hired then to essentially create. I guess you had teaching responsibilities?

L: Not really. In fact when I was recruited, Dr. Harrell told me if the program developed, he could see the possibility of a second veterinarian in, say, ten years. I thought, I'm a veterinarian, if I'm going to work in a medical school, I've got to play by their games and their rules. [That] meant we're going to teach, we're going to be involved in research, but we're going to provide the highest level of professional service we can, because that's our primary mission. In the first curriculum, I developed a course called Animal Physiologic Surgery of where, through surgical interventions, we would cause physiologic changes in the body. It was taught as an elective course, but about two-thirds of the class took it. I wrote my own notes for it and when it got too expensive to photocopy these notes, I inquired about having them published. It was [subsequently] published as a book, went into the second edition and was even translated into Spanish. That course is no longer offered. Like most medical-school curricul[a], there is no time for a half a day. The trend has been towards case-based learning. I have a faculty of five, including myself. Everybody participates in the case-based learning. In fact, we are the only department that exceeds what is assumed to be the responsibility for the number of hours. I also put in for a graduate program in this field, which was the first graduate program approved for this campus. I've had a training grant from NIH to support that since 1967.

R: How would you define the field then? Is it comparative medicine?

L: I chose the name comparative medicine, because I thought laboratory animal medicine was too narrow. Thinking of comparative medicine being a combination of laboratory animal medicine and comparative pathology. I'll never forget my mentor at Wake Forest laughed, said, you really don't understand the field. Everybody calls it laboratory-animal medicine. About ten or fifteen years later, he changed his department name from lab animal medicine to comparative medicine.

R: Basically, then, you were hired and you created the department of comparative medicine, or did that come after the first three years?

L: That came after the first three years. I asked Dr. Harrell about that when I interviewed. He very fatherly said, I agree with you, but I can't go to the Board of Trustees to create a department that is not typical of medical schools--which it wasn't at that time and is now--and a person who has just finished a post-doc as an assistant professor to be chair. So I said, well, I will accept that. He said, I'll support you if you can prove what you want to do. So, three years later, when I was promoted to associate professor, he proposed the department of comparative medicine at that time.

R: When you started, then, you were essentially creating the animal research facility.

L: In fact, I probably came about a year before Dr. Harrell really wanted me to come. I was finishing my [post-doctoral] program. I was married. My wife was pregnant. I was going to take a job somewhere. So when I came that first year, I ended up being [the] liaison between his office and the construction office. I would go to all the job meetings. He was traveling and recruiting. I would get his information back. He was intent that we were going to open in the fall of 1967, which was another impossible dream, but we managed to do it. In fact, I designed all of the research labs in the basic science and clinical science building. To keep the construction on schedule, it had to be done and those faculty had not been hired. Again, that was with some trepidation, because I was involved in interviewing people so I had some idea of what they might be doing, but really no clue as to the type of research that was really going to be done. I was doing a lot of things other than being a veterinarian.

R: Were you then creating the colonies of lab animals at the same time?

L: No, because there was nothing here. What's called Gro Mor barn was an existing barn on the site which the milk house became the first research lab here on campus. Munger brought a graduate student with him who was finishing his thesis. What we didn't realize was that this graduate student was dissecting monkeys that been embalmed in formalin. We certainly didn't want those in the [main] building that we were using as an office, because of the stench. I suggested we use the milk house as a research lab for him to finish his dissections. Then the hayloft was the site of the first hospital room. Dr. Harrell and his attention to detail believed in building mock-ups of things. The first hospital room was built in the hayloft according to the architectural design. The first thing they realized was that hospital beds wouldn't fit through the door. It was good that was found out before they started construction. Then that remained there as they were building the hospital to try out different furniture items. Chairs for the room, how to place the sink, hospital beds. I don't know that I've ever been in a hospital room at Florida, even though I've visited the campus. The hospital rooms here, the sink is placed at an angle. Dr. Harrell, being an internist, felt very strongly that the two most important times of looking at a patient in a hospital is when you walk into the room and see the anxiety, the fear, whatever. The other is when you walk out of the room and the questioned look on the face. In a typical hospital room, those are the times that the physician turns his back to the patient and washes his or her hands. Whereas in our rooms you can look at the patient while you're washing your hands either upon the entering or leaving.

R: That's fantastic. You said you started with graduate students in 1967, what were they doing at that point?

L: Well, we had opened the animal research farm. We were beginning to get a few animals in as faculty arrived. The central animal quarters in this building was almost finished. I had the graduate program approved, but I really hadn't planned on taking any students. This veterinarian showed up one day and said, I'm going to enroll in your program and I'm paying tuition. We started the year earlier than I had planned.

R: Presumably he had something planned.

L: The first year of our program is largely didactic, biology of various species, pathology, diseases of animals and that, which really made a scramble to get approval by the graduate school by the program I had to have an outline of the courses. We had to scramble to teach. There was another person in the department at that time. We literally were preparing lectures the night before we gave them to the sole student who was here.

R: He finished and went on.

L: Yes, he's now retired and lives in Florida. We have graduated sixty-three people in that program since it started.

R: Where do they usually go? Do they end up at medical schools?

L: Yes, many of them are now chairs at other medical schools. A fair number have gone into industry, which has been very, very nice, because they are usually in positions that they can make annual gifts to their poor mentors. A fair number have been in the uniform services. We are the only training program that has trained laboratory animal veterinarians for both the Army and the Air Force.

R: Is that because of your own experience in the military?

L: I think it was a couple of things. Typically these programs, which there are fourteen supported by NIH in the United States, are three years in length. Ours is two years in length. The military saw that as being more cost-effective. Plus we have a very, very good track record of people passing their speciality boards.

R: Do they take courses in the medical school?

L: To receive the master of science degree, the major is in laboratory animal medicine, but they must take a minor in one of the other disciplines, whether it be

pathology, physiology, microbiology[, etc.]. They are with other graduate students and medical students in those courses.

R: I guess in your early years here at Hershey, you published or you worked on ideas about designs of the animal facilities. One of them you published with Dr. Harrell. What sort of collaboration was that?

L: The entire medical school was basically designed by Dr. Harrell, not the architects, but Dr. Harrell. Being his liaison with the construction, I learned a tremendous amount about design and construction with him. The design was very attractive. We have a lot of people coming from overseas, from other institutions in this country. [In] many medical schools, the animal facility was built for something else or it was an add-on. This was the first one in the country that was designed completely for its intended purpose and had the animal research farm on campus. At Florida, there's some distance from the medical school. So Dr. Harrell was the one who encouraged me to write that. He said, you know you have these people coming from overseas from places here, you really need to write that up and publish it. It was really as equal co-authors.

R: I guess this is probably just thinking about the way that animal research is done today, what were your concerns in designing this facility, designing the program?

L: Dr. Harrell designed the buildings, in fact the veterinarian at Florida was his consultant. He actually tried to recruit him, this was Al Moreland, and I was embarrassed, the first year I was here, Dr. Harrell called me Al more than he called me Max. Freudian slip of the tongue, I guess. But there were certain things in the design. One was efficiency of operation. Labor is your biggest cost. The concept here was to have long hallways. If you're pushing cages around and have to push them around corners, your efficiency drops. Relationship to major support areas like cage washing. Another was expansion. His philosophy is that if you don't have enough money to build something, rather than build it smaller but have all of the component parts, build it right--what you need--and expand it later. The concept was that the facility in this building, expansion would be limited, because other things would be built first and would take up that space. Whereas the animal research farm, which is 1400 feet away and connected by an underground tunnel, was initially designed to double in size, yet not lose any of the efficiency of relationships. We're now in the second addition to that building. It really has to do not only with construction but with management. The animal facility, the professional service part, is self-supporting. We get no money from the college or the university. What we spend we have to earn. That's largely through what we call per diem charges. Even today we have probably the lowest unsubsidized per diem charges in the country.

R: Yet, that does support your operation.

L: Yes, people often ask me how can you operate without charging more. I tell them well, one, it was designed properly for efficiency. Two, we're in that part of Pennsylvania where there is a Pennsylvania Dutch work ethic. People believe in putting in a day's work for a day's pay. The third is that most of my ancestors came from Scotland. We're also the only medical school, I guess in the world, with its own hex sign. When my wife and I moved here, I knew very little about Pennsylvania or its customs and saw these hex signs on barns. Dr. Harrell mentioned to me one day that people in the community were concerned about the medical school and all these "foreigners" coming in here, how it might change. Coincidentally, that same day when I came home, my wife mentioned she had been in the local library and they had this huge collection on Pennsylvania Dutch things. I got to thinking and I thought, you know, if we took the basic design of keeping away disease and superimpose on that the head of a monkey, a dog, and a mouse, suggesting that animal research will keep away disease. I had a guy in Lancaster County make this huge hex sign, painted it. The local fire company came out with their truck, put it up on the side of the barn. The weekly newspaper wrote an article on it. To this day, people remember that. That it was a turning point. They decided maybe we "foreigners" weren't that bad after all. We were really trying to fit in with the local culture.

R: Do your technicians tend to be local? Do you train people?

L: They tend to be local. This has changed dramatically over thirty-five years. When we started, we worked with traditional animals and people with farm backgrounds who were good with the animals. That was all that was needed. Today the standards are much higher. We don't want animals that carry viruses, whether it causes a disease or not. We're dealing a lot with genetically-engineered animals. People that are being hired today and we have very, very little turnover. I have [several] people that have been here twenty-five years. When we do hire people, we tend to hire people who have been trained as veterinarian technicians or have a baccalaureate in one of the sciences.

R: I'm going to go back to the early years, at the time you were still working presumably doing your own research as you were setting up a facility.

L: Not until we had the facility built. In fact, I put my first grant in, the one I mentioned to you earlier, in 1967. At that time, virtually all grants were site-visited. The animal research farm was not quite completed when they came to the site visit. Of course, there was no cafeteria or eating facilities yet finished here. I thought these people are going to have to have lunch. They had ordered the dishes for the cafeteria, but they haven't been un-boxed. The cage

washer at the farm was operational, so I borrowed the dishes, washed them in the cage washer and my wife fixed the food and brought over to serve them.

R: Surely they must have been impressed just with the possibilities as everybody seemed to be.

L: Yes, I think there was a willingness to try and help new schools get started and impressed with what the opportunities were going to be. That first grant dealt with non-human primates. They could see the design, being out here in the country with indoor-outdoor plans for housing, that this would be an ideal place to do it.

R: Also thinking about today and some of the concerns that animal-care facilities must have in terms of animal-rights people. That was not an issue at all at that time.

L: Not really, I mean it was beginning at that time. I decided very early on that animal research was not something to hide or keep under cover. When the animal research farm was finished, Dr. Harrell suggested that we have an open house. It was announced in the paper that there would be an open house before we got any animals in, because once the animals arrived, we couldn't have all of these people wandering through. It was for a Sunday afternoon, and he and I were going to give tours. We thought we might have fifty people show up and we'd take them in small groups of five or six. They were lined up, it was still in the spring. It was cold with light snow. They were lined up, hundreds of people. I don't know how many hundred people showed up to take that tour.

R: Were these all local people?

L: They were local people. People I run in today, they remember coming over that afternoon and taking a tour. Then I made it a point that I will speak to any local group who asked me about animal research. I talk to the Kiwanis, the Rotary, church groups. [I] tell them what we do, why we do it, and how it's done. Especially the regulatory compliance, which really surprises a lot of people. We were one of the first, if not the first place in the country, to convince the government that they should pay for regulatory compliance in the indirect cost rate. So we document what we spend and we recover about $350,000 just on regulatory compliance. It's much more rigorous than human experimentation.

R: What were the regulations in the 1960s?

L: The Animal Welfare Act was passed in 1965, so it sort of coincided with the beginning of the school. When that was passed, no one had any conception of what it would lead to today. One could not have imagined what it would lead to.

The documentation, the records, the review... it's very, very rigorous. I participate with an organization called the Pennsylvania Society for Biomedical Research and we put on programs here for middle-school teachers. We bring them in for a day, talk about biomedical research, I give a talk on animal research, and I take them on a tour of the facility. We have a couple [of] investigators talk to them about their research using animals and then a tour of their laboratories to try and be proactive about this.

R: Have you had any problems or issues?

L: No. I think there are several reasons for that. One, in this setting, people know where milk comes from, they know what hamburgers are made out of. They're quite conservative and we do not have an undergraduate student body. It would be extremely difficult for an outside group to get a crowd. They have tried on two occasions. The police told them they had to stay out by the highway. They show up with their hair dyed green and orange and things like that. The townspeople drive by and laugh at them. After a couple of hours, both times they got in their cars and left. [end of side 2, tape A]

R: Basically, then, this is not the environment where people have romanticized visions of animals.

L: No, I think through talks to local groups, they know what we do. They know the importance of it. In fact, I served for several years as director of the cancer center here and, in that role, would get a lot of calls from people whose relative had been diagnosed with cancer. Their question is, what research are you doing there that we don't know about. We need help. That sort of thing.

R: Might help their relative or something like that. What year really did the facility get up and running? Did you actually start working on publishing again some of your own work?

L: We had enough facilities completed to start that in the fall of 1967. That's when the first class arrived. But barely adequate. In fact, Labor and Industry in Pennsylvania has to approve occupancy of buildings. Not too much [of] this building was finished and they agreed to come the Friday afternoon before classes started on Monday. We still had scaffolding in the stairwells. I was taking them around and this one inspector was rather large. As he tried to squeeze by the scaffolding, he got stuck, and we all thought, that's it. They approved opening. They did have a list of things that needed to be done. Even though there was union labor here, a fair number of the workers and even the contractors themselves worked that weekend to finish up those items so we could open.

R: What year did the medical school actually start? What was the first year that medical students started?

L: They started in the fall of 1967. The hospital was not [yet built]. It was only beginning to be started. We didn't quite make it for their clinical years, so we had an agreement with Harrisburg Hospital to start their clinical rotations there until we finished our building.

R: How many medical students were in that first class?

L: There were forty in the first class.

R: That's actually the same size as at Florida. Did Dr. Harrell determine that number?

L: Yes.

R: I've certainly interviewed some of the people from the first class at Florida, the students who were selected by Harrell. Did he have the same influence in selecting this early classes of students?

L: Yes. When he was in town he would help interview students. He attended most of our admissions committee meetings. There's sort of a theory of like begets like. I think he recruited us to have similar ideas that he had. There was a great unanimity of ideas and opinions and selection of students. Of course, that first class was referred to as pioneer class because when they came for interviews nothing was finished. Do you take a chance of going there when they say it's going to be ready, but it doesn't look like it's going to be ready? In fact, I recall interviewing students the day the building caught on fire, on the fifth floor. It was in the wintertime. They had tarps [tarpaulins] and plastic up to dry the concrete and had heaters to help dry it. As they were changing the tanks, the hose of one got in the fire. The whole floor was on fire. I was interviewing students.

R: How many people are on faculty at that point?

L: In the fall of 1967, we probably had no more than fifteen faculty. In fact, some of the people who had agreed to come had not yet moved here. They would fly here once a week to give their lectures or things like that. It was pretty threadbare.

R: Where did the students live? Were there dormitories for them at that point?

L: There were no dormitories. There was a student home. Long Lane was on campus and then East Moor was on campus. We converted that into a dormitory of sorts. We rented another student home across the highway that we used. At that time, housing here was nonexistent for faculty and students. In fact, when I came, there were no homes for sale or rent. People were born here, lived here, and died here. There were three apartment buildings in town, each had four apartments in them. When I came up for the animal research farm site visit in April, my wife went looking for housing. As luck would have it, there was one empty apartment. That evening we went over and said, we'll take it. I'd asked the owner who to make the check out to. He looked at me [in a] strange [way] and he said, pay when you come. I said, we're not coming until June. He said, so? I said, you don't want me to pay you for April and May? He looked at me and he said, why on earth would you pay if you're not living in it? Sure enough, we didn't pay until we got here in June and that's when the rent started. I said, we'll probably arrive on the weekend; how would we get a key? He said, you won't need a key. It's unlocked now and I'll just leave it unlocked. That's the way it was. He said, if you want a key after you move in, he said, I'll find one for you.

R: Did you?

L: Yes. Most of the faculty had families, so they had to build a house when they came.

R: Did you eventually end up having to do that yourself?

L: Yes. We lived in the apartment for three years. My wife and I both grew up on farms, so we didn't want to be in a development. Most of the land was owned by the Milton Hershey School. We finally found a tract of land just over the hill and built a home there.

R: Are you still in the same home?

L: Yes.

R: How many students are in a class here now? How much has the school grown?

L: We take about 125 students. Occasionally, there are some who are repeating a year, so while we say we have a class of 125, there may be a few more.

R: With the early class, were most of them from Pennsylvania, or were they coming from all over?

L: They really came from all over. The majority were from Pennsylvania, I think, probably like 80-85 percent. We had them from other states as well. They came from a wide variety of undergraduate schools from all over the country.

R: Are there any health issues that they see here that they're not likely to see elsewhere?

L: I think the one advantage that we have for the clinical training of students is by location, there's not a large indigent population. People who come to the medical center here for the most part are pretty well-educated, which makes a big difference in history-taking. When you're learning how to take a history or make diagnosis, if the patient says, my belly hurts, and can't explain it any more, it makes for a difficult learning situation. I think that's a very distinct advantage that we have here is that the people communicate very well, able to describe their symptoms, their concerns, what have you.

R: You don't have problems with people who are just speaking German or anything like that?

L: We do have patients that need a translator. Particularly Spanish, because of the population, quite a large Spanish-speaking population in Lancaster County, even in Lebanon, quite a large group.

R: Has that moved in recently?

L: It's been gradual over the last twenty years, I think. But we do have interpreters. A lot of people who work here speak a second language. They're on the list. We have patients who really can't speak English very well, they'll have an interpreter come in.

R: I guess I was curious just about the local Dutch.

L: Pennsylvania Dutch. Some of them have a pretty heavy accent and we do have a lot of patients from Lancaster County, but the children there typically don't learn English until they start school, even though they have their own schools. If you have pre-school children who are patients here, naturally their parents are there to translate.

R: I was just curious. My cousin is a radiologist at Lancaster and she was just saying that they have a lot of children coming in who need some sort of translation. Have health concerns or issues changed at all then since the school started?

L: I think it's changed dramatically. We are the only level four trauma center in central Pennsylvania. That has brought a much more sophisticated level of

treatment in. Through research, we're treating a lot of diseases today that [there] had [been] really no treatment or cures for. I suppose the biggest change has been in paying the bills for health care. The reimbursement rate is really atrocious for a lot of things. I heard the other day that reimbursement on our helicopter is at 14 percent of what it costs.

R: Who is supposed to do that? The patient or the government?

L: The government does not pay their fair share of Medicare and they know it but they don't do anything about it. Third-party payers, health-insurance companies, when we started, pretty well paid what it was. Now they negotiate costs in advance. Naturally, they don't want to pay any more than they absolutely have to. If they represent a fair segment of the population, you just have to go along with it. We are basically a self-supporting institution. We get about $5,000,000 a year from the state, our overall budget of about $500,000,000. We get nothing from the university. We have to earn it.

R: Do the medical students have any contact with the campus?

L: Not too much, it's 100 miles away. The faculty here often don't have much communication unless they're on a university committee or for some reason collaborate with somebody up there. We don't have [things] here like a hyperbarric chamber. Penn State as a university is in the top-fifteen universities in terms of total research funding, so it's a major research university. Being 100 miles away is a problem.

R: Do you get many students who were undergraduates at Penn State who then come here for medical school? Is there any sort of seven-year program?

L: No. We do get quite a few student who did their undergraduate there, but there is no collaborative agreement. It's interesting that Penn State does have a six-year program with Jefferson Medical School where they can do their first two years at Penn State and then transfer to Jefferson. We have never had that here. Dr. Harrell, from the beginning, felt that was not a good program, that there is some value of having four years of undergraduate to take courses that you wouldn't necessarily take otherwise.

R: He certainly believed that physicians should be well-rounded people and have outside interests.

L: Very much so. It's interesting. This was a man who had not planned to go to college. This was a person who had not planned to go to medical school. In fact, he does not recall even filling out an application for medical school. He majored in chemistry with a minor in economics and had anticipated working in

the pharmaceutical industry. The founding dean at Duke came to the bookstore a lot where Dr. Harrell had a job and they talked. As he was approaching graduation, Dr. Davidson asked him, what do you plan to do? He said, probably get a job in the pharmaceutical industry. [Dr. Davidson] asked him if he had ever thought about medical school. He said, no. He said, you've had physiology, did you like it? He said, well, yes. So he went to Duke.

R: I know at Florida he really had hoped that medical students would take classes on campus, which never happened. He also was unable to get the medical humanities program really up and running there. The one here is actually pretty strong.

L: Yes. That's why he insisted on a department of humanities. Because he had failed at Florida doing that. [He] realized that with the parent campus 100 miles away, it just wouldn't work out to bring faculty from there or students to go there. He insisted on that from the beginning here. It was interesting, the three original faculty in that included religion, history, and philosophy. He thought quite a bit about having one in economics, because he foresaw that this would be a major part of medicine, but thought it would be premature. We still haven't added that, but I think the time has come.

R: Are students actually required to take a certain number of courses?

L: Yes, we call them selectives. They have to take a certain amount, but they can select which ones they want to take. The majority of them take Death, Dying, and Grief. How to deal with cutting up a cadaver, how to deal with death of patients and things like that. They also take some of the literature courses. In fact, having a department of humanities here has been a good attractant for students. When you interview them, you ask them, where they're applying, why did they apply here? The common theme is your department of humanities.

R: That's interesting. I teach a course on the history of medicine at Florida. I've certainly have had students who are pre-meds who are looking for that sort of thing, who really want that background or a school that emphasizes that.

L: I think it makes them a more rounded person.

R: I'm sure too that those are issues that are frightening to them, especially death and dying and grief. If they know there is some support, that someone is going to be helping them to understand that, probably makes a difference.

L: Without that exposure, I think students tend to build up a wall. The cadaver was never a person. Other people get sick and they tend to isolate themselves to where they're not really people. That's unfortunate, because I think people are

attracted into medicine because they're people person. Then they build up these walls to deal with it.

R: They lose sight. I think, to a certain extent, the selection process also is selecting people who are good at competing and that sort of thing. Doesn't really help as far as the wall-building is concerned.

L: That's right.

R: Let me go back to the animal-care facility. How did you make choices about what animals you're going to keep there?

L: I decided early on that the research programs will depend on what animals we're going to have. The facility has to be designed and operate to house those, no matter what. I've told all new faculty, whatever your animal needs are, we will provide them. Somebody may come in here someday wanting to house elephants, I don't know. Our facilities are very, very flexible. The rooms can be used to house really any animal merely by the type of caging that you put in the room. Over the years here, we once had a project with poisonous snakes. One of them, they called the two-step snake, because once it bites you, you take two steps before you collapse.

R: Is that an Australian snake?

L: I think [it was] originally from somewhere in South America. They were important for that project, because snakes have a very primitive pancreas and were good for those studies. There's been a change over the years; at one time, we would have seventy-five or eighty dogs here. We have zero dogs today. Haven't had any in the past year. The number of primates have gone down because they've become so expensive that they can't afford [them]. Used to use a lot of hamsters because the hamster cheek pouch was an immunologically-privileged site. But with the advent of nude or athymic mice, they have no immune system, so they totally replaced hamsters; we no longer have hamsters. Ninety-three percent of our animals are rodents. We have thousands of zebra fish, which we didn't use to have. Genetic engineering is changing the opportunities that we have for research here. It's not that they're just another strain of mouse. They're really very, very different.

R: They have different needs or nutritional issues?

L: Sometimes different nutritional issues, one has to be much more cognizant of their environment. Some are able to regulate their body temperatures better than others. In fact, the technology to make them is far easier than our

knowledge of what they really are. That has become a focus of my department as to elucidate the phenotyping of these animals.

R: And what they really need in terms of diet and that sort of thing. Some of your papers obviously have to deal with things just the cleanliness of the environment, how that affects their health. When you start thinking about primates, at least for me, I think about Marburg virus and those issues. Were you interested in health issues for the primates? Did you have concerns to have to deal with diseases like that?

L: We know that monkeys carry diseases that will affect people. In fact, SV40 (Simian Virus 40) is used in microbiology for research. The reason it's called SV40 is that there were thirty-nine other simian viruses identified before that. These monkeys probably have viruses that we haven't yet discovered or identified. So we're interested for the health of the monkey, but occupational health and safety of the people working with them is now much greater than ever before. I work very closely with the people in infectious disease. We have specific rules that, if you're bitten by a monkey, because of herpes B virus, there's a certain procedure that infectious diseases will go through. In terms of, if somebody is bitten by a monkey, we take a blood sample from the monkey [and the] emergency room will take a blood sample from the person that was bitten. Then there's a follow-up at two-week intervals. [We then] send the respective samples off [to the appropriate laboratories]. Often the person is put on acycloids until the results come back.

R: I guess, originally, most of the monkeys you were getting, and maybe its still the case, were captured in the wild. So what were some of the health issues that you were encountering early on. Has that changed?

L: The first group of monkeys came from the University of Florida. The first chair of OB/GYN, Vince Stenger [Vincent G. Stenger 1959-1970], came up here from Florida. [He] was studying drug transfer across the placenta and brought his monkeys with him. You're right, initially they did come from the wild. These were captured by native people and kept in their huts until the trader came by. They may have lived in close contact with people for months. Tuberculosis was rampant. This is a much more serious disease in monkeys than it is in man. It is fatal in monkeys.

R: Invariably?

L: Yes, now we still TB-test our monkeys every six months. Thirty-five years ago, you expected a fair number of them to be positive. Of course, they'd have to be euthanized.

R: There were no treatments, the treatments wouldn't work for the monkeys?

L: No, it spread too rapidly in them. There used to be a lot of GI [gastrointestinal] problems with monkeys, diarrhea especially. I think, for the most part, they were people diseases they picked up after they were captured. Today, almost all of the monkeys that we get are bred and raised in the United States. In fact, we have a colony of where we breed some of our own.

R: What species?

L: It used to be either rhesus monkeys or squirrel monkeys. When I came here, you could buy all the squirrel monkeys you wanted for $20 apiece. Today, they're difficult to find,,and if you do, they're in the thousands of dollars. Rhesus monkeys, not only have they become very expensive, there's a concern that these are their ancestors, so there were bans put on the exporting of the animals. Most of the monkeys we use today are from Indonesia. They're still very expensive.

R: I guess squirrel monkeys are New World.

L: Yes, from South America, primarily Bolivia and Peru.

R: Are there any differences in research or health issues depending on whether they're New or Old World monkeys?

L Herpes B virus infects, in general, only Old World monkeys. But New World monkeys have some problems of their own. Tuberculosis will infect both New and Old World.

R: It sounds like that is something that is jumping from humans to monkeys and they have no immune capabilities to deal with it. A lot of your concerns were just with the care and health issues that arose when you're caring for them. Did you have other research programs that you're carrying out? Like a continued interest in glucose or carbohydrate metabolism?

L: My personal interests have been more in environmental factors [that may interfere with the research], but another person in my department is interested in the phenotyping of aging and has a large program project in that [area]. Another one is interested in wound-healing. There again, part of that is how wound-healing is altered by diabetes. I have a person who is interested in molecular genetics. In fact, he was the first person in the United States to make transgenic rabbits; the third person in the world to do it, using the Show-Papaloma viruses for two things. One, as a model for cervical carcinoma in

women, and the other is testing new antiviral drugs. The person who just joined my department has a background in immunology.

R: You said there are five faculty members.

L: Counting myself, yes. We've been quite successful on a per faculty member basis; for years, we've been in the top three [basic science] departments in terms of grants.

R: As far as your own career, you were an assistant, associate, and full professor. You were dean for awhile of the continuing education. What did that involve?

L: At that time, we had quite a large program providing continuing education, not only for physicians, but also for nurses. This would involve presentations at other sites by our faculty as well as bringing people here for continuing ed programs. I think continuing ed at all medical schools has decreased, not because of the requirements, but because of financial shortfalls. We used to put on about 400 programs a year, which was a lot for the size of our faculty.

R: What would that involve?

L: [We would teach] updates on various diseases. Updates on new procedures, particularly in cardiovascular orthopedics. New trends in nursing. The whole scope of things.

R: Was Dr. Harrell involved in that at all when he was still here?

L: No, in fact we didn't have continuing education while he was dean. He recognized the importance of it, but his theory was that we [did] have to get the medical school started first. [He felt that] we just didn't have the resources and the manpower to reach out. It was about ten years after the school started that we really started getting involved in continuing education.

R: That's interesting because at Florida, I think, a lot of impetus for the medical school in the first place was to provide continuing education for doctors in the state. Was that something that just was incorporated because of the local interests?

L: Well, there was a big thrust by the parent university. In fact, continuing ed, from the beginning, had sort of a cross-appointment with the university continuing education and Penn State is probably one of the larger providers in the United States, even now with distance-learning. They saw a need particularly in central Pennsylvania, so once we got to the size where we could have the people and the expertise, we sort of came under their umbrella. When I served as assistant

dean for continuing ed, the university helped to subsidize that program and did a lot of the infrastructure work for it.

R: I think, at some point, Florida at least, Harrell had an idea for having a cruise, just setting up that sort of continuing education program. The idea that if you put people on a boat, they'd be focused.

L: I think that was probably more amenable in a state like Florida where you're closer to the water. A lot of schools still do that, but the accrediting agencies have started taking a closer look at those, because I think a lot of people went to on the cruises but never sat [in] on a lecture.

R: The idea of getting them away from distractions didn't quite work, I guess. Let me just ask you about Harrell's tenure here. He was associated with the medical school until what year?

L: He was here for ten years, which, I believe, is the same length of time that he was at Florida. And about the same length of time that he was at Wake Forest.

R: That seemed to be his natural cycle. I guess in starting a medical school, there's probably a point too where you've outlived your original purpose.

L: Yes, he spent his entire career with new medical schools. He went to Duke when it was new. He was the first clinical appointment at Bowman Gray, which is now Wake Forest. [He] started the one at Florida, and, of course, started the one here. He's never been in an established medical school. You can see his life experiences and influences in what he did at all of those places. He developed the problem-solving project and laboratory exercises while he was at Bowman Gray, because they had limited teaching faculty at that time. That was during World War II, when you couldn't recruit a lot of doctors in the military. He did a lot of teaching that he may not have ordinarily done, particularly in some of the basic sciences and realized the advantages of that in student learning.

R: One thing that I have to ask about because it was both popular and controversial, the cubicles. Did he set up cubicles here?

L: Yes, and they're now gone.

R: As they are at Florida. I still talk to people who bemoan their disappearance.

L: I think the concept that he had for that was an excellent one. That is, once you leave medical school, there's still a need for learning, for continuing education. He wanted to instill that you didn't need a big library or lots of labs to do it. Psychologically you train yourself to bring materials to your office, so to speak,

and learn on your own. The ones at Florida as I understand were made out of metal, were kind of noisy, whereas the ones here were made out of wood. [They were] made by a furniture-maker. He even did a survey to determine the number of students who were left-handed which turned out to be 14 percent. So, 14 percent of our cubicles were designed for left-handed people.

R: Were these identified in some way, so that the left-handed students knew?

L: They were assigned. When you interview students, you quickly notice which ones are left-handed and you just make a note of that. If they came here, when they arrived, they found that they were assigned to one. Big areas of space like that catch people's eyes when you need to expand.

R: When the space-crunch hits, they go.

L: The cubicles went. The interchange areas, which were another excellent educational site, also went. I always admired Dr. Harrell that even though he felt very strongly about things, he knew that they would not persist forever. While he may have regretted seeing those changes occur, it didn't make him real unhappy.

R: I guess to a certain extent to, he was obviously learning and bringing his experiences with him. Some of his ideas hadn't really been tested, so it was a matter of, is this really going to work or not?

L: If it didn't work, he was one of the first to suggest they not have it. In fact, when he was recruited here, when he talked about innovative departments of humanities and family medicine and behavioral science, the president was a little bit reluctant. He said, look, we'll try it for five years and if it's not successful, I'll be the one to dismantle it. He meant that.

R: I guess another of his projects or things that were important to him as well as the medical humanities was also the library. I know the library here is named after him. I think at Florida that was the first most important thing for him. How did he deal with creating the library here?

L: There again, that was heavily influenced when he had the opportunity to go to college and the Depression hit. Financially he had to work. He worked both in the bookstore and the library, so he grew up with books and knew their importance. Here, it was not only that we have a first-rate library, but its location was very important. That's why it's roughly in the center of the complex, so people from all sides come and you can't miss it. He hired the librarian from Florida when he came here, who spent his first year, before we even had space, traveling to Europe buying medical books. We have a lot of volumes back to

volume one. We rented space in town so that when the library was furnished, we already had a library, the books were already there. Fred Bryant then went back to Florida. I don't know if he's retired now.

R: He's no longer at the library there. He's probably either been retired for some time or moved on.

L: My guess is he would be in his seventies, maybe even eighty now.

R: It would be interesting to talk to him.

L: I remember talking to him one time, and he said when he was going through Europe buying up medical texts and journals, it was difficult to stay a step ahead of the Russians who were doing the same things.

R: Not only were the intelligence agencies competing, but the libraries as well.

L: Anything else about Dr. Harrell?

R: As I talk to you, I guess there are other issues that come up. I would ask you are there any memories you have of him in areas that we haven't really discussed?

L: I think I would characterize him as a scholar, a person with great vision, and a true gentleman. I don't know if it was the era he grew up in or what. [He] would never say an unkind word about anybody. He always had a coat and tie. In the summertime, like in Long Lane when we were up there, had no air conditioning. It was one of the hottest summers on record, over 100 every day. But when a visitor came in or if he was interviewing a medical student, before they came in the door, he'd put his coat on.

R: He had a certain degree of formality.

L: He did it mainly out of respect for the person that he was going to talk to.

R: Did he have ideas then about how other people should dress?

L: That was a personal thing that he did. He was too much of a gentleman to tell other people how they should dress. The closest he ever came to something of that type was Evan Bathishall came up about a month before his family moved here, to write a grant. We were at Long Lane and he was staying in the men's dormitory downtown. He would wash out his socks and hang them out his window to dry. Dr. Harrell stood it as long as he could. When he got nervous, he would clear his throat. One day I heard him coming up the stairs clearing his throat. He walked into Evan's office and said, Evan, your office is on the same

side of the front door. Evan looked surprised and said, yes, I've noticed that. He said, you know, we'll soon have medical students coming to interview. He said, yes, I know. He said, and we'll be recruiting faculty. Evan couldn't figure out where this was going. Finally, Dr. Harrell got up his nerve and said, it might not be a good idea to have your laundry hanging out the window.

R: What was Evan's response? Was he amused by that point?

L: Embarrassed and amused. He got the picture pretty quickly and he no longer hung his laundry out the window. Dr. Harrell was also not interested just in the faculty or in the student, but in their family. All of us who came for interviews, their spouses were invited at the same time. Medical students who were married, or if he knew they were planning on getting married, their spouse or spouses-to-be were invited to the interview. He knew the pressures of starting a department or the pressures of going to medical school could affect a marriage. He wanted to make absolutely sure that the spouse knew they were an important part of this process.

R: Did he inspire loyalty among the faculty? Personal loyalties?

L: Absolutely, yes. Everybody, and I mean everybody, whether they were faculty or student or groundsworker, had utmost respect and loyalty for Dr. Harrell. Because he was kind to everybody and he really cared about everybody. You could just feel it and know it.

R: What made him leave? We were talking about ten years, that pretty much seems to be his cycle. Was there anything in particular that made him leave?

L: Yes. Out of respect for him, I have mixed feelings about saying this. When he left the residency at Duke, at that time there could only be one chief resident in medicine. His counterpart's wife worked for the chair of anatomy. He went to the head of medicine and said, give it to the other guy, because his wife serving the secretary of the chair of anatomy is more important. I can be chief resident at a later date. At Winston-Salem, he had started this research program on very, very limited funding. [end of side 1, tape A] When he was at Bowman Gray, he was doing research often with his own funds. At that time, medical-school faculty were not paid well. It was not unusual for one of the families like the Hanes families or the Reynolds families [to contribute funds]. They controlled the banks and everything. They knew how much money you had and sometimes they would give a car to a professor. [They would] say, here are the keys, I'll take your old one, thank you very much. They knew that he was doing this research, so they wanted to pay his salary to do research. Otherwise, he had to earn it on clinical income alone. So they set up this research professorship. The dean at that time said, this is fine, George, but you're too

good of a clinician and we'll hire somebody else to do that research. Dr. Harrell, being a man of principle, said no. It was set up for me to do research. If this is the way you're going to handle that, then I must leave.

He made the decision then to leave. The president at Florida recruited him, but he spent a year with foundation funds traveling to medical schools all over the United States with an architect, saying, this works, this doesn't work. Incorporate these things. Then that president [of UF] died before he arrived, and the new president did not want a medical school. He did not like Dr. Harrell's ideas and did not like the way that Dr. Harrell would accomplish things. For example, he wanted a minister there. The president said, absolutely not. So I think he got funding from the Episcopal Church to hire a minister, who I think was Sam Banks, who was the first one. All of these things were a great irritant [to the new president].

Dr. Harrell knew that his tenure would be short at Florida. When he was made the offer here, I think in part, at least 50 percent of it was to leave Florida, and part was an opportunity. He felt that he was too old for the job here. He was fifty-five when he came. At first when he was offered the job, as much as he wanted to leave Florida, he said, you need somebody much younger. I'm fifty-five, I don't have the energy. He knew how much energy and time it would take, but he ended up coming here. He basically was dismissed here. He spent his last year [with the] title of Vice President for Research. It's interesting, I've gone through some of the archives at University Park and have seen the results of student- wage payroll work. [I] came across folders that were marked for "President's Eyes Only." Somebody in a hurry to get to a class [had apparently] just stuffed it in. President Walker, he and Dr. Harrell were like glove and hand. They thought alike, highly respected each other. When [Dr. Walker] retired, they hired a fellow by the name of Oswald. He did not like Dr. Harrell from day one. The hospital was losing money like millions, which was predicted. [I have] some copies of [President Walker's] correspondence where he told the Hershey people how much money it was going to lose. He was right to the million. He said, you'll lose $20,000,000 before you'll start making money. Dr. Harrell's idea was on future expansion. The first time he met Oswald, he had a plan for building a wing onto this building and Oswald went ballistic, [saying], you're going to lose millions, and you're talking about building? Within a month of Oswald's arrival, I have a copy of a letter he wrote to a friend in California asking him for suggestions of deans because he was going to have to make a change here. Unknowingly, I think a couple of chairs here sided with President Oswald.

I'll never forget the day Dr. Harrell was basically fired. He called me and he said, President Oswald has asked for a meeting with the Executive Committee. He said, would you mind going to the airport and picking him up? I have a

feeling of why he's coming and I can't quite bring myself to be responsible for picking him up at the airport and taking him back. I said, yes I would, and Dr. Harrell made a point of wearing his Penn State tie that day. He waited outside, the President came in and announced that Dr. Harrell was stepping down. A nice way of saying he was being beheaded. The two chairs who were going to announce that [one of them] was going to be interim dean. When it was over, Dr. Harrell had the photographer outside, asked him to come in and he sat between these two chairs for a group picture. He spent that last year in the library working on this book. It was almost like [being] in exile. People were kind of afraid to associate with him, because of what these two chairs would think. In fact, I was one of the few chairs who would routinely go down and talk to him. One of these two people one day called me aside in the parking lot and said, we realize you think a lot of Dr. Harrell, but you ought to stay in your own department. Then the next dean was hired, Harry Prystowsky, who came from Florida. After he had been here a few years, [he] shared with me that my name was most prominent on the list of faculty that he was supposed to fire. In fact, President Oswald suggested that to him.

We had the artificial-heart program here. In the first few years, none of the calves lived through surgery. One day, one of them lived. I had no place for it, I had no station, I got a laundry cart from the hospital and improvised and decided, I've got to do something. I looked to foundations that provided construction money. The Kresge Foundation had a program. Dr. Harrell was still dean at that time, hadn't been canned yet. He agreed that I could write up a proposal and I did. The person who was provost of the university signed off on it, submitted it. Dr. Harrell suggested that he, I and the cardiac surgeon go out there for a presentation. We asked, he said, we don't usually do that, but Dr. Harrell insisted. Flew all the way to Michigan, they agreed to give us fifteen minutes. About a month later, I got this nice letter saying, thank you for your proposal, we've received many. Limitation of funds, blah blah blah, wish you luck sort of thing. About three weeks later, I get this telephone call from the Kresge Foundation. They said, are you the one that submitted this proposal, and read off the title, and I said, yes. They said, would you mind if we reconsidered this? I'd be delighted to. What happened, Stanley Kresge, they were originally from central Pennsylvania [and] they got this proposal and found it rather hilarious. No farmer in their right mind is going to spend the money putting an artificial heart in a cow. Send it to market. A subsequent Sunday, their granddaughter was home from college having Sunday lunch with them and he decided to share this funny story with her. She said, but Grandpa, that's not what it's all about. It had not dawned on them that this was experimental for people and liked to reconsider it. I said, by all means. A couple of weeks later, I was in here on a Saturday and opened up my mailbox and here's a check for $350,000. I thought if I take this home, my house will burn down. The controller's office is not open, so I put it back in the mailbox until Monday

morning. Somehow [President] Oswald was told by somebody, and I don't know whom, that I had submitted this without university approval. In fact, Prystowsky, when he was being interviewed, was staying at the Hotel Hershey. He said he was there when [President] Oswald was going through the papers. He saw this note that I got a grant without university process. He said he was so mad he knocked that off the table. So Prystowsky, the first week he was here, he called me up and said, I want you to explain about this Kresge thing. That was when I learned to my horror that the President of the university was asking for my head. I asked Dr. Prystowsky to give me twenty-four hours and I'll have complete documentation, by day, by time, with whom. I got a copy of the form and brought it up to him. Thank you, I'll take care of it. About four years later, the President apologized to me, he figured I'd been told that I was to be fired. I was being promoted to professor that year, which already had been approved by the Trustees. He refused any pay raise for me and he never made that up, even though he apologized.

R: He never said, here's your retroactive pay with interest.

L: That's how we built the large animal wing which, of course, had led to the heart assist device, led to the artificial heart itself.

R: You don't think that your continued support of Harrell had anything to do with that decision?

L: I think it was a factor. I don't know how much of a factor. It [may have been] seen as being disloyal. That's academics. I am the only remaining chair of those hired by Dr. Harrell, so I guess I'm a survivor.

R: Are there other faculty who were hired by him who are still here? Maybe not chairs?

L: There's Graham Jeffreys, who was original chair of medicine, who is still here part-time on the faculty, works half-time, but is no longer chair. Elliot Vissel, who was hired as the chair of pharmacology, has stepped down as chair and plans to retire from the faculty, I believe. Dick Naye of the first chair of pathology, who stepped down from that several years ago, works part-time. I guess those are the only ones still here who were hired by him.

R: Obviously you continued on. Some of the other things you have done, you were director of the cancer research center. What was the impetus for that? Is there a particular interest in cancer?

L: No, I had no interest in cancer. I was a member of the cancer center study section of NIH for two-four year terms, mainly because of my background in

shared resources and things like that. It was a fantastic experience because those were large center grants, talking millions of dollars. There was always an administrator and a veterinarian. Since two people had to look at everything, the administrator would go with me to look at the shared resources in the animal facility. I would go with the administrator to look at the books. Since cancer centers were a big part of the organization that's usually involved looking in institutional books. So I learned a fantastic amount of information on finances and administration, rules and regulations. As a result of that experience, at one executive committee, we were talking about starting a cancer center here. Fred Rapp, who had a large cancer program, was chair of microbiology, the dean said, Fred, do you think we can get one? He said, well, ask Max, he goes on all the site visits. I said, I'd be willing to serve an advisory role. So Fred was director of the cancer center, we got a cancer center grant. I was chair of the advisory committee. On one of our renewal applications, we had requested a cell sorter, which was cut out. Fred came to me one day and he said, I'm going to China and I'll be gone about six weeks. He said, I've ordered a cell sorter and when it comes in, I'd like for you to make sure it's handled properly when it comes into the dock. I told them to call you. I said, I'll need all the paperwork on it. When I got the paperwork, he'd already left town. I saw that he was charging part of it to the cancer center grant, which, of course, was illegal. I went to the dean, who was Prystowsky, I said, we can't do this. He agreed. He said, well, go talk to the medicine and surgery chairs and see if we can make up the difference, which I did and they agreed to it. Fred came back, he was livid and accused me of sending him to the emergency room with chest pains. A renewal was coming up. It was less than a month away and Fred resigned as director of the cancer center. Prystowsky called me in; he said, you're chair of the advisory committee, you've probably been telling Fred how to run things anyway. What do you recommend? I said, I'll do what I can. He said, fine, you're director of the cancer center. I immediately went to my friends at NIH and said, I know our application is due now in less than a month. Our director has abruptly resigned, I didn't go into the details, and asked if I could get an extension to put in a grant, which they did with funding. Put in a grant with successful renewal. Ran the cancer center until a new dean arrived. He did not want a cancer center because his previous institution had a very successful one including a building. When they built it to connect it, they had to knock through his laboratories. He saw cancer centers as a threat. The cancer center just drifted off into the sunset. Now we're trying to get one back.

R: It was never created.

L: We had it for several years and then we let it go. Now it's tough getting it reestablished. It really was a basic science cancer center. We had a small program to develop clinical areas and I was successful in recruiting a surgical

oncologist. We had none at that time. We had started expanding. I think we could have kept it going, but not without the support of the dean.

R: It's impossible. I guess in that same year, 1984, that you were working at the cancer center, you became the George Harrell Professor. What sparked the creation of that? Was that an endowed chair then?

L: Yes. I, like other departments, had a gift fund that I had been building up over the years. One of my faculty members, although he was a veterinarian, happened to be president of the local American Heart Association. He told me one day that nationwide they were consolidating and the Harrisburg one would be consolidating with Lancaster, which had a brand-new building that they owned. He said, the problem is the Harrisburg chapter has $350,000. Lancaster chapter has no reserves and they're nervous about that. I said, you know, we ought to find out a way to get that. I talked to Prystowsky, I said, I'm going to suggest to my faculty member, under the concept the money was raised here, it should be spent here, to put $250,000 into an endowed professorship for cardiology. Not for me, but for cardiology. The other $100,000 go to continuing ed for cardiology programs. Although he knew me pretty well, I think he was still surprised that I would make this effort on behalf of someone else, some other department, some other division. He was a terrific financial person. He said, Max, you have about $250,000 in your gift fund. It takes $500,000 to endow a professorship. He said, if you get that for cardiology, I'll make it up to you. I got the $250,000 for the professorship in cardiology. I didn't get the $100,000 [for continuing ed]. So Harry the P. added $250,000 to my gift fund and had the university endowed it. Today that gift fund, actually I have two endowments that have a market value of about $2,000,000 for my department. So it was good seed money. Part of that, you know, comes from grateful students of the past. I'm also the medical center farmer. When I was looking at the plans, I told Dr. Harrell, I said, you know we've got all this land, it's all on grass. It's going to cost a fortune to mow. He asked what I suggested. I said, well, I'm a farm boy. I think there should be grass around the medical center, but all this other land, we should farm. Most of our patients would come from rural areas, they would enjoy looking out at row cropping and things like that. He said, well, who would farm it? Close friends of ours, her father was in charge of the Hershey farms. I said, I'll see what I can do. I made an arrangement with them to farm it with the understanding that I would get the income. I would pay the expenses, but I would get the income. To this day, I get two checks a year for farming the medical center land. I took the position that since this was established as a charitable trust, it should go back into one, which happens to be my gift fund.

[It] also has been tremendous because for the artificial heart program, FDA [Food and Drug Administration] wants to know about the hay and the grain, pesticides and fertilizer. I worked that out with the farmer who farms it and feed it to our

animals so. The next dean, we have this wooded area behind there. I noticed some of the more mature trees were dying. I had a forester to come in, he said, to preserve the forest you need to cut these down, otherwise you'll just have junk trees. I went to the person who was then dean and suggested that this be done and I had the forester's report. Again I said, it's quite a risk involved here. I'm willing to assume that financially. In the case there's anything left over, I'll keep. He looked at me and he said, yes, I know about your farming operation. He said, you can do it, but I [the Dean's fund] get half. His half was $70,000.

R: What is being farmed then, basic hay, corn?

L: Hay, corn, and soybeans. I go over with the farmer, what we put where, with an eye towards viewed from the hospital windows and what we put on it. I also introduced him to satellite farming. Being from Illinois, I own a few acres of land out there and my cousin farms it. One of the problems is fertilizers have become very expensive, but not every square foot needs the same amount. Several years ago, he signed up to take soil samples all over the field. Sends it off to be analyzed. When he fertilizes, the company radios that by way of satellite, which comes back down [and] adjusts the ingredients according to what part of the farm they go over. I suggested that they do that here. He said, somebody was talking about it the other day. He said, I don't know of anybody who does it. I told him about my experience, or my cousins, so for the last two years, he's done that and been very grateful because it saves money [and preserves the ecology].

R: I've actually heard about that. We lived in Idaho for eight years before we came here and that's a big wheat area. It depends on the farmer, but they have 1,000 acre farms and it really can make a difference.

L: Some places need a lot of one thing and others not much at all. Typically in the past you put more of it on to meet the needs of the places that need it. Of course, you have runoff into the streams and all that, whereas this is tailor-made to each plot.

R: Do you have any other activities like this on campus?

L: Not really. I've always insisted that my faculty be a real part of the medical center. Too many of my colleagues say, I'm a veterinarian, I'm different and sort of retreat in their own area. All of us are involved in case-based learning, we're involved in medical student interviewing. I make sure they serve on committees. Since I have been here forever, I know just about everybody in the building, so I can accomplish these things. I push not only our own independent research and to date brought in a little over $10,000,000 for my research alone. I promote collaborative research. So far, I have co-authored papers with every department

but two. That's humanities and family medicine. Many of my faculty have collaborated. I think we have achieved the goal of being an integral part of the medical center. In fact, we had a retreat two weeks ago, taking a hard look at the finances of the medical center and every program, not just departments, but every program was analyzed by the academic team, the research team, and the finance team. I'm pleased to say that we were classified as mission critical by all those teams.

R: Do you have any thoughts about your career? I know you've been involved in a lot of international organizations or you've done a lot of international speaking. I'd be interested to know whether these people sought you out and what are some of the concerns that the Europeans have as far animal research is concerned?

L: I think it's somewhat fortuitous. I think it was about 1967 or 1968, there was an international meeting in Washington D.C. There's an organization [that is a] part of the National Academy of Science called ILAR, Institute for Laboratory Animal Resources. The person who was head of ILAR was a colonel that I served under in the army. [He was] a man that I respected greatly. These people who came to this ILARs meeting in Washington were talking to him about building animal facilities, research was expanding in Europe like it was here. He said, you really ought to go to Hershey, it's a short drive up the road. He called me and asked if they could come up. There was one from Sweden, one from Norway, and one from Finland. That set up the contacts. They saw what I had. I started being inviting to their national meetings to talk about design of animal facilities, that spread to other talks. It spread to the Finnish government asking us to train one of their veterinarians, who is now director of the National Lab Animal Center for Finland. The Swedish government asked us to train one of theirs. Over the years I think I've made something like fourteen trips to these countries. Great friendships. Of course, there have been many, many visitors from abroad who come here as well. Another thing that's been fortuitous, I've served on a lot of NIH National Academy committees. I'm within driving distance, so I'm cheap travel for them. This has been very helpful because of all the regulatory compliance issues, I've either been a member of the committee that hammered those out or at a meeting where they were discussed. So when the federal inspector comes up with an interpretation that's not right, I can say I was there. I can name the people who made the statements and I win.

R: You know the process by which it all is achieved.

L: I've been extremely lucky in my career. I think the people that made that possible, obviously my father, Colonel Yager, who I served under in the military, and Dr. Harrell.

R: Just in giving you the opportunities. Although it seems to me that you also were pretty good at seeking them out or taking advantage and recognizing.

L: I guess I'm somewhat of a risk-taker. Most of the time it pays off, but sometimes it doesn't.

R: Do you have any thoughts about just animal research in general, the past, the present and the future of it?

L: It's changed so dramatically. When I started, if you knew how to properly care for them and somewhat of their biology, that was about all it took. Then we went into this era where we learned that some of their natural viruses that they have really interfere with types of research being done. As we went towards the molecular level, it changed things. Now that we're into genetic engineering, that's another leap. With the advent of nanotechnology, it's going to change dramatically again. I think those of us in the field have to keep up with that ourselves as well as to train others. Added to that is the animal activists which in Europe is much worse than it is here. My contacts with colleagues in Europe, they approach things so much differently. I guess having descended from tribes or whatever, they're much more socially-minded. Our animal care and use committee has five. In the Scandinavian countries, they call them ethics committees, will have thirty or forty. They purposely put half of them animal activists, usually have a lawyer as chair of things. They can't imagine lobbying with their elected officials. That's so foreign to them. All of this has led to animal activists who really are terrorists. One of my former students just retired this summer. [He] was vice-president of Smith Kline, which is now Glaxo, and responsible for international animal research. The main reason he retired was that it is just too frightening to go to England where they have facilities and to be identified as somebody associated with animal research. In fact, the company cars, even though a driver would meet him at the airport, unless he was in that car every single minute before he would start it, would open the trunk – or the boot, as they call it – and bring out a mirror to look under the car to see if there were any bombs or anything like that. That was part of his job to go over there about every three weeks. Life is too short to live like this. For several years, he maintained an apartment in England because going every three weeks, he just kept a complete change of clothing. He said the company security people a couple of years ago said this is not safe for you to have an apartment and people know you have an apartment and who you are. Every time he would go over there he would have to stay at a different hotel that the company had cleared for security reasons. There's a tendency for trash to float. What's on that side of the Atlantic gradually will come over here.

R: You do see that being an increasing problem over here?

L: Yes. I don't think it will be that much of a problem at this institution, but I think at larger cities. For example, a colleague, a friend of mine at Berkeley has been moving every two months because of security risk. Another colleague of mine at the University of Chicago last year had to move out of his house and his family for a couple of months for security reasons. These are good people.

R: You think the problems are less here because there are more people are connected to farming. Do you think it's really associated then with increasing urbanization, the fact that people don't have contact with where their food comes from?

L: I think one of the problems that we face is that we have become as a nation scientifically illiterate. Very few of your high-school teachers have had a single course in science in their college career. That includes the math teachers, the biology teachers and so on. People don't understand science. They're afraid of science. We want cheap electricity, but we don't want nuclear-power plants. We want disease-resistant grains, but we don't want genetically-engineered corn. In fact, Europe won't even buy it from us. They're worse off than we are. We want to be a consumer society, but no one wants to deal with the waste. It's because they don't understand it. They want new medicines, but you say recombinant DNA and they think of monsters escaping out the windows here, terrorizing the land. Your average person, having grown up in cities, when you say using mice in research, they think, oh my gosh, you've got Mickey Mouse in a cage. Or they think of their pet that they take out for walks. Unless we as a country can educate the public, it will only get worse. I think it's because they're uninformed. We need an informed public to raise scientists for the future. People won't go into science if they don't have some understanding. And it won't be funded.

R: I agree. I think at the same time, though, there's a huge faith in science to solve problems and when it doesn't, they're resentful. I am thinking of AIDS. Obviously at first it wasn't funded, but AIDS research certainly is now. There are groups who are basically saying the reason they don't have cures is because of some sort of bias, rather than the scientific challenge.

L: Nixon started the war on cancer and that's been thirty years ago now. NIH recently put out a report and had to grit their teeth and say, despite the war on cancer, despite the hundreds of millions of dollars, more people are dying of cancer now than then. I think we in science have a tendency to rush to the newspapers for publicity because our next grant depends on it. We raise false hopes. We tend not to even talk to the public about it. You say, cancer, to the average person on the street, that's a single disease. There are over 200 different kinds. We have made progress in some areas. As you make progress, people live longer, which are then more likely to die of an age-related

disease, which may be of some other kind of cancer. When I came here, I was talking to Dr. Harrell, his career had been with infectious diseases, when he started, antibiotics were not made, had not yet been invented. He said, the future is going to be the chronic illnesses. He said, someday, the focus will be on infectious disease again. Now that we understand recombinant DNA and all that, the emerging diseases and the antibiotic resistant diseases have come back to haunt us. I think, as a nation, we tend to focus on what's a problem today. Tomorrow you wait until there's a crisis.

R: That's true. To a certain extent, I think emerging diseases have obviously been worldwide. When we focused on the chronic diseases, we stopped putting money into public health and infectious disease.

L: When you look at our society and the anthrax [scare of September 2001] is a good example, the way everything is mass-handled puts us at risk. A friend of mine once said that he made a trip to Japan and realized why he saw so many of them in other countries. It's not big enough for all of them to be on the ground at the same time. A disease could start anywhere and be transported to other countries in hours. Just hours. We haven't learned how to come to grips with that public health aspect of our society.

R: I think it was Lori Garrett – I don't know if you've read her books – but she was saying that the problem with public health is that when it works, no one knows that it's working.

L: It's not very glamourous.

R: Then they stop funding it, because there are no diseases, so there's no need for the public health.

L: We had set up what we call a bioterrorism task force here, not only for the medical center but for the community as a whole. I'm a member of that. I was reading a report last night how we really bungled the anthrax scare. That this really started in mid-September around the time of the World Trade Center [terrorist attacks, September 11, 2001]. The lady who had the skin lesion went to various doctors and it was not diagnosed for weeks and weeks. It wasn't until somebody died that they're now tracking down several patients who had it long before we knew there was a problem.

R: People just aren't alert to those sort of issues.

L: We think it can't happen to us.

R: Or we thought. Any other thoughts?

L: I can't think of any off the top of my head. I think it's a marvelous thing of what you're doing there at Florida. I think Dr. Harrell is truly one of the giants in American medicine, without question.

R: He really seems to have been a genius.

[End of interview]