

MUSC's First Organ Transplant
Oral History Project

Interview with Lloyd L. Martin

November 19, 2008

Interviewers: E. Brooke Fox, MUSC University Archives

&

Susan D. Hoffius, Waring Historical Library

Location: Basic Sciences Building, Room 107

Brooke Fox: I would like to start off by asking you about your background. Some basic biographical information about how you got into biomedical research, where you grew up, where you went to school.

Lloyd Martin: Well, I grew up in Kansas. I was born in 1920. I was about 11 or 12 years when the stock market busted and everybody started jumping out windows, and that was a very difficult time in everybody's life but even more difficult for farmers. I was part of a sharecropper's family, and we had a seven-year drought along with the stock market bust. So, that was a time when it was very difficult. I went to school through the fourth grade. After the fourth grade, I was old enough to work on a farm during planting season and harvest season.

Following that period of time, I stayed on the farm. I was drafted four months after Pearl Harbor in the Army, and I went through medical combat-related training, and I was a combat medic in World War II. We also had an aid station in my little platoon, and we were following just out of the range of small arms fire, and there were only three things that we were trained and taught to do. First it was to stop the bleeding, protect the wound, relieve the pain, and evacuate. So, I did that during World War II.

After the War was over, I really didn't want to go back to farming. And after my experience in the Army and the training I got, I felt like it might be a good place for me to continue, which I did. That's where I got my education. I went to all of the schools. I did a lot of night work and got my GED or equivalency. And then I continued on at the University of Maryland with courses, never quite ever getting through much of it, but I did have some background. And I finally went to 58 weeks of nursing school. It prepared us for independent duty, where we could be sent out with an 800-member battalion as their senior medic without a MD.

I retired from the military from the Fort Sam Houston Burn Center, where I was fortunate to be assigned. I also had another assignment that was wonderful. It was to work in research with the K9 dogs that failed to be K9 dogs. We did research with them putting aortic grafts in them. Back then, not much was known about plastic grafts, and we did all kinds of different materials. Orlon, nylon, Teflon, and all of the different plastics. And when I left there and went to Europe for my last overseas tour, we had animals that were five years with their grafts and still working.

Now if one looks in a catalogue, you can order up any graft that you want, any length, any kind, and so forth. The other thing I did while I was there in Denver was our team was working on isonacine, a drug for tuberculosis, because that was a tuberculosis center. And that drug came on the market and it essentially wiped out tuberculosis as we knew it back then.

Fox: You -- okay. You, at some point in your career, before you came to MUSC, you met Curtis Artz, correct?

Martin: Yes.

Fox: Could you describe how you met him?

Martin: Yes.

Fox: Yes.

Martin: I had two and a half years on a burn center, and my commanding officer there was Colonel John Moncrief. He was a friend of Dr. Artz. Dr. Artz started the burn unit hospitals in Korea, and he brought the idea to Fort Sam Houston, and he established that one. I was working in one of Dr.

Artz's established burn centers. So, when I was retiring, Dr. Moncrief says here is a note and a phone number, call this person if you're still interested in working after you retire. I did. Dr. Artz was in Galveston at the University of Texas branch there. He invited me, and he says you can't come without your wife, you have to bring her, I want to meet the family.

We had an evening of talking and visiting and dinner. The next morning, he interviewed me in his office, and he wanted to explain to me that they had a central core and laboratory space, but it had not been developed. And since I had developed one in Denver to do that research, he thought I could do his. And so I came down for that specific reason, but it didn't take very long after I had gotten halfway there to begin research, and he had already planned some research. I'm going to get into the next step or two, I'm sure, okay?

Martin:

Well, I took the job, and I developed a research lab. Before I got it really done, he already had people working over there. We had two doctors by the name of Remmers and Sorrows. Dr. Remmers and Dr. Sorrows. They were full professors in the department of internal medicine. They were interested in kidney disease. And Dr. Artz knew that we were sometime going to be doing problems with kidneys and into transplants. He wasn't ready to take that on, and he wanted to consider, in collaboration, all three of them, thought that they should be trying to find a way to deal with the rejection phenomena in organ transplants and in organ preservation.

The organ transplant is -- I'm not sure I'm the one to talk about this, but lymphocyte depletion is not an easy thing to do, particularly in animals. Back in the 1960s and 1970s, NIH was sponsoring a lot of programs, and they seemed to have plenty of money then. You could always get money to do new type research. And we got money for this. I spent most of my

time in that laboratory with Tom Hargest and a doctor by the name of Jay [Fish], trying to develop a model where one could do lymphocyte depletion. And this was the early beginning of rejection transplants, and we didn't know how to make the serum when we first started, and this was done later by other physicians and microbiologists.

But that was my job at the University of Texas, we had used dogs, goats, some sheep, and nothing worked. The dogs would scratch open their wounds with their foot, and the sheep and the goats were so fractious that you couldn't keep them penned up where they wouldn't destroy the incision line and everything. So, we were still working in trying to find an animal model when I came down here. How I came here I think is pretty well known. Dr. Artz brought all of his people with him, and that included Tom Fitts.

I never mentioned this earlier, but Dr. Tom Fitts and I was in the Army together. I beat him out after 20 years to retirement He was only in for two years finishing a residency, and I beat him out by a month or so, and he said hold up the space for me. And he never got around to coming to Galveston. Things didn't go right for Dr. Artz. He never got the chairmanship.

Fox: In Galveston.

Martin: In Galveston he got offered the chair here, and he came down, and he brought his family with him, which was eight of us. So, that's how we arrived here. And I came for the same reason. To establish a research laboratory.

Hoffius: I was going to ask you if you could elaborate a little bit more on the research work that you did in Galveston and that you brought here.

Martin: Okay. We had a technique that we developed. Mr. Hargest, Tom Hargest, was the one who developed the tips that we could put in the thoracic ducts that hooked onto Silastic tubing and came out of the animal and then collected in a bag. Once the bag was full or partially full, sufficient amount where we could spin it down and remove the white cells or the lymphocytes, there were studies going on about which ones of the lymphocyte cells was the one that was causing rejection. And there was a lot of discussion about whether they were T-cells or B-cells or which cell it was. And we were doing that, and cutting in the middle of that, we transferred that work here.

I came to again reestablish another laboratory. And down here it was a lot different. There was no space.

Fox: Here?

Martin: Here. A little red building behind the university hospital. We were on the fourth floor, and I just kind of had three rooms, and down there I had a half acre home. But we did have a lot of space. And here I had to make that space fit into this project. I set up three operating rooms in the space we had, and then we finally broke loose another room for the central supply type stuff that you have to have, with an operating room, I had to build cabinets in one room for all of the instrumentation and the supplies and the equipment and so forth. And it took a long time to do that here. I made a lot of trips up to Columbia to the warehouse where they had all of the salvage stuff and brought several van loads down here almost to equip enough of the operating rooms, because nobody had any money.

The only money we had was for thoracic duct cannulation and the study of lymphocyte depletion.

Fox: And that was money from the federal government? From the NIH?

Martin: Some of it was. After a while, Dr. Artz got a \$5 million grant, but that was a grant that was to help develop departments, and a lot of departments like Curtis Worthington's department got some of the money. Various departments that needed help. It was one of the building blocks back then of the university. We were a medical college, okay? But as we progressed, we finally became MUSC

Fox: Mm-hmm.

Martin: The lymphocyte depletion project became big, and we found an animal that we could manage. About 450-pound young yearling calves. They're really almost cows or steers, but they were calves. 450 pounds is a lot of kicking legs to put on a table and do anesthesia on. And have Dr. Fitts come in and open up the neck and put the thoracic duct cannula in and get everything sewed back together and hooked up the -- you didn't hook those babies up to bags, you hooked them up to six-, eight-, ten-liter bottles, because they really put out the fluid. And there was mountains of lymphocytes, if you needed them.

We turned around and gave the fluid portion, after the lymphocytes had been removed, back to the animals. We had to build the physical plant, and I had to build the stanchions, and they didn't know what a stanchion was. And of course, me growing up on a farm, I had to draw the plans out for the stanchions. And we had animals in those stanchions for a year before -- we were doing transplants on animals then. We were taking one kidney from one animal and putting it in the other animal. Do an exchange.

And it was my recollection that we were preparing to do cadaver transplants, because Arthur Williams had a lot of patients that was not going forever on dialysis, and so therefore we were training -- I was training -- on the preservation equipment that you do with cadaver transplants while tissue typing was all being done to find out who was going to get the organ. And this took, in those days, tissue typing took eight or nine hours.

Fox: Wow.

Martin: And then if it didn't come out, they had to do it again. So you had to preserve the kidney. And we did that with some equipment that was brand new and it cost a whole bunch of money. There's a picture of it in my album. It's called a Belzer machine. Dr. Belzer and his technologist put it together and had it built by some engineers, and it was one of the first monstrosities that came out for profusion.

Fox: Was that built here?

Martin: Well no. They put it on the market.

Fox: Oh, okay.

Martin: And we purchased one. It was a big waste of funds. It worked, but it was just a monster to use. It would take me two and a half hours to get it ready to receive a cadaver kidney. At that time I also picked up another job. I became one of the people on a recovery team for recovering cadaver kidneys. This was just kind of an assignment, and nothing was going on. Then all at once, this living related began to happen. And that's how we got to that. All during the research that was going on for those two or three years, Charles Graber, a microbiologist, was busy with his team of

people downstairs from my labs. They were doing all of the serum work, separating the cells, trying to determine what was going to be helpful, how we could do this.

They developed a serum that could be collected -- you could collect it from blood from a patient that needed the transplant and make a serum out of the lymphocyte portion. This is above my pay grade. My biggest contribution to Ashley and his sister's transplant was more in the research labs than it was certainly in the operating room, even though I was there.

Hoffius: Can you tell us about the preparation immediately before the surgery? By which I mean were you involved at all in the discussions that led up to finally saying yes, we're going to do this transplant, this specific transplant?

Martin: I was, except it was not in a group situation. Tommy Fitts kept me informed about -- he'd say [Lloyd], we're going to do so and so, Lloyd, we're going to do this. You got to be ready. You and Tom had got to be ready. And so I worked with Tom [Hargest]. He made all of the equipment that went into that patient. I have to get into transplant to tell you about it, I guess. Okay?

Hoffius: Okay.

Martin: Well, when they got everything lined up and both of them and the transplant -- Vera, who was giving the transplant -- a patient who was giving the kidney to her brother -- that room was not -- it was room number 2. Room number 1 was the one with the balcony in it, where the students or anybody that could get in up there could watch down what was going on. And that was room number 1, and that's where the recipient actually received the transplant. I was in that room. I scrubbed with

Tommy Fitts, Dr. Thomas Fitts, Charles Thomas Fitts, as they reminded us at his funeral.

I was only to do one thing. I was to go in and get one of the surgical techs to pass sterile supplies. I was scrubbed and in a gown, gloves, everything, as if I was going to be at the table. I set up another table over in the side of the operating room to profuse the kidney that would come into that room. And my little table was all sterile, and it had a whole row of Tom Hargest's tips and Silastic tubing to do the profusion with, and I had an ice chest with six bottles of cold ringers at a 35-degree temperature, that was going to cool a kidney down and keep it from deteriorating any more than possible after they removed it and took it away from its blood supply.

I had about six bowls on the table. The rooms were connected, and it was a bit of a riot, really. But Dr. Derrick kept running in and saying, okay, where are you guys, I'm about to do something over here. And this went on for maybe 45 minutes. Okay, Tommy, are you ready? I'm ready to cut the cord over here. And Tom said no, give me another ten minutes to make a pocket in Ashley for this kidney that's coming. And in a few minutes, here comes Dr. Othersen with the kidney in his hands and immediately put it in one of the cold basins, and he selects the size of one of the tubings to go in to flush it with, and we hook the cold ringers -- one of the OR techs hooks it up for us and hands off the tip. He flushes it all out.

Blood come out. And we kept moving it from bowl to bowl until we finally got to a bowl where no more red cells were coming out, and it was cold throughout the whole core. Then it just sat there until Tommy Fitts turned around and picked it up out of the bowl and handed it off -- or he had it, he and Dr. Harvin started sewing the kidney in. When it was sown,

there were so many people around looking and guys holding retractors, and they were six foot away from the table, had an arm in through. It was something else. And once they got the artery and the vein hooked up, then Fletcher Derrick came in from the other room.

He hooked up the ureter. And then everybody crossed themselves like this, and it got deathly quiet in that room, and all at once the kidney peed, and were done. I left the room and I know Dr. Fitts and Dr. Harven closed Ashley back up and got him back to his room. Or got him in the ICU room, rather. And that was my little bitty part in the transplant.

Fox: What was the atmosphere like in the operating room during the whole process? Were people tense before or --

Martin: Yes. It was very tense. It was extremely tense to begin with. And as things kind of quieted down, and it got pretty quiet during the -- once the kidney was received from the other room -- of course, we didn't know what was going on in the other room, because nobody went back over there for any reason. Everything was happening in this one. Everybody was staring at us up there, the nurses, bless them, they were just -- had thought this thing through so many times that Dr. Fitts didn't have to say much. Clamp. Suture. You know. Not very much at all.

So, it was very tense and very quiet. But then Derrick came in and things started getting a little more noisy, and they were getting closer to being done and the atmosphere was changing. Of course it went crazy after the kidney functioned.

Hoffius: People celebrating?

Martin: People celebrating. And there were people with bottles of champagne.
Yeah.

Fox: In the operating room?

Martin: No not in the operating room, out in the hallway. It was a high time and a high climax to the first experience. And that was even before we'd ever done a cadaver. We were doing animals, so we knew how to do the procedure, but we hadn't done a cadaver organ yet. Then guess who came along? I'm going to have a senior moment here.

Hoffius: Take your time.

Martin: Who's going to moderate our conference?

Hoffius: Dr. Rajagopalan.

Martin: Raja came into the picture. He had been through all of his education in India and got to do it all over again here. So, he was a resident. And he and I were the recovery team for cadaver organs. And we went to the emergency room. We went once to Columbia and back in a helicopter but that's after this transplant. That was when we had to get all the equipment for profusion of the kidneys. And finally we got a little Waters unit, and it was wonderful. Somebody had really had a good idea, and we bought it. I'm sure you're done with me, but I was on the transplant team for ten years.

Hoffius: Can you tell us about that?

Martin: I stayed on the transplant team for ten years.

Hoffius: Can you tell us about the work you did after this first transplant and then before Raja came and when Raja came?

Martin: We were just continuing research in the research labs. We knew that they were onto something with the lymphocyte depletion. And the tissue typing would come later, and some of that work they were starting to do on animal -- see if they could tissue type it, you know? And so forth. The blood bank played a big role in all of this, but that was later. We used cryoprecipitated plasma that they provided for us to do the preservation. When we were -- as the surgeons say pumping the kidneys -- the technicians all said it was profusion, because that's what we learned in our school.

I have little knowledge of what went on in the hospital with Ashley. I know he had round-the-clock people seeing him more than he needed to be seen, but sometimes you do overkill when you know you're a winner. It just happens.

Fox: Were the transplants that you were involved with after Billy Ashley -- were they mainly cadaver kidney transplants?

Martin: Yes. Yes. First, I don't know, maybe four years. Everything we did was cadavers. When I retired, we had a cadaver that was 18 years old. No, no. We had one that went 18 years. It was a good while after I retired. A cadaver kidney, and it was still going the last I heard, but you lose track of all of that. But my primary work was all in the laboratories.

That's where I learned how to run the equipment to do the preservation for the later transplants. That's where I got sent to school. Both of those units that we used. I attended a lot of seminars. I was getting another education.

Hoffius: You said when you first got here that space was very tight. Would you say that Dr. Artz and your laboratory had good support from the university despite that small space? Did you feel like you were getting the resources you needed?

Martin: Yes. Oh, yes. Everybody was very helpful. There just wasn't any space. I have a joke about that. Nowadays at the university here, if somebody runs out of space, they just build them a new building. Then, if you were running out of space, they'd give you a closet. You've heard that. Okay.

Interviewer: What would you say, in terms of lessons learned during this whole process -- are there any lessons that you would say about the process that you would impart to people working in research now or continuing in the transplant program? What did you learn during that process?

Martin: It's so very hard to make a transition from then to now. You know, all of our research now -- we lost the ability to do animals for the most part. I know, they still have rats and they still have guinea pigs. They still have a few animals around. That's not like using domesticated animals or dogs or K9s, you know. It's just different. And I'm not suggesting in any way that the smaller animals aren't very useful. Because as I recall back, Dr. Otherson was running a rat study back then doing the same -- generally the same thing that we were trying to do in large animals except there is not any way you can collect lymph from a rat except maybe a half a cc, two or three drops, you know.

And so he was doing a different kind of study, but it was for the same purpose. And we brought that information he brought along into the transplant too. Nowadays, I still get some research papers that, you know, are hooked up with some of the stuff we dealt with. I worked with a lot

of great people or had connections with them. I don't know that that's helpful here. But I spent some time with Dr. Starsdell in Denver when I was in that laboratory, and he was doing transplants on big apes there. And this was in the early '50s.

I also was in the research lab in Denver when we lost the battle with Salk and [Sabine] and they beat us to market with their vaccine by about three months. But theirs worked, and that was the important thing. There were you know Dr. John Moncrief at Rand Lee. The burn center at Fort Sam Houston, that was a research center, and I went down and looked at their labs and worked down there part-time on my own time, because I just had an interest in that area.

I also got to see how they set their lab up before I went down to Galveston. I came back and retired and then went down to Dr. Artz -- he wanted me down there the next day after I retired. It took me about a week to get down there, but I got down there in a hurry.

Hoffius: Can you tell us a little bit more about working with Dr. Artz?

Martin: How I met him?

Hoffius: No, no. About working with him. Sort of what your interactions with him were like.

Martin: Yes. Well, you all know that he was an international burn surgeon. He was well-known around the world. He and I presented a film, pigskin film, at the fourth annual burn conference in -- I'm having another senior moment -- Argentina. The capital of Argentina.

Hoffius: Buenos Aires? Is it Buenos Aires?

Martin: Yes. We were there. And we presented the film. But Dr. Artz was a mentor to me. He was like a family. We were a part of his family. Anytime he invited a professor to town to speak to the students and to the residents, he always had a reception, and me and my wife was required to be there. It was kind of like part of the military, you know? And so we were always with then. When Sabine came here, he came to dinner, we had a reception. He came to Artz's house for dinner. And Curtis Artz sat me right with Mrs. Sabine.

And my wife sat right with Curtis Artz. He just did things like that. He was a loveable person. He brought a lot of stability to the department of surgery. He brought in a lot of new people. He brought Dabney Yarborough, who is gone. There were -- he brought in about four other people. I'll tell you another one in a minute. Shan Harven, the plastic surgeon. Matt Ruttenberry. All of these people. You don't know any of them, do you?

Well, see, they're all gone. But they were young and active, just like I was, 40 years ago. Artz did a lot of work with Bill Lee in cardiovascular surgery now that Dr. -- okay, y'all ---

Hoffius: Crawford?

Martin: Crawford. Yeah. Dr. Crawford. Dr. Crawford was a -- I was going to say he was a resident when he came here, but he wasn't. He was a professor when he -- assistant professor when he came here. And when he took that over, then it kind of swings. Dr. Crawford has made cardiovascular and transplants huge. And Dr. Artz, because it was not well developed, he brought the neurosurgery people up. And so it's been -- both of them have been great for the department of surgery.

They made things work well. But Dr. Artz was just a teacher constantly. He never was too busy to stop and explain something. And when I'd go to him and I'd say you have a doctor that's doing some research that I don't understand, he looked at me with those little beady eyes and he said, did you ask him to explain it? And I said, yeah, I asked him to explain it twice. He said, well, I expect, then, if you listen and paid attention, then he probably isn't doing anything. So. He was that kind of person.

I had problems with the residents. They'd come over and start demanding things. And here I am, just a farm kid trying to run a lab to help him out, to [sleep] their animals, to provide technicians, to have a sterile room if they wanted it, and, you know, depending on the kind of study they were doing. And I didn't mess with him. You couldn't. If one of them got away with it, they all would. So, I ushered them right out the door, and I was big enough to do that then. They didn't like that and maybe they'd say, we're going to go tell Dr. Artz.

And they all did -- a couple of hours later they come back and they sat down and apologized to me. That was the kind of a person Dr. Artz was. Everybody loved him.

Hoffius: Do you have any other comments about the specific Billy Ashley transplant or anything you want to share with us before we finish up?

Martin: About what, please?

Hoffius: About the transplant or about anything that you wanted to say that we haven't asked you about so far about the transplant?

Martin: No, Some of the research got wild. It really did. You try to manage a 450-pound animal. I had to make wide -- this wide -- tables, operating room tables, and we weren't sure you could raise them up and down with that much weight on them. But you could. And we did. And you put the animal back in those stanchion, we had some in there for eight or nine months. The same animal in the same stanchion. And no exercise except when it went to the operating room and back. So, some of that got real fractious.

Some of the Techs didn't know much about animals. And we were trying to take one out and put it in another stanchion, because there was -- something broke on the one it was in. It started rushing around the room, and the guys didn't know what to do. They had a hold of it, and they had ropes around it and everything. It was just taking them around and around the room. Finally I walked over and I grabbed a hold of -- I don't know whether y'all watch rodeos or not -- grabbed a hold of the animal's head, turned it up towards the ceiling, kept it there for about a minute, and it flopped right down.

But this was -- everybody stood and stared at me, you know. But you learn those things when you go through a depression.

I have really told you all I know.

End of recording.