

UFHC 25

Interviewee: Dr. James Robert Cade

Interviewer: Samuel Proctor

Date: April 22, 1996

P: I am interviewing Dr. James Robert Cade at his office on the University of Florida campus. Today is April 22, 1996. This [interview] is [conducted] for the University of Florida Health Center Oral History Project. I am going to start off by asking you for your full name please.

C: It is James Robert Cade.

P: When and where were you born?

C: San Antonio, Texas, on September 26, 1927.

P: What was [your] family doing in San Antonio?

C: My father had been born there. My mother was born in Corpus [Christi, Texas], but she moved to San Antonio when she was eleven. [She] went to school there and married my father.

P: Was your father's family first generation Texans, or had they migrated from elsewhere?

C: My grandfather came from England. My grandmother's family had come over to Virginia and then North Carolina before the Revolutionary War [1776].

P: What was your father's name?

C: J., just the initial J., Robert.

P: He did not have a first name?

C: No.

P: Sometimes people use that initial because they do not like their first name at all.

C: He did not have one.

P: Do you remember his birthday?

C: August 17, 1896.

P: That is the same year my father was born--1896. What about your mother?

What was her maiden name?

C: Schuetze.

P: What was her first name?

C: Winifred. She did not have a middle name.

P: Was that a German name?

C: Yes.

P: So from where did her family come?

C: Northeast Germany. When there was an Iron Curtain, it would have been behind it.

P: So at least one family came over very early, before the Revolution. The other members of the family are nineteenth century immigrants to the United States, mainly from the British Isles and from Germany?

C: That is right. My grandfather and his brother went to sea, when my grandfather was twelve. My grandfather ended up in the United States and his brother ended up in Australia. My grandfather was on the east coast then. I am not sure how he got to Texas, but he migrated down to Texas. The German part, my mother's family landed in Texas. They started coming over [from the German-speaking region in north-eastern Europe] in 1849. I think some of them continued coming over until 1880. They settled in the hill country north of San Antonio, which was Indian territory at that time.

P: What kind of work did your father do?

C: He was a lawyer. For a long time [the men in] my father's family were all lawyers, doctors, or preachers. My father ended up [being] a lawyer. I had two uncles who were doctors.

P: Where did your father go to school?

C: The University of Texas [at Austin].

P: So you have a close relationship with that state, do you not? Did you also go to elementary and high school in San Antonio?

C: Yes. I went to Highland Park Elementary School. Several of the teachers I had

there had taught my mother when she went to Highland Park twenty years earlier. They remembered her. In high school, I had a couple of teachers who had been friends of my father's sisters, who were schoolteachers also. One of them, Mrs. Lancaster, taught geometry. One day, I did not know the answer to something, and she told me, Robert Cade you are not the student your father was.

P: You remember that? [Laughter].

C: I surely do. I told my father about it, and he said, she told me the same thing.

P: [Laughter]. Were you an only child?

C: No. I have one sister, fourteen months younger than I am.

P: What kind of a family did you grow up in?

C: I grew up on High Avenue, which was two blocks long. We lived in the 100 block of East High Avenue. There were twenty houses in that block, and ten of them [belonged] to family members on my mother's side of the family. So as I grew up I had aunts, uncles, and cousins all over the place.

P: Then [you had] a large extended family?

C: Yes.

P: Was that good? Do you have happy memories of those early years?

C: I surely do. On the rest of the street, I think there were some who were sort of peripheral members of our family too. There was an old lady named Strohmeier, who was in some way related to us, I am not sure how. There were several others who were like that. The entire street, all the people who were not members of my family by blood, were sort of members of our family by virtue of living there. I think it was a wonderful place to grow up.

P: So you have a lot of good memories of those early years with cousins, your sister, and your family. What did you do for fun in those early years?

C: We played football, baseball, and had rubber-gun wars. [I] read. I cut the grass for my [maternal] grandmother at her house. It was right across the street. She would sit on the front porch and watch me, and say, oh Bobby I just love to watch you work.

P: [Laughter]. Grandmothers are good at that, are they not?

- C: My great-grandmother lived three doors up the street. Her father came over from Germany. She was up in the hills when the Comanches were still going on war paths. She had all kinds of memories. My mother did an interview on her, and wrote a history, *I Look Back*, about the early days in the hill country and then in San Antonio. I would come home from school and walk by my great-grandmother's house. When the weather was decent, she would be on the front porch knitting, quilting, or crocheting. I would stop and talk to her on the way home. She would get a report of how things had gone in school, just light conversation. I think I was surrounded with a bunch of people who loved me. That would make any childhood good.
- P: Oh yes, that would give you a lot of security. Why did you not use James as your first name?
- C: I do not know. They called me Bobby. My mother and father made that decision.
- P: So you have followed it ever since?
- C: That is right.
- P: Now what about the decision to go to college? How did that come about?
- C: When I graduated from high school, my mother had me going to college.
- P: Both your mother and father had college educations?
- C: Yes. I went off and joined the navy.
- P: Before you went to college?
- C: That is right. While I was in the navy, I decided that is not what I wanted to do.
- P: First of all, what was the date of your graduation from high school?
- C: May 1945.
- P: So the war was in its final days when you make the decision to go into the navy.
- C: That is right.
- P: What motivated that?

C: I did not really want to go to college then.

P: Why?

C: I am not sure, Sam. It just did not really interest me.

P: Were you a good student in high school?

C: In most classes I was. In a couple of them, I played a game, how low a grade could I make and not fail. You really have to know your history to end up with a sixty-one average at the end of the year.

P: Were you intellectually lazy?

C: No. I knew more history than anybody in the class. I still remember my history teachers in high school, [they] were really great. Mrs. Laura Hyde was one of them. She grew up in Virginia. Her parents had known a bunch of Civil War veterans. She just made American history come alive. Before her, I had Mrs. King, for world history, from Egypt on. Both of their classes were just a wonderful experience. Mrs. Hyde's [class] was the one I played the game in. If you take a history test with ten questions and you write an essay, and you want to make sixty-one but you do not want to make a fifty-nine, you have to know what to leave out.

P: You must have given your parents fits?

C: Yes, every once in a while they were unhappy with me.

P: I can imagine that you were good in some subjects, and purposefully not so very good in others.

C: In math, I worked hard and made a B. I could not play the game there because I did not know if I was going to get my question right or not, I had to try every one of them.

P: Maybe you would say it was boredom that motivated you to get into the military or into the navy.

C: I think a lot of boys graduating from high school wanted to go into the army or navy and do something. That was part of why I did it. Part of it though was that I did not feel I wanted to go to college at that time. I think if I had gone to college, I probably would not have done all that well.

P: Was there family resistance to your going into the navy in 1945?

C: Yes, initially. My mother objected strongly, but then she agreed to it. She had to sign because I was seventeen.

P: Where did you enlist? In San Antonio?

C: San Antonio.

P: Tell me about your navy career.

C: Again, it was a great experience. I went in as a pharmacist mate or hospital corpsman.

P: With no special experience?

C: None at all. I made the highest grade that anyone had made on that test in San Antonio. It was like the GRE or an intelligence test. [It was] a four hour test with a whole bunch of [questions]. I made the highest grade there, so the recruiting officer said I could take my choice of what I wanted to do when I got in. I could become a motor-mechanic or whatever I wanted to do. I had two uncles who were well-known doctors in San Antonio, and [the recruiting officer] suggested the hospital corps. So I went in as a corpsman, second class.

P: Where did you do your basic training?

C: San Diego [California].

P: So you shipped out of San Antonio to San Diego?

C: I took a train and wondered why I had joined the navy all the way to San Diego. I sort of wished I had not.

P: Oh, you were having second thoughts about it, then?

C: Well, I was homesick. That was the first time I had ever been away from home, by myself. The train trip took about three days, I think. I remember going through West Texas at night, and [looking at] El Campo [at Guadalupe Peak], which is the highest peak in Texas. You could see it for hours and hours, and it seemed like it never got any closer. It was a bright, moon-lit night. You could stand on the platform between two coaches and watch what was going by. It was an impressive event too.

P: How long were you in San Diego?

C: I was there about three months. Then I went to a navy hospital. I graduated from corps school in the top of my class there. I was sent to a hospital in Dublin, Georgia.

P: So you went from the West Coast back East again. Dublin, Georgia?

C: It was the [location] of the rheumatic fever specialty hospital. I was there about a year.

P: But it was a military installation?

C: It was a navy hospital. Then I went to a destroyer anchored in Charleston, South Carolina. It was a destroyer minesweep, *The Gharardi*. I was on it for one and a half years, except for one cruise that I had, on a submarine, during that time. We were in Guantanamo Bay, and the sub right across the dock from us was going out the next morning. The corpsman on it got sick, so they put me on temporary duty on the submarine for one cruise, three months. Then I went back to my ship again.

P: Meantime, the war had ended?

C: It had ended.

P: In the spring [1945], Europe, and in the fall, Japan.

C: After *The Gharardi*, I was on a cruiser, the *Rochester*. It was in the Mediterranean most of the time. We cruised around.

P: [Did you] stop at the ports?

C: Yes. That was a wonderful experience.

P: Of course, you had come out of Texas and now you were seeing the world. But in Europe, it was a devastated world that you were seeing.

C: It was indeed. I do not know if you are familiar with him, but Richard Haliburton was a travel writer. He was one of my favorite authors.

P: He did the most exciting things.

C: He did.

P: He was every young boy's favorite, I think. He swam the Hellespont.

- C: Right, and then the Panama Canal from end to end.
- P: That is right. [He] climbed the highest mountains and did all of those wonderful things.
- C: He climbed Mount Olympus [in Greece] and Popocatepetl.
- P: Where is that?
- C: It is in Mexico [17,705 feet high]. He climbed the other mountain there also, Ixtaccihuatl [17,671 feet high; both volcanic peaks are within sight of Mexico City], which is right next to Popo. It is the sleeping lady.
- P: Is that all down in the southern part, near Merida?
- C: It is about thirty or forty miles southeast of Mexico City--the two of them are. Legend [has it that] Popocatepetl was the warrior. Ixtaccihuatl was his love, and she died. He is standing there guarding her. At Ixtaccihuatl, you can see the outline of a woman lying back.
- P: So at least in the Mediterranean you were following in the footsteps of Richard Haliburton, your great hero.
- C: That is right.
- P: And you went to all of those wonderful places that he had visited earlier. Of course you saw them when they were all bombed and shattered.
- C: There was an awful lot of it torn up. I ran from Marathon to Athens [In 490 B.C. the Greeks were victorious over the Persians at the battle of Marathon. A long distance runner ran the twenty-six miles to Athens to bring the good news.], Richard Haliburton had done that. He stopped at all the pubs along the way. He arrived in the Agora [the Athenian marketplace], ran into another pub, sat down at a table, and said, Athens is shaved. So I had to run from Marathon to Athens, because he did.
- P: Did you do the bulls in Spain?
- C: No. We did not get to Spain. We were stopped at Gibraltar. In Gibraltar, I acted as the ship's translator. Growing up at San Antonio, I took Spanish in school and had occasion to use it frequently, so I could speak Spanish fluently.
- P: So to a degree, you were bilingual then very early on? Have you kept that up over the years?

C: I do not use Spanish here at all, so it has gotten away from me. I can still speak German.

P: Was that because of the family? Did you talk German within the family, to your great-grandmother for instance?

C: Yes. My grandmother did not learn English until after she was married. My grandfather insisted that she speak English, but she lapsed into German frequently. I learned all the German folk songs, and Christmas carols. I went to a German school in the summer for three or four years. We would go up to the hill country north of San Antonio, where relatives lived, and they spoke German exclusively. They could get along in English, but they were German speaking people.

P: What ranks did you hold in the navy?

C: I got to a pharmacists' mate, third class, which is like a sergeant in the army.

P: And how long were you in for?

C: Three years.

P: When did you get out? In 1948?

C: Yes, I got out September 10, 1948. Then I hitchhiked home and enrolled at the university.

P: Why did you hitchhike?

C: To save money.

P: I thought maybe you had done such a poor job with the navy that they were not going to send you home. [Laughter].

C: No.

P: Sounds to me like you had a splendid and enjoyable career in the navy.

C: I did. I really liked it.

P: But you did not want to make it a lifelong career? While you were in the navy, did you begin to think about college?

C: Yes. By the time I had been in one year, I was ready to go to college and

[because of the war I] had to wait two more [years].

P: Is there anything that turned you around particularly?

C: I think probably just maturity. I did a lot of reading in the navy. I made lists of words I did not know, and I would look them up and learn them. My vocabulary increased tremendously. I think seeing Athens, Naples, and Rome [also added to my general education]. I met the Pope, Pope Pius XI, [when] our ship was in Naples. They had [organized] a trip up to Rome. I think out of 1,000 guys on our ship, eleven of us went up to Rome. We had an audience with the Pope. I thought he was a very impressive guy. The only thing I really remember he said was that the Catholic boys in our group would really want to be blessed by the Pope, as they would remember it all their lives. It would have great meaning for them. [For the] Protestant boys that was not so, but he hoped we would accept his blessing, from an old man who had seen a lot of life. That was the only thing that I really remember he said. It impressed me.

P: So you came home in September 1948. The world had greatly changed from what it was when you first went in. Obviously, San Antonio was a larger city.

C: It had doubled in size.

P: And your family was still intact? Your mother and father were still living, and your sister was still at home I presume?

C: Yes.

P: Now, you made the decision to go to college. Why [did you choose the University of] Texas?

C: Everyone in my family had gone to that university except a cousin Charles, who went to A & M. No one spoke to him after that.

P: He broke the tradition of the family?

C: Yes.

P: So you went to the University of Texas at Austin?

C: Yes.

P: Were you there early enough to get into the fall semester?

C: Yes. I got out on the tenth [September, 1948], and I think school started on the

twelfth. I got there. I had pre-registered and enrolled when I was still in the navy. I took an entrance exam because I had not graduated from high school. I diverge on that.

P: Yes, you had not said anything about failing to graduate with that sixty-one score.

C: That did not affect it. It was an English class [for which] I had to write a term research paper, and I had not done it. Miss Stratton was a friend of my father's sister, so she knew me and had known me since I was born. I did not write that term research paper, and she told me if I wrote the paper [due just as] I was going into the navy, that she would read it, give me a grade, and change my grade from incomplete to whatever I had earned. But I could not graduate without the three hours for that senior English course. She thought I would do it while I was in bootcamp. What I actually did was after I had gone to college and medical school, and I was a research fellow at Cornell in New York, I sent her a copy of the first paper I wrote [at Cornell]. I got a letter from her about three weeks later. She had read the paper, and it was clear that I had learned to write, spell, and punctuate English well. She did not understand a lot of the points I had made. [The paper] was on the transport of ammonia across the renal tubule. She was impressed that I had mastered English well enough to pass her course. She went down and changed my grade from "incomplete" to "B." That was in 1959.

P: That was a long time later!

C: Yes, fourteen years [later]. Then I got my diploma from high school. I think I am probably the only guy around, who graduated from medical school before he graduated from high school.

P: I hope you have both of them framed and posted next to each other?

C: No, but I will have to do that.

P: I think that would be a fun thing to do. When did you begin thinking about medical school?

C: When I was a pharmacist mate in the navy. I liked it. Being a pharmacist mate on a destroyer [means] you are the only medical representative there, so you see everything. I saw meningitis that I referred to the hospital. We went into Bermuda to take the guy off the ship and fly him back to the states. [During] a storm in the North Atlantic, a fellow broke his leg, it was a compound fracture. I put it in traction and set it. Again, we went into Nova Scotia somewhere. He was flown back to the hospital. The leg was set and they did not have to do it again.

P: You got all of this out of medical books that you had on the shelves?

C: And what I had learned in [medical] corps school. I liked it. When I went to the university, I enrolled as a history major. My roommate was [a] pre-med [student]. He told me I was too dumb to get into medical school. The next semester, I took a number of biology courses. I did not graduate. I had one course in civics or American government that I needed before I could graduate. I went through in two years. I got into medical school. Mr. McEwan is teaching history in San Antonio.

P: What is Mr. McEwan's first name?

C: Robert.

P: Are you still in touch with Mr. McEwan?

C: I talk to him on the phone. Once or twice a year [we] write a letter.

P: And you let him know that his prediction about you being too dumb [was wrong]?

C: I made that very clear to him when I got accepted to medical school.

P: Did you not have any family pressure to go into law and follow in your father's footsteps?

C: No, not really. I did not really have any family pressure from anyone to do anything, or to choose any career.

P: Were you covered under the G.I. Bill? You had gone into service before the war was over.

C: That is right.

P: So that funded your program at [the University of] Texas at Austin?

C: I used it the first semester. Then I did not use it after that because medical school [fees] cost a lot more than undergraduate [fees].

P: So you were saving it?

C: I was saving it for medical school.

P: So you had already made up your mind, when you enrolled at Austin, that you

were going to go to medical school?

C: I had not made up my mind then, but I made it up at a picnic that I [attended] when Mr. McEwan told me I was too dumb to get into medical school.

P: A picnic? He waited for that?

C: The German Club was having a picnic. He and I were both active members of the *Eulenspiegelverein*. We were roasting weenies when that came up. [In] the spring semester [of] that year, I changed course and took a bunch of biology courses.

P: I can see he looked at you as he was eating that hot dog, and said, Cade, you are too damn dumb to go to medical school.

C: That is about what it was, almost a direct quote.

P: So you thought to yourself, I am going to prove this guy is wrong.

C: That is right.

P: So you were at Austin from 1948 to 1950, two years. Were you able to finish a four-year course, or did you need to finish a four-year course?

C: No, I had 120 hours.

P: You took an overload every semester?

C: Yes, I took twenty-five hours a semester several times.

P: And went through summer?

C: [Yes, I] went through summer.

P: So you did four years in two years, and you were obviously catching up, although you were still a young man. When you got out of the service, you were only twenty years old.

C: That is right. I felt I was way behind and needed to make up time. I think that was one of the worst decisions I ever made.

P: Going too quickly?

C: Yes. There were things that I would have liked to have done and I did not do

because [I was] taking twenty-five hours. [I had] a hard time in algebra, you had to study. Biology courses [also demanded much study time].

P: Why did you feel that you needed to do this so quickly? Your age was not [a problem] and you had the financial support of the G.I. Bill if you wanted to use it. I presume you were getting help from your family?

C: I really do not know Sam. I felt I had to "catch up."

P: What I am really asking is, are you a driven person? Earlier indications seem to suggest that is part of your personality.

C: I have never considered myself to be a driven person. I really do not know.

P: What kind of a scholar were you at Austin?

C: I had about a 3.4 [grade point] average.

P: That was very good for a twenty-five [credit-]hour man, taking all those courses. Were you able to do things beyond just the science courses and the pre-med courses?

C: I took German. I took an English course every time. I had history courses every time. I had several of them on central European history from about 1100 through 1900 [A.D.]. There was a visiting professor from southern California who was there. I do not remember his name, but he had mandibular prognathism, which is when the jaw sticks out farther [forward, in relation to the face]. When he talked, you could see little showers of spray coming out from his mouth. He was a great teacher. It was a wonderful course.

P: You did not work while you were going to college?

C: Yes, I had a job in the library, returning books to the shelves, and I worked at a service station at night.

P: You *were* a busy man. Did you have any kind of a social life other than going to that picnic given by the German Club?

C: Not much.

P: Did they have fraternities on campus?

C: Yes. I did not belong to one. I still think that is sort of a waste of time.

P: And [a waste of] money.

C: Yes.

P: Were you able to visit home? Austin is not that far from San Antonio.

C: It was just eighty miles from San Antonio. I hitchhiked home two or three times a semester.

P: Did you have a car?

C: No. I do not think I could have done it if I had a car. I would be a history teacher now.

P: You and Mr. McEwan could have been in adjoining classrooms.

C: That is right.

P: I know, very soon after all of this happened, you were getting ready to get married, so I presume there were some fun things you were doing either on or off the campus?

C: I got married at the end of my junior year in medical school, and I met Mary one and a half years before. I did special duty nursing on nights and weekends to make money to help pay my bills. Mary started as the floor nurse in the pediatrics hospital on January 1, 1951. I met her. I was taking care of a boy who had been kicked in the belly by a horse. It had fractured his liver. Dr. Duckett had operated on it.

P: You were in medical school now, when these things were happening?

C: Yes. That was my sophomore year in medical school. Dr. Duckett repaired the liver and called me to special duty nurse. I had done special duty nursing for his patients a number of times. This was [a] Sunday afternoon. I walked in and was taking care of [the boy]. It was Mary's third day on the ward. She thought medical students were smart, and she came in to ask me some questions. She thought I was smart.

P: You had to prove that you were.

C: Yes. I had a car then. I would pick her up. She was on the 3:00 to 11:00 p.m. shift. I would go over there and wait until she got off, and take her home at night. I decided she was [the one] I wanted to marry.

P: You had a car?

C: Yes. My father had a 1937 Packard, [with a] 120 [horse- power engine]. It had the two spare tires that were set in the front fenders.

P: I remember those.

C: It was a magnificent car but it had deteriorated quite a bit. I had it in medical school. She did not object to riding in it, so I took her home at night.

P: Now you graduated from the University of Texas at Austin in 1950, and then you went right into medical school?

C: Right.

P: That transition took place without any difficulty at all?

C: No.

P: I guess there was not the pressure to get into medical school as there is today?

C: There was pressure, but it was surely not like it is today. I think going through in two years influenced the people at Dallas. They thought if I could manage twenty-five hours and make 3.4, I could handle the work in medical school.

P: What medical school did you go to?

C: Southwestern Medical School at the University of Texas [at Dallas].

P: So it was part of the Texas University System then?

C: Right.

P: Does it still carry that name today?

C: Yes.

P: Where is it located?

C: It is in Dallas.

P: Is the college downtown?

C: It is out about one and a half miles from the downtown area.

P: So unlike at the University of Florida, the University [of Texas] is in Austin, but its

medical school is in Dallas?

C: Yes.

P: What was the distance between the two?

C: [It is about] 210 miles, may be 220. It was a good morning's travel.

P: What was the financial support you needed to go to medical school?

C: I had the G.I. Bill, which at that time paid \$55 a month.

P: You were single at this time?

C: Yes. [The G.I. Bill] paid for books and tuition, and \$55 a month to live on. My mother and father sent me money to help. I made some money doing special duty nursing.

P: Where did you live?

C: I joined a fraternity there. Medical fraternities are a little bit more serious than undergraduate fraternities.

P: No animal house?

C: No animal house. You had to be studying at night, from 8:00 until midnight. If you were in the house, you had to be studying. There was some competition between the different fraternities for grades. They encouraged that.

P: It was a medical fraternity?

C: Yes, it was a place to live and eat. We had parties but not big ones.

P: Were you a partying person in those early years?

C: No, but I went to all of our fraternity parties. I will tell you about one. There was a "Dogpatch" party where you were supposed to go dressed up as someone from "Li'l Abner."

P: A hillbilly?

C: I was a skinny kid then. I think I weighed 117 pounds when I went to medical school. I do not know if you remember this, but there was a big fat lady [in the "Li'l Abner" cartoon] who carried two babies, twins, under her arms.

P: I have forgotten.

C: They only had on diapers. She would have one of them under each arm. I went as one of those babies to that party. [In addition], I had written [what was] intended as a satire on the Nuremberg trials. It was sort of funny. One of my classmates wanted me to tell that story. So I did. I would get up on the table, recite, and jump off the table. One of my wife's friends was at that party and saw me performing. I had not met Mary at that time. A couple of days after I met Mary [her friend Marjorie] picked her up to take her to some birthday party. I was coming out of the hospital. Marjorie said, you see that boy? Do not have anything to do with him. He is crazy. Mary had met me already then, but it intrigued her still more.

P: She decided to investigate and check you out--see whether that description was really valid or not. How long were you in medical school?

C: Four years.

P: So then you graduated in 1954?

C: Yes.

P: Was this when you began to turn toward your interest in renal medicine?

C: Actually, that was later. I was interested in pulmonary medicine when I was going through medical school, [because I could work with Dr. Miller].

P: Give us Dr. Miller's full name.

C: William Miller.

P: Was he on the faculty?

C: He was in charge of pulmonary medicine.

P: What is pulmonary medicine?

C: [It deals with] lung diseases.

P: Relating to the lungs, then. Had tuberculosis already declined?

C: There were still hospitals for people with tuberculosis.

P: Of course, it had been a devastating disease in earlier years. Many people died

[from it]. [Did] it not [have] the highest mortality rate in the country, at least in the nineteenth century?

C: For a long time in Europe, it was the leading cause of death. But I did not really work with tuberculosis a lot. I was interested in chronic lung diseases--bronchitis, emphysema, and fibrosis.

P: Lung cancer had not yet [raised many questions] at that early date?

C: It was increasing, particularly in males.

P: Would that come under pulmonary medicine?

C: Yes.

P: I see. So things like cigarettes were beginning to play a role [in] people's thinking.

C: The chronic bronchitis, emphysema, fibrosis, and so on are diseases that occur very commonly in smokers. Bronchogenic carcinoma is common in smokers. I would see them as part of that.

P: Dr. Miller, then, was the influence that brought you to your interest in pulmonary medicine?

C: Yes, pretty much. He was a sterling teacher. He could give a lecture and get everyone excited about what he was saying. I asked him for a job during the summer, and I worked for him doing research during the summers.

P: So during medical school, that was your primary interest. You thought that you would get into that, and that would be your special area upon graduation.

C: Yes. One of the studies we did was on the role of the lung in regulating the pH of the body. That lapses over into the kidney. So I was interested in expanding my knowledge of the kidney at that time, and I did a fellowship in New York with Dr. Pitts.

P: That was later, after your residency, was it not?

C: Yes. That was at the end of my residency, when I concentrated on the kidney. I went on in kidney then.

P: That has been your primary research interest ever since, has it not? It is what your career is really noted for, your work with renal medicine rather than

pulmonary medicine. You left the pulmonary behind upon graduation?

C: Pretty much. When I came here on the faculty, they did not have anyone in pulmonary medicine. Because I felt comfortable with pulmonary diseases, I saw the consults for the first year and a half. They brought in a guy in pulmonary medicine and I stopped seeing those consults.

P: Bob, before we get into that, and, of course, I want to explore that in detail with you, let me talk about the non-scholar, the non-medical student, Bob. What was life like for you? For instance, did you like athletics? Did you participate in athletics?

C: Our fraternity had a softball team and I played on that. I ran track in high school, but I did not in college. It would have taken an awful lot of time.

P: But you have been interested in athletics. That has played a role in your research life, certainly since you arrived at the University of Florida. I wondered if this was kind of a passion of yours earlier. Did you follow baseball? Did you follow football?

C: I went to St. Louis to intern because I was a Cardinal fan. That was a legacy of living on High Street [in San Antonio, Texas]. [In] the house next to the corner [lived] a man named Robbins, who was a policeman. His daughter married a fellow named Beasley. Mr. Beasley's brother was Johnny Beasley, who later pitched for the Cardinals. He was with Houston for two or three years. Every time they would come through, I would get invited to sit in the Houston dugout, which I did. My father was also a baseball fan. We went and saw the San Antonio Missions a lot during the summer. I got interested in the Cardinals. The Missions were a farm team of the St. Louis Browns. I had met a bunch of the Cardinal players while sitting in the dugout with the Houston team. They were going up to St. Louis. We went to St. Louis for an internship because of the St. Louis Cardinals.

P: So you leave medical school in 1954?

C: Yes.

P: Then you go to St. Louis for your internship.

C: That is right.

P: How much did they pay interns back in those long ago years?

C: Nine dollars a month.

P: That was a "great" deal. At that point you are no longer on the G.I. Bill are you?

C: No. I got a raise about halfway through the year. The elevator operators went out on strike, and they got a raise to \$150 a month. The hospital administrator thought the interns were worth as much as the elevator operators. So we got a raise to \$151 [a month].

P: From \$9, that was a giant raise.

C: It was huge.

P: In terms of percentage increase, that was larger than anything you have made since.

C: Yes.

P: The University of Florida thinks it is very generous when they give you a 3 percent raise.

C: And tell you all the reasons why they cannot give you more.

P: In [the] history [department], they do not even tell us the reasons. They just do it. It is a fait accompli by the time it gets to us. So you were telling me you went to St. Louis because the Cardinals were playing there. Did you have other offers, where the Giants were playing or the Yankees?

C: I applied at a couple of other places, but St. Louis is where I wanted to go. I applied in Denver, and I could have gone there. St. Louis was really my first choice.

P: Bob, even with \$151 a month, that is not very much and you were a married man at this time.

C: My wife worked as a nurse at night.

P: You had an apartment?

C: Yes.

P: So you did not live at the hospital.

C: Our apartment was [rented to us] by an old Greek lady. We had a dog when we moved there, a little fox terrier.

P: So there were three hungry beings then.

C: Yes. Mary was pregnant. Our first son Michael was born on July 4. My internship started on July 1.

P: That was in 1954.

C: Yes. We walked over to see this apartment that Mrs. Lopus had advertised. It was at 5511-A2 Holly Hills.

P: How much [rent] did she want?

C: I do not remember.

P: You remember the address, but not the price?

C: No. Similarly when we came here, [we came] not knowing what I was going to be paid. I forgot to ask Sam Martin [Samuel P. Martin, Provost of the Health Center and Professor of Medicine]. When I got home and Mary asked me how much we were going to be paid, I said, I did not know. She was really upset.

P: I can understand that. Women get upset very easily when it comes to things like that.

C: I do not remember how much the apartment was.

P: Well, I think prices for rents have gone up slightly since the 1950s. What did you have to do as an intern?

C: I was on a medicine ward for nine months. There were a couple of private rooms. If you had someone really sick, you put them in there. Everyone else was out in the open ward. The day before Michael was born, I was on duty for the weekend, Saturday and Sunday. Saturday afternoon, I admitted a couple of bleeding cirrhotics; they had cirrhosis of the liver from drinking.

P: I have not heard of this ailment.

C: One of them was the owner of the bar that was [located] about three blocks down the street from the hospital. Another was the bar's best patron.

P: I can see they tasted their worth.

C: They both came in vomiting up blood. We put in a tube at that time, and blew a

balloon up in their stomach. Then we pulled it up so it pressed on the varices that are going up through the esophagus to stop the bleeding. I had these two guys in beds right next to each other. What made it worse was that about three weeks preceding that night [the temperature] had not gone below 100 degrees.

P: And there was no air conditioning.

C: No. Windows open, but that was it. We had a bunch of heat strokes come in. I admitted three or four heat strokes. About 2:00 a.m., I had another one come in, an old lady. I was taking care of her when the phone rang and Mary told me she was in labor, and I needed to come home and get her. When I got that patient stabilized, I checked out to the other intern. I walked out of the hospital and I was about halfway to my car, when this deluge started. You could not see thirty feet ahead of you. I got into the car and started driving out of the [hospital-]driveway to go home. I drove around the turn, and there was a big puddle of water there. It splashed up inside the engine compartment, and killed the car engine. So I was standing there, at 2:00 a.m., the rain coming down my face, my wife in labor, and the car would not start. About ten minutes later, another car came around the corner and I jumped out in front of it and waved. The guy stopped and we decided he should push me and he did. My car started off. I got home and ran up the stairs, and there was Mary sitting and eating a bologna sandwich. She said they were not going to feed her when she got in and she was hungry, so she was going to eat.

P: You married a practical woman.

C: Yes.

P: I can see drama keeps pursuing you from beginning to end. That was lovely; I think that would make a good movie script. You obviously got her to the hospital?

C: She was in labor for fourteen hours before she delivered the next afternoon.

P: So that was your experience as an intern?

C: Yes.

P: It does not sound to me like you had much chance to go out to the baseball park.

C: But we did. The first place we went to, after Michael was born, was to see the Cardinals play. I think they were playing Philadelphia. In the seventh or eighth inning, [Stanley] Stan Musial [inducted into the Baseball Hall of Fame in 1969] got up, and he hit a line drive to the right field. The right fielder for Philadelphia

jumped out and the ball hit his glove as he fell on the ground. Stan Musial was out. He turned around and was walking back to the Cardinal dugout when Michael woke up and started screaming bloody murder. Stan Musial looked up at him and said, kid, that is the way I feel too, and continued to the dugout.

P: [Laughter].

C: After that, I wrote a letter to [August Anheuser] Augie Busch [Jr.], owner of the Busch brewery [Chief executive of Anheuser-Busch; president of the St. Louis Cardinals baseball team].

P: [You wrote to] August Busch?

C: I wrote him a letter and told him that there were a bunch of house staff members who were really Cardinal fans, and that we did not have enough money to buy tickets to see the Cardinals. In response, he reserved a box seat on the third baseline for house staff members at St. Louis City Hospital. So all we had to do was go by the hospital administrators, tell them we wanted to see the Cardinals tonight, and we could get tickets. All of the house staff saw a lot more ball games.

P: All as a result of Bob Cade's intercession.

C: And Augie Busch's kindness.

P: So you were at the St. Louis City Hospital?

C: That is right.

P: And you were there for one year.

C: That is right.

P: And then you go into residency.

C: Yes. I went back to Dallas for that.

P: And [what was the name of] your hospital?

C: Parkland Memorial.

P: Tell us the historical significance of that.

C: Well, by that time Southwestern [Medical School] was becoming a fairly

well-known school, particularly its medicine department. They had a really good faculty, and did good research in all areas. All of the [faculty] were interested in teaching, so it was a good place to go. A residency [at Parkland] carried some prestige. So I went back and I worked with Bill Miller. Then [is when] I got to do the acid base stuff.

P: Acid base?

C: One examined the lung in that, and then [I] got interested in the kidney. I worked with Don Seldin.

P: And he was a physician?

C: He was a physician and head of the department. [He] was interested in kidney diseases.

P: What was the department's official name?

C: Department of Medicine. I was there three years.

P: Did you have a choice of where you wanted to do your residency, or did you select Parkland?

C: I selected Parkland. Actually, halfway through my internship, Bill Miller did his [residency] there. I talked to him about coming back to Dallas.

P: I presume that the financial situation had improved slightly?

C: No. When I went there, the first-year resident's salary was \$54 a month.

P: \$54 a month. You had taken a pay cut from the \$151 you had received in St. Louis.

C: That is right. My wife kept working.

P: But she had a baby to take care of?

C: Yes, and she had another one about six months after we got back to Dallas.

P: I can see how you complicated the situation, Bob.

C: The second year I was there, I was taken on as a post-doctoral fellow. My duties were the same. As a first-year resident I had been doing research in my spare time. As a second-year resident, that became a little bit more formal, but I

was paid as a post-doctoral fellow. My salary went to \$222.22 a month.

P: Your interest was already beginning to develop along the research line rather than that of a physician seeing patients.

C: Yes, and the third year, again I was paid as a post-doctoral fellow. I was paid \$333.33 [monthly].

P: You were going up the economic ladder.

C: A rapid advance.

P: Now, of course, Parkland is famous as the hospital they took President [John Fitzgerald] Kennedy to, after the assassination. You were long gone from there by that time.

C: I left there in 1957.

P: Did you know any of the doctors who ministered [to president Kennedy]?

C: [I know] all of them. They were all [my] classmates. Charlie Baxter was in charge of surgery. He was a classmate of mine. Really, all those who took care of him had been classmates.

P: So I guess when you get together, that is an item of conversation.

C: It used to be.

P: Lots of time has passed, other things have happened. Now, in 1958 you finished your residency at Parkland, but it was not until 1960 that you took up this fellowship [at Cornell University].

C: Actually, I went to New York and I became a fellow when I left Parkland.

P: When did you go to New York? My records show that you went in 1960. Did you go earlier?

C: Yes. I went there in 1958.

P: In 1958 you went to New York City. Cornell had its medical school in Manhattan, not in Ithaca.

C: That is right.

P: Once again a separation. Where was the hospital or the school in Manhattan?

C: Over on the east side of town, on York Avenue, one block from the river.

P: But going downtown, not uptown; not in the Columbia University area at all.

C: No.

P: It was in the opposite direction?

C: I think it was Fifty-One something [York Avenue].

P: It was way down in lower Manhattan then?

C: Yes, right on the East River in lower Manhattan.

P: Where did you all live? By this time you had two kids, right?

C: We had three.

P: The family was getting larger.

C: When I finished my residency in Dallas, we loaded up the car. I had been accepted as a fellow at Cornell. We started driving. We were going through Arkansas, and I burned a bearing. I stopped in Cape Girardeau, and they fixed it there. Then we went up to Chicago and visited for a couple of days with Mary's aunt, who lived there. Then we got on the interstate, driving from Chicago to New York. On the first day we were driving through on Ohio. In the evening, we stopped to eat at a restaurant.

Michael, our oldest son who was five years old, ate his meal, but then he did not eat his ice cream for desert, which is very unusual. I asked him, is your stomach bothering you? He said, no. I got in the car, and I told him, if you feel you have to vomit, you tell me so we can get over to the side of the road, and you can get out and vomit. He said OK. We had gotten out on the highway again, and were going about sixty miles an hour. We had a trailer behind us with everything we owned in it. Michael leaned over the back of the seat. Mary was nursing Celia.

Our dog, Sally, was lying between us on the seat. I was driving. Michael started vomiting. It just gushed and gushed. Sally was up on her paws trying to get out of the way. It hit Mary and ran down, between Celia's face and Mary's breast and [continued] running down. I do not know where it all came from, but there was a big puddle on the seat, Mary's lap was full, and Celia was screaming. Michael fell back exhausted, but felt better. Then Martha came up, stuck her head in, and started vomiting. She vomited just a little bit and had a big smile on her face. She said, I vomit too, Mama.

P: [Laughter]. Martha did not want to be left out.

C: No. [Laughter]

P: I hope you were not a cussing man.

C: No, I was laughing by that time. I was not laughing until Martha did that. Mary and I both just broke out in laughter. After that, Mary cannot remember anything on the trip to New York. [Laughter]

P: She is a wise woman. She blanked the whole thing out.

C: Years later, I was writing a paper about lupus. I wanted to look up a paper about it that had been in the *American Journal of Medicine* in 1956. I was going to read it and cite it in my bibliography. I pulled out the 1956 journals and started thumbing through them. They were all sort of stuck together. I got the one that had that article in it, and I broke it apart where it [was] stuck together. I could smell vomit! They had been packed under the seat, and vomit had run onto and through them.

P: Michael's legacy for you.

C: That is right. [Laughter]

P: I hope you keep reminding him of this from time to time.

C: I have [done so] several times. From the time she heard we were going to New York, up to three months before we even left, Martha would say, I do not want to go to New York City. That was Martha's comment every time the subject came up. As we were driving up the Palisade Parkway, and you could see New York across the way, Martha kept saying, I do not want to go to New York City.

P: [Laughter]. But she had to adjust, because you were going to be there three years. Now, how did this fellowship come about? Is it something you applied for?

C: Yes. I talked to Don Seldin and Bill Miller. [I told them] I wanted to do a fellowship and I was interested in pH regulation, and prolonging the kidney or key organs which regulate it. So they suggested I write Dr. [Robert] Pitts at Cornell, who was the leading renal physiologist in the world. So I did, and I was accepted there.

P: So you are at the Cornell University Medical College in New York City from 1958

through 1961? It was a three year fellowship?

C: Right.

P: Where did you all live in New York?

C: We had a terrible time finding an apartment. We sublet one.

P: Cornell did not have any facilities available?

C: No. We sublet [an apartment] on the Westside Highway, just a few blocks south of the bridge. The first night we were in there, I got up to go wee-wee. Walking across the floor, I heard crunch, crunch, crunch. I turned on the light and there were a million roaches scurrying all over everywhere. The crunching had been me stepping on roaches. We spent the night trying to kill roaches, and then looked for another place to live. We rented a house in New Jersey about a week later.

P: So you had to commute?

C: It was about a twenty-five mile drive each morning.

P: I hope you had already replaced that 1936 Packard.

C: I had. We had a 1957 Studebaker.

P: Oh, you were big time then?

C: Yes.

P: And is this where the Studebaker interest begins?

C: Yes.

P: I want to get into that in just a moment, I wondered where all of that started. It started while you are doing your residency. Was this a very satisfying experience in New York City?

C: Yes. I have been really fortunate all my life. [Starting with] the teachers I had from elementary school on; [such as] Ms. Culpepper in the first grade, where I learned to read, [she] was just a wonderful woman. Ms. Roberts, Ms. Mueller, and Ms. Fellows were all [wonderful]. You could not ask for better teachers. In junior high school I had Ms. Culpepper's husband. I had a music teacher, Mr. Gray, who was an outstanding person and a good teacher. The preacher at our church, Reverend Schuerzer, was a wonderful guy. In high school, there were

two sisters, the Lawrence sisters, who taught English. If you memorized ten lines of poetry, they would give you an A to average into your grade. When I learned that, I went home and I memorized [Edgar Allan] Poe's [1809-1849] poem, *The Raven* [written in 1845], which I think had 110 lines, I got ten A's. Then I memorized [Lord Alfred] Tennyson's [1809-1892] *Ballad of the Revenge*, about 200 lines, and got a bunch more A's. I memorized several thousand lines of poetry and got lots of A's. With all of those A's averaged in, I made an A in the course.

P: Your ability to become involved with or attract excellent teachers continues right up through the Cornell experience.

C: Seldin and Miller were really great teachers.

P: They were outstanding mentors in your life?

C: Yes. Dr. Pitts came here when he retired at Cornell and worked until he died.

P: What was Dr. Pitts first name?

C: Robert F. Pitts [Research Professor of Medicine].

P: And his area was pulmonary?

C: No, kidney. I [usually] went in [from New Jersey into New York] early because it was a long drive. If you went at the usual time, the traffic was so horrible. George Frempter, who was another fellow in that department at the time, and I drove in together. We would get there about 7:00 a.m. Dr. Pitts was there by 7:15 or 7:20 a.m. He would come in and talk to me about what I was doing in that experiment, what I had found, and what I thought about it. He would spend thirty or forty minutes, basically every morning, talking about the experiment, what was going on, or what I was writing. He would give me suggestions on how to handle [things].

P: So this was a very special relationship that you had with Dr. Pitts?

C: Yes. It was different than [with] anyone else in the department, but mostly because I got there early in the morning. The other guys all lived in the city and they would get there at 8:00 or so.

P: As a man who was there with a fellowship, did you see patients?

C: Only in clinic, one day a week. When I came here, I saw a lot of them.

- P: I mean, when you were still up at Cornell.
- C: I saw patients just Tuesday afternoons, in clinic.
- P: Was there any special program in which you were encouraged to develop a bedside manner, Bob? I wondered whether they ever put that on the curriculum anywhere along the line.
- C: Not at that time.
- P: And not here at the University of Florida. You just acquired that skill as time went on?
- C: Yes.
- P: Did you enjoy seeing patients?
- C: Yes, I still do. It can be very, very stressful and taxing, physically and every other way. Teaching students, you feel responsible for them, but taking care of a sick patient, you have a much bigger responsibility and a far more serious one. [If] you make mistakes, people die. I have made mistakes that killed people. Emotionally, it can be a very stressful situation. You take care of someone for a long time and they die, and they become almost like someone in your family. I have cried a lot when patients died.
- P: Bob, would you say when you were at Cornell, several years into your medical career, you could have been labeled a research scientist by this time?
- C: Yes. That was basically what I did there.
- P: Were you already publishing?
- C: Yes. I had published papers in pulmonary medicine during my residency in Dallas. I published eight or nine papers during my residency. Then I published more during my fellowship at Cornell. I think I published probably twenty papers [by the time] I came to Gainesville.
- P: So as far as the medical community was concerned, you already had a reputation then in the areas you were working in. Were you going to national meetings and presenting papers there?
- C: That is right.
- P: So you were becoming known outside of the immediate vicinity of the hospital itself.

C: Yes.

P: Life must have been pretty taxing for you and for Mary, as you lived that far away from where you worked, and had to commute. She was now taking care of three kids, and the household. I guess you all did not have much time to be going to baseball games?

C: We did not go to many baseball games in New York at all.

P: And they were not playing very often in New Jersey anyway.

C: No, we really did not have enough money to do stuff. We went to some plays in the city, but then we would need a babysitter. It took an hour to drive in and an hour to drive back home. We went to the opera three or four times a year; and we saw plays, probably two or three a year. On Sundays, we would go into the city and ride the subway down to the Battery, and take the ferry out to Staten Island. The kids thought that was wonderful. We always got a hot dog to eat. That was their favorite thing to do.

P: By this time had Martha changed her mind about New York?

C: She liked it. The hot dogs and subway rides [helped].

P: And the Staten Island ferry ride?

C: A couple of times we climbed up to the top of the Statue of Liberty. Michael would climb the stairs himself. Martha and Celia wanted me to carry them up. So I think at least a half dozen times I carried both of them all the way up to the head of the Statue of Liberty. Some Sunday afternoons we would also go for rides and hike in the woods.

P: Sounds like you were developing a close family relationship similar to the one that you grew up in?

C: That is right. We made a couple of friends there at our church with whom we still keep in contact. Evelyn and Werner Kruck are the godparents of our daughter Celia.

P: Was he a doctor?

C: No. He sold something. I do not remember what. We were close friends. We would visit their home and they would come to our house. We got so we really liked it. All of us cried when we had to leave New Jersey.

P: All right. You finish up with your fellowship in 1961. As you evaluate the fellowship experience, was it successful? Had you accomplished what you had hoped to accomplish?

C: Yes. I learned to design and carry out an experiment. I developed a lot of skill in writing and reporting what I had found. I learned about the kidney, so I could talk lucidly about it. One of the things we did was give lectures in the physiology course. I would give from three to five lectures to the first year students each semester. Every time there was a lecture given, the entire department went to the coffee room and sat down and had a critique of that lecture, of what you had done well, where you could have done better, and so on. All of the members of the department took part in that. It did not take very long to improve your ability as a lecturer. The senior people there were all very nurturing in their relationships with fellows in the department.

P: Those three years sound like a great learning experience.

C: It was.

P: How would you evaluate Cornell's medical school compared to UF=s?

C: At that time Cornell was a great medical school. They had outstanding people.

P: A big library?

C: A big library. The department heads in every department were really outstanding. The junior faculty was outstanding. It seemed to me all of them were interested in teaching the fellows and helping them. So it was a terrific learning experience. Since then, and I am not sure when, Dr. Pitts retired and came here. The head of biochemistry, who was another "giant," retired. All those world-renown people began to retire. Cornell did not replace them with people of that caliber. I think the school is still a good one, but it has gone down.

P: At this time in the interview, I want to talk to you about the family, your wife and children. Let us start off with your wife. Give me Mary's full name.

C: Mary Martha Strasburger Cade.

P: What is her birthday?

C: June 29, 1929.

P: And she was born where?

C: Dallas.

P: Tell me a little bit about her background and her family.

C: Both her parents went to the University of Texas also. Her father went to law school there, and her mother studied architecture. They were married in secret for about a year before they had a formal wedding where her parents lived. He became one of the best-known lawyers in Texas. His firm, Strasburger, Price, Kelton, Miller, & Martin, is still one of the biggest and most renowned firms in Texas. I do not think her mother ever worked formally with her architecture degree, but she designed the house they lived in. It was a beautiful place in north Dallas.

Mary has an older sister, Jean, who is seven years older. She had an older brother, Allen, who was killed on Iwo Jima. She has a younger brother, John, who is a lawyer. [There are] lawyers on both sides of the family.

P: This sounds like an affluent family?

C: I do not know how much [her father] made. He was surely in the upper income [bracket].

P: They were not bothered by the Depression?

C: In addition to practicing law, he drove a streetcar during the Depression.

P: That tells you something.

C: I think they got along but they did not have a lot of trouble then. In 1937 they built the house in which Mary grew up. It is a two-story, stone structure.

P: I did not even ask you about your own family's trials and tribulations, if there were any, during the Depression decade. But you say [Mary's family] had a problem?

C: Yes. [Mr. Strasburger] came home and he was concerned he did not have enough money to pay the mortgage. I think the next day, they got a decision in a trial. He got some money then. That is the only thing I remember.

P: Let us go back to Mary. Where did she go to school?

C: North Dallas High School in Dallas. It was about a mile from where she lived. Then she went to the University of Texas.

- P: And she studied nursing?
- C: Yes.
- P: There was no family background at all for that particular interest, to moved her in that direction?
- C: No.
- P: So tell me again how you two met.
- C: When she graduated from nursing school, she got a job at Texas Children's Hospital and started [work] on January 1, 1951. I was taking care of a little boy with a fractured liver. So we met over a fractured liver.
- P: She was a special nurse assigned to that case?
- C: No, she was the charge-nurse on the ward. I was doing special duty nursing, taking care of that little boy.
- P: So you were working together then. I hope you saved that little boy?
- C: He did fine.
- P: Good. So to start with, you two then became professional friends and then it progressed.
- C: That is right.
- P: When were you married?
- C: June 1, 1953. I finished the medicine final. I took that on Saturday. We were married on Monday.
- P: So you were approaching your twenty-seventh [birthday]?
- C: Yes.
- P: You are almost catching up with me because I am going to have forty-eight here. There are not many of us around who can say that. Where were you married?
- C: We were married at the Highland Park Methodist Church, where Mary's family went to church.

- P: Was it a big social event?
- C: No, not really. I think there were over 100 people at the wedding.
- P: I call that social and big.
- C: A lot of them were my fraternity brothers.
- P: The rest of it was family?
- C: Yes.
- P: Where did you all go on your honeymoon?
- C: We went to Lake of the Ozarks in Missouri. I think we were there about a week. We went back to Dallas, and I started working on my pulmonary fellowship.
- P: Bob, what I would like you to do now is to give me the full names of your children and their birth dates.
- C: Robert Michael is our first-born. He was born on July 4, 1954. Martha is our second. She was born on January 18, 1956.
- P: What is her full name?
- C: Martha.
- P: Just Martha?
- C: Yes.
- P: Martha Cade. She has been married. Does she use [her married name]?
- C: She goes by Cade. Celia is our next child. She was born November 10, 1957.
- P: Does Celia have a middle name?
- C: No. Stephen Allen is named after Mary's brother who was killed on Iwo Jima. He was born January 7, 1959. Emily, our fifth, was born August 2, 1961.
- P: Does she have a middle name?
- C: Anne, Emily Anne. Phoebe Beth was born October 5, 1963.

P: Now which of these six are married so we can get the grandchildren in there?  
Start back with Michael.

C: Michael married Carolyn.

P: Tell me grandchildren's names.

C: They have two children; William Roy, who was born April 18, 1988, and Emily, who was born February 26, 1986.

P: What does Michael do?

C: He is a cowboy. Now he has his own ranch in West Texas. They live in Balmorhea, which is a little tiny [town] of about 500 people.

P: Let us go to Martha.

C: Martha has one daughter, Anna Marie, who was born August 9, 1982.

P: Martha is a student.

C: Yes.

P: She is working on a Ph.D at the University of Florida.

C: Yes.

P: What is her major?

C: History.

P: Well, I hoped that she had not changed, I wanted to have that on record.

C: She had a degree in music. She graduated summa cum laude from Appalachian State [University at Boone] in North Carolina. Michael's first degree was in ranged animal husbandry from Sul Ross [Alpine, Texas] in West Texas. He got a journalism degree here [at the University of Florida].

P: Let us go to Celia.

C: She has three children. Duncan, who was born April 9, 1987. He was born on the same day that my grandmother Schuetze was born. Then she has William Emile Hunter Bruckner, who was born December 21, 1988.

P: Celia is married to whom?

C: Tim Bruckner. He is on the journalism/communications [faculty]. Hunter was born on December 21, which was the birthday of my grandfather Schuetze.

P: You are keeping these celebrations in the family.

C: Celia's last child is Phoebe, named after our daughter. She was born December 29, 1993. Stephen has a son, Bobby.

P: This is Robert?

C: Robert Allen. He was born October 18, 1988. Stephen also has an adopted son, Jerry, who is twelve. He was born in April. I do not remember the day.

P: Was Stephen married?

C: He was married, but he is divorced now.

P: Now how about Emily?

C: Emily is married and her husband has a Ph.D in philosophy of religion. He will be starting a job at a seminary in California in July. He has been working as an editor.

P: Do they have children?

C: They have three. William was born on February 27, 1991. Then Joey--Joseph, who was born March 22, 1993. Their youngest, Mary Martha, was born March 20, 1995.

P: This leaves Phoebe, does it not?

C: Phoebe is our youngest. She has three children also.

P: To whom is she married?

C: To Richard Miles. He is with the State Department. They live in Barbados now.

P: I take it he is in the Federal State Department. If he is living in Barbados, he would not be connected with the State of Florida and Tallahassee. What does he do?

C: He is the political officer down there. He was a consular officer doing visas. The guy who was the political officer was moved somewhere else and the

ambassador asked that Richard be made political officer.

P: What are their children's names?

C: Their oldest is Christian, born on April 23, 1988. Their next is Mary Cecilia, who was born September 16, 1990. Their youngest is Magdalena Teresa.

P: That is a fancy name.

C: She was born April 16, 1993.

P: Bob, I want to congratulate you on your magnificent memory of your grandchildren's birth dates. Now how many grandchildren do you have?

C: Counting the adopted one, there are fifteen.

P: That is quite an array. Is this a close family?

C: Pretty much.

P: The kind of family you grew up in?

C: Not quite. Michael lives in Texas. Emily is in Boston. Phoebe is in Barbados.

P: So it is not like growing up on the street with all of your grandparents, great-grandmother, and others, all of them next door.

C: No.

P: That world is gone anyway.

C: It is. I think it is unfortunate.

P: Oh yes. It is unfortunate that our grandchildren will not grow up in that same sort of milieu. Do you see them from time to time? Do you travel around to visit?

C: We have been to Barbados twice in three years. Phoebe and Richard have been here four or five times. We have been to Boston twice in the last three years. Mary has been [there] a couple of other times. Emily and Bob visit us with their children at least once a year. Michael comes back from Texas once or twice a year. We have been there to visit, a couple of times.

P: Bob, let us get back to your professional career now. We were moving you to

the University of Florida. I want to talk about your career at the University of Florida which is going to be the major focus of the interview. How did you happen to come here? Were you recruited? What did you know about the University.

C: I was recruited. [Samuel P.] Sam Martin was the chairman of the Department of Medicine. He wrote to several places around the country that had training programs in kidney physiology or disease. He wrote Dr. Pitts at Cornell. Dr. Pitts told him that I was going to finish my fellowship that year and that I was interested in an academic career and so on. I do not know what all he said. Sam came up there and interviewed me, and invited me down here to visit.

P: Did they already have a program in physiology at the University?

C: [There was a program] in physiology, but they did not have anything in clinical medicine.

P: They had pulmonary, the other area of your [interest]?

C: Not in clinical medicine.

P: Who was chairman of physiology?

C: Arthur [B.] Otis [professor of physiology and chair of department] was in physiology at that time. They did not really have anybody in kidney disease in the physiology department either. Some of the other people were in peripheral fields, such as [Melvin J.] Mel Fregly [professor of physiology and assistant dean for graduate education in the Medical Sciences] who was an endocrinologist, which sort of intersected the kidney in some areas.

P: Were there other medical schools in the area? I know Jackson was in Miami. Did they have a kidney [man]?

C: They did not have a kidney man either.

P: What about at the University of Georgia [in Athens]?

C: They did not [have one] either.

P: This would be a first for this area of the United States.

C: I was invited to Miami too, and offered a job there, but chose this one.

P: So Sam Martin was the one who came up and interviewed you.

C: Yes.

P: What did he tell you?

C: I do not remember really. It was a new medical school.

P: Was that a challenge in itself coming into a new medical school?

C: Yes, since they were just setting up their programs.

P: Who was the dean at the time you came in?

C: George [Thomas] Harrell [dean, professor of medicine, chief of staff of the hospital and clinics].

P: Harrell was still the dean. By the way, I have done an interview with Harrell. One of the things Harrell told me during the interview was that having an institution this young, just starting out, it would not be possible to get the top flight people, the big name people. In fact, he wanted young men who were right at the cutting edge of their research so the University could in some ways take credit for what they did. I presume this was also the approach that Martin made to you.

C: It was, sort of. I was also invited to go back to Dallas. Dr. [Don] Seldin was in charge of kidney diseases there, as well as chairman of the Department of Medicine. If I went there, I would work on what Dr. Seldin told me to work on. Coming here, I could work on what I wanted to work on. I could develop a division of renal medicine the way I wanted it.

P: Which is the kind of thing that Harrell was hoping his faculty would do.

C: That is right. I was offered a job in Australia also. That would have paid more money. I would have had more lab space and support.

P: But you did not go to Australia to check it out, did you?

C: No.

P: What did Sam Martin tell you about the University of Florida? Did he say there was a building here with offices and lab space?

C: Yes. He would help get support for my lab. He had talked with the Florida Heart Association about supporting young people he brought in, until they could get grants.

P: How old were you when you came to Gainesville in 1961?

C: I was thirty-four.

P: So you were about the age that most of the new faculty were, who came in the late 1950s and early 1960s. There should have been a lot of camaraderie as a result of that and related research interests.

C: The year before I came here, there were twelve people in the Department of Medicine. In 1961, three of us came, Ward [D.] Noyes [associate professor of medicine], [Melvin] Mel Greer [professor of medicine and pediatrics, later chief of the Division of Neurology], and I.

P: I believe Greer told me he came in 1961. The two of you remain.

C: Ward Noyes is still here.

P: Is he still here?

C: Yes.

P: Has he not retired?

C: No. He is still active.

P: Of course, I know Mel Greer is still active and involved in his research and work. Did Sam Martin promise you a decent salary? They were paying doctors well, then.

C: I never discussed salary with him.

P: I remember you told your wife that you did not know.

C: Yes. We did not even talk about salary. He told me I had a space for a lab, and showed me the space that I would get. He told me he had a promise from the Florida Heart Association to help me buy equipment for my lab to get it running until I got a grant, what my teaching duties would be, and so on.

P: Did you have responsibility for patients that early?

C: Yes, the day I got here.

P: The hospital was open when you came, was it not?

C: Yes.

P: Had you heard of the University of Florida's Medical School?

C: Yes I had heard of it.

P: But you had never been to Florida?

C: No. I landed at Pensacola on an airplane once when I was in the navy and going home on leave. That was some time ago.

P: That was a long way away from Gainesville.

C: Yes.

P: So you knew nothing about this part of the world.

C: No.

P: Had Mary ever been in this area?

C: No.

P: So you came down with three or four kids now, I guess.

C: Yes, we had Stephen then.

P: I was going to say [you were] real pioneers to this area. How did you get to Gainesville?

C: We drove. We had gone to Texas for Christmas. After Christmas, we drove here.

P: So you came in January?

C: We got here December 28.

P: 1961?

C: 1960. I think we were here four or five days. We met Sam [Martin], the dean [George Harrell], [William] Jape Taylor [assistant professor of medicine and chief of cardiology], Lamar [Earle] Crevasse [Jr., assistant professor of medicine], Wendell [Nicholls] Stainsby [assistant professor of physiology], Sidney Cassin [assistant professor of physiology], and Mel Fregly in the physiology department.

I talked a little bit with Arthur Otis. That was it.

P: Had Sam [Martin] already figured out where you were going to live?

C: No. He told me about the Flavet Village and how cheap apartments were there. He did not tell me what they would cost out in town. He drove me around town and showed me different areas where people from the medical school lived.

P: Of course, Sam was still married to Ruth at that time.

C: Yes.

P: Did you stay in Gainesville then, or did you leave and come back?

C: We went back to New York. Before I left, Sam told me that he would like me to come here; I had a firm offer of a job. Space would be available with support for my lab and so on.

P: How about describing what Gainesville looked like when you and Mary arrived.

C: It sort of ended at Thirty-fourth Street going out University Avenue.

P: Now you came at the end of December. You were seeing Gainesville without students on campus.

C: No, none of them were around then. The town ended at Thirty-fourth Street. There was a two lane highway going out west from there. Thirty-fourth Street went up to [NW] Eighth Avenue, I think, or maybe Sixteenth, but it did not go beyond Sixteenth. You could see where cars had gone through Eighth Avenue up the hill.

P: But it was mainly a bridle path.

C: Yes. Going north on [State Road] 441, it ended just beyond where the Volkswagen place is now. I do not think there was anything as far south as Bivens [Bivens Arm Nature Park, Main Street, Gainesville], although, there might have been something.

P: Where did you all live?

C: We rented a house over on Thirty-sixth Drive, off University Avenue. We lived there for two years, and then bought the house we are living in now.

P: You bought a house, you did not build a house?

C: No, we bought one. It was one year old.

P: And where do you live now?

C: On Northwest Fifty-seventh Street.

P: In the 1960s, that was out in the country.

C: It was way out in the country. When we came here, Ruth [Martin] took us and showed us some houses on Millhopper Road just north of Eighth Avenue. [Thomas] Tom Newcomb [assistant professor of medicine, later director of hematology] lived there. She said, he was the only one who lived out there. That was so far away that no one else wanted to be out there.

P: Were any of your children old enough to go to school?

C: Yes. Michael was in school when we came here. Martha started the next year.

P: Where did they go?

C: They went to Littlewood [Elementary School].

P: You had to drive them to Littlewood, I presume. Or was there a school bus?

C: I think the first year we drove them there, and after that they walked.

P: You were close enough so that they could walk?

C: It was three-quarters of a mile.

P: But in those years, safe to walk, unlike today. By the time you got here, the medical school was located in its brick building. Going down the hill, the temporary [buildings] that had operated, I presume, had all disappeared.

C: That is right.

P: Do you remember the huts that were located where the Museum [of Natural History] is located today? Dean Harrell told me, when I interviewed him, that one of the concepts that he had for the medical school faculty and for the students, was that they would be a part of the larger University of Florida. They would be taking classes on the main campus, and would be encouraged to take classes in English and history, so that they could get that kind of a background. The faculty would participate in faculty activities and serve on committees. I understand some of that did happen during the 1950s. Was it still happening

when you arrived?

C: Well, the medical students were not picking up anything on campus.

P: They were so immersed in their own required courses as part of the medical school curriculum.

C: That is right. But there was collaboration between faculty at the medical school and on campus.

P: Dean Harrell's original idea was that medical students needed physics for instance, or chemistry. Those [subjects] would be taken, together with the other students on the campus. That did not happen.

C: I do not think that ever happened.

P: You were saying, when you arrived, there was more of an integration of faculty?

C: Yes.

P: Today everything is completely separated. You do not get the same sort of thing that Harrell had in mind.

C: Not completely. Schizophrenia, autism, and some physiology exercises were collaborating with the psychology department on campus.

P: Did you ever serve on any University committees?

C: Yes, I was on the University Senate for six years. One time I made a speech there. They were talking about how the University owned everything a faculty member worked on. The University would take the money from that work, if the work made money, and then decide how much the faculty member should get. I gave a speech poking fun at that concept. My basic question was, what did the University do to support my research, so that they should have a 70 percent ownership of it. I told them, what they had done was to bring in some rats to the animal quarters just above my lab, and to break a crate open. The next day, my lab was infested with rats. I had a fraction collector with plastic tubing connecting different things. The rats would chew holes in that, and bite it all the way up. I would have to come in at least three times a week and put all new tubing on that thing. In desperation, I built rat traps to catch them. The idea behind my rat trap was that rats run purposefully, they run along the walls. If a place were rat-infested, you will see a dirty streak along the wall where the rats run. Mice run randomly, but rats will run in the same pattern every night. One of these patterns went through a room just past my lab. We made a hole in the

wall. There we put a cage they could get into. The cage-doors opened in, but would not open out. I caught all the rats there. I was seeking a patent on that rat trap. Would the University want 70 percent saying that they had inspired me to work on this?

P: They provided the rats!

C: Yes. The next semester, I was elected to the Senate because of that speech.

P: Other than that, you never served on the Library Committee, Discipline Committee, Curriculum Committee, or anything like that, the kind of things that Harrell thought would be possible?

C: No.

P: I presume the growth of the University, both of the main campus and the medical school, precluded that kind of thing. Has this continued right down to the present time, in your personal activities on and off the campus? For example, do you socialize with people not connected with the medical school?

C: Yes. I think most of our friends are from the medical school, but some are from up on campus.

P: But you mainly socialize with people you work with?

C: Yes.

P: That was the answer I got from many of the [medical] people when I posed the same question.

C: That is pretty much [true]. The [people] I socialize with up on campus were people I have been working with on some research project.

P: What was the caliber of the students you dealt with here, as compared with the ones you worked with when you were going to medical school in New York?

C: I think we were at least as good as the ones at Cornell and in Dallas. [It was] a big spectrum. The bright ones here were as good as at any other place. Proportionately there were as many of them as at the other schools. There were always two or three at the bottom of the class that drove you mad. That was the same thing you saw at the other schools. Across the spectrum though, I think they were as good as at any other school.

P: Bob, tell me about the quality of the library. Was it an adequate library? I

guess Bryan was the librarian at the time, was he not?

C: I thought the library was very good. They had made a real effort to get back issues of important periodicals, such as *The Lancet* from England, *The British Medical Journal*, and *Fluger's Archive* from Austria. They have those going back into the 1860s.

P: I understand that Bryan went overseas with a pretty nice pocketbook, to ransack the bookstores and libraries in Europe, so he could equip the library here in Gainesville.

C: I think they did an excellent job. They had all the current periodicals that I had an interest in, as well as reference books or anything I wanted. Older journals, including *The New England Journal of Medicine* and *The JMA*, were the first editions, from the time they first came out--volume one.

P: Has the quality of the library been maintained right down to the present?

C: It is pretty good. I think it is better now than it was for a while. For quite a while, people would check out a journal and keep it in their office for I do not know how long. A lot of times, you would go to get a journal, even a current one, [published] within the last year, and it was checked out to Richard Smith, or somebody like that. They would not call to get it back. You just waited until Richard Smith brought it back. Frequently, the only way you would get him to bring it back was to go talk to him and tell him, Smith, I really need that journal. How about returning it to the library if you are not using it. There were journals that had been checked out for eight or nine months a year, even more.

P: Do you use the library now for your own research?

C: Yes.

P: Of course it is not very convenient for you if the library is there and you are here.

C: Most of the time I know the paper or work I want to read. Jackie [Harris, secretary to Cade at the University of Florida for over twenty-six years] goes in and checks them out for me.

P: I see. Then they will also buy anything that you want?

C: Yes. There were some journals I wanted in the past that they did not have. What they would do was find another library and have them send down a copy.

P: Inter-library loans.

- C: Yes. Now they will fax in a copy of anything you want from a journal like that. You can get a paper in an obscure journal that they do not have here, and they will have it for you the next day after you tell them you need it.
- P: How satisfied were you with your laboratory facilities? They had promised you that the Florida Heart Association was going to help purchase equipment. Were they able to make good on that?
- C: Yes, they were. I think Sam [Martin] had something like \$25,000 for purchasing lab equipment. None of the things I wanted at that time cost an awful lot of money. I had everything I needed to start.
- P: So you gave Sam a shopping list, and he came up with the money and brought what you wanted, and put it into your lab. Was it adequate to do the kind of research you were involved in?
- C: Yes. I came down twice, between January and July [1961], to talk with Sam about what I needed in the lab, how things were going, and so on. When I got here, everything that I wanted had been purchased. I had arranged it in the lab.
- P: You set up your own lab?
- C: Yes. I brought a technician with me too. Sam had arranged to pay her salary for three years, so that I would be sure to have a grant by that time, and be able to take it over. He paid for a technician.
- P: You say you were satisfied with the students you had. How many students would you draw in those early years?
- C: There were only forty-four students per class when I got here. I had a rotation on renal medicine, an elective, that senior students would take. I had from two to four students for each of those eighteen-week electives. I saw a lot of them on the ward when I was attending on the ward. There would be four medical students for each rotation on the ward. I would see them. It ended up that I probably taught every student I had on my rotation and on the ward. I knew their names. If they were married, I knew their wives' names and their children's names and had histories on a lot of them. It was a very pleasant place to work. At Cornell, we had 150 students, I think. I would get to know maybe ten of them fairly well, but nowhere near as well as I knew everyone in the class here. It was more satisfying. It is nicer to teach if you know the students in the class and know all about them.
- P: What was your patient responsibility?

- C: I was attending on a ward. You were responsible for every patient on that ward. At that time, medicine wards here had about twenty beds apiece.
- P: It did not make any difference whether this was a kidney patient or not?
- C: No. It was just general medicine. You were responsible for those patients. You could call for consultation in areas you did not feel comfortable with and you knew those people [the specialists] would want to see such patients. It would be stimulating for them. The load was not all on your back, but you were ultimately responsible for their care and what happened to them, for the tests they got, the treatment they got, and so on.
- P: So you were on the wards every day?
- C: Yes. That first year, I was on the ward for two months, and then I was off one month. Then I was on for two months, and off one month. But I was the only one here for consultations in renal medicine. Any time a kidney consult came in, it would come to me. The students who were rotating through my service would see them. Then they would present them to me that afternoon. I would see them, go over them, and we would make recommendations to whoever was attending [these patients] on the ward at that time and was responsible for them.
- P: Since you were the only specialist in this area, did you have a relationship with doctors elsewhere in Gainesville, or outside of Gainesville, such as Jacksonville, Orlando, or other places?
- C: Yes. Even in the first year, I saw a fair number of consults over at Alachua General [Hospital]. When they opened up North Florida, I saw a fair number of them there. I went down to Ocala several times to see patients, and over to Jacksonville to see kidney patients there.
- P: Was this on your on, or did the medical school have any kind of formal relationship with these institutions?
- C: No. A doctor in Ocala, who had a kidney patient and felt uncomfortable, would call me. I would go down and see him. There was a Dr. Yantis there [at Ocala] and I saw a number of patients for him, then I saw Dr. Yantis when he was sick in the hospital.
- P: What about the indigent patients? When they were locating the medical school here rather than in a larger urban area, the argument was that Shands was needed here because it could service the needs of sixteen surrounding counties. Now was this a real problem when you arrived in the early 1960s?

- C: I would call it more of an opportunity. There were an awful lot of indigent patients coming in.
- P: Who all had kidney problems?
- C: Yes, some had kidney problems. As a result, the patient base I had to see, work with, and teach from expanded very quickly up to a really adequate level. We were getting patients in with an entire spectrum of renal diseases and things related to the kidney. Not that the kidney was necessarily the prime site of the dysfunction, but it was affected by whatever disease they had. Within a few months, we were seeing a lot of patients. Over the first two years, I guess, we started seeing patients from all over the state.
- P: Whether they were indigent or not?
- C: Indigent or not. We were seeing them from Key West, Miami, and all along the coast.
- P: You were on the road a lot then?
- C: Well, most of the cases came here. Generally, I tried not to go off 300 miles away to see one patient in a hospital. But I made quite a few trips to Tampa, Orlando, Cape Canaveral, Jacksonville, or Tallahassee, to see patients.
- P: Did you have classroom responsibilities? Were you teaching?
- C: Yes.
- P: Formal classroom instruction?
- C: Yes, in the physiology department. I gave most of the lectures in renal physiology. I gave about fifteen lectures in the first year physiology course, which was taught by Sidney Cassin, Mel Fregly, and me.
- P: Does this mean that you separated yourself from pulmonary medicine at that time and were almost completely involved with the kidney?
- C: Yes.
- P: That was where your recognition came as a practicing physician.
- C: Yes.

- P: So if there was a kidney problem, they thought of Dr. Cade, not anyone else.
- C: The choices, if you were going to refer someone, were send them to Dr. Cade here, send them to Duke at North Carolina, the Mayo Clinic in Minnesota, or in New York.
- P: Now it sounds to me like you were a busy fellow with your classes, students, patient responsibilities on the floor, and all of these other things. When did you have time to do your own research, which is something I am sure you did not want to neglect?
- C: It was a little bit difficult. We worked on the ward all day, every day. Rounds started at 9:30 or 10:00 a.m., and lasted until maybe 1:00 p.m. If I came in at 7:00 a.m., I could frequently get an experiment done before I had to go attend on a ward, or I could do the experiments in the afternoon when I finished. When I was attending the consult service, by and large the students would see patients one afternoon and present them to me the next morning. There were times I had to cancel an experiment because I needed to see patients. But most of the time I could work in an experiment.
- P: Did you have weekend responsibilities?
- C: Yes. I made formal rounds every Saturday with the entire house staff and medical students who were on that ward. Sunday, I would come over after church and walk around with residents and interns. If a patient was doing well, I would just say hello to them, and [offer] a little bit of pleasantries. If they were sick, or if they had a problem, I would spend time discussing it with them.
- P: Were you the kind of doctor who discussed things with patients? Were you open [with your patients] and answer their questions [when they asked you things]?
- C: Yes. I went beyond that. I tried to teach them something about their illness. I saw a patient last Tuesday, a little woman who came here with severe high blood pressure and asthma. I spent forty-five minutes talking to her about her disease. When we were finished, she said she always enjoyed seeing me because I was the only doctor who spent time talking to her about what I thought and why and why we were doing this or that. I have had a number of patients [say that].
- P: You are a good listener?
- C: Yes. You have to be a good listener. When they ramble on and on you have to be able to interrupt and get them moving. With a lot of patients you could spend eight hours taking a history from them, and know a lot less than if you direct things, interject, or stop them and ask questions.

P: Now you came here in 1961 as an assistant professor in internal medicine. That was because they did not have a separate department yet for you to take over.

C: I am still a professor of internal medicine.

P: I see. In other words, this business with the kidney was only one part of that larger umbrella?

C: Yes, it was a division within the umbrella of internal medicine.

P: Now also, you are specializing in nephrology. I am not familiar with that [term].

C: That also means the kidney.

P: That is also the kidney, but we also keep saying "renology."

C: Renal is one term for it. Nephrology is another, from the Greek word "nephros."

P: Did that ever develop into a separate department or has it always continued under the umbrella of internal medicine?

C: It was always internal medicine.

P: I see.

C: I think that is true at every medical school around the country.

P: Until 1965 you served as an assistant professor. In 1965, you became an associate professor of medicine, once again in internal medicine. In 1971, you became professor of medicine and chief of renal medicine.

C: I was chief of renal medicine all that time.

P: From 1961 on?

C: Yes.

P: From the beginning then you kept that title, you were chief of renal medicine, all through the assistant and associate and full professorship of internal medicine.

C: Yes.

P: I have that chronology right?

C: Yes.

P: There were no changes in that between 1961 and 1978?

C: That is right.

P: Then in 1978, what happened? You were professor of medicine, professor of physiology, and professor of physical education.

C: Yes. Then I resigned as head of the renal division.

P: Why?

C: I found going to department meetings all the time to be very unprofitable.

P: You were not happy with the bureaucracy?

C: No, you went to a department meeting and listened for two hours. Most of what was said had little bearing on anything that interested me. I finally got tired of doing that.

P: You spent seventeen years doing that.

C: Yes, that was probably five years too many. So I resigned as chairman of the division and became just professor of medicine and professor of physiology.

P: Who took over after you resigned?

C: [Thomas J.] Tom Fuller [assistant professor of medicine], who had been a fellow of mine earlier and was on the faculty. He took over as head of the division for a couple of years, and then he resigned and went into private practice in Ocala. Initially he was very eager to become the head of the division, but going to meetings got to him too. He resigned and went into private practice. Then Craig [C.] Tisher [professor of medicine and physiology] came in as head of the division [of renal medicine].

P: In what way did the job of a professor of physiology differ from what you had been doing.

C: In physiology, the teaching was in a formal classroom setting. In internal medicine, you had formal lectures, but the bulk of the teaching was done on the ward. That was when students saw a patient first.

P: Then they walked around with you.

C: That is right.

P: You were explaining things to them.

C: Yes.

P: So one is a kind of formal classroom experience and the other is a hands-on experience?

C: That is right.

P: I was wondering if there was a contradiction there, but the ways of teaching complemented each other. Is what you are saying.

C: Yes.

P: Tell me about physical education. Now this term appears in our conversation for the first time.

C: That was after I did Gatorade.

P: We are going to go back to Gatorade in a minute. I do not want to lose the chronology of your formal teaching activity.

C: There were a couple of fellows up there, [Christian] Chris Zauner [professor of physical education and of medicine] and [David Allen] Dave Kaufmann [associate professor of physical education], whose interest at least overlapped mine in exercise. We started doing experiments together. I started giving lectures in the undergraduate and graduate programs in physiology in the department up there. I think it was [the Department] of Professional Physical Education.

P: What brought that on? You were not interested in physical education, the role that exercise plays, in your earlier medical career, were you? What catalyst brought that on?

C: In the 1960s there was a security office here at the Health Center, with a fellow named Dwayne Douglas. He had been a football player here in college and played with the Philadelphia Eagles, I think, for four or five years after he graduated. He had a knee injury and had to give up football. He came back here, and got a job as the security officer at the Health Center. He also volunteered as a coach for the football team.

P: Here? With the Gators?

C: Yes.

P: What was his name again?

C: Dwayne Douglas. He is a great big man, about six feet four or five [inches tall]. He frequently came by at 10:00 a.m. when we were finishing an experiment in the lab. We would go have coffee together. One day, he said, "my football players do not wee wee during the game."

P: I understand what that means.

C: I talked to him some more and found out that during a game in the early part of the year, perhaps in September, he would lose up to eighteen pounds during the course of one football game.

P: Perspiring?

C: That had to be the only way he could lose it. There was no way he would burn more than half a pound of fat with exercise, so the rest of it had to be primarily sweat and water loss.

P: No urination though.

C: No. He did not wee wee because he lost so much sweating. Basically, he had nothing left to make wee wee with.

P: I thought maybe the uniforms they put on prevented them from doing so?

C: The uniform had a lot to do with it because it interfered with all of your routes for losing heat. You are radiating to the walls, the ceiling, and so on. Air currents passing over your body carry off heat. At rest, that gets rid of all of the [heat].

P: So this is a discussion you developed with Douglas?

C: Yes.

P: Before this discussion, were you aware of the loss of moisture and whatever caused it?

C: Oh yes. I had studied all of that in physiology and medicine. When you have lots of heat to lose, the principal way you do this was by evaporating sweat. That explained the [weight loss].

- P: So what you are saying is the football players, regardless of the temperature outside, whether they are playing up north in snow or in Gainesville, are sweating a lot?
- C: Yes, because in effect, underneath their jersey is a suit of armor.
- P: You never think of that looking at them as a spectator. It never crossed my mind.
- C: They [sweat] because they cannot get rid of heat.
- P: Are they uncomfortable as a result of all of this sweating?
- C: Yes. We came back to the lab. I had a couple of fellows go to the library and search for anything related to that. Really, nothing had been written. We talked with Dwayne and had him talk with Coach [Samuel Ray] Graves about it. We went up and talked with him (Coach Graves). We asked him if we could do a study of his football players. He was amenable to doing it. He said he really did not understand what I was talking about, but if I could give him a better football team in the fourth quarter, he was interested. He had one prohibition, I could not use the varsity [players], because that was where he earned his money. But I could do the study with the freshmen coming in. I think Larry Smith and Larry Rentz were the two big ones. He said we could not use them.
- P: What did you think you were going to find out? You knew ahead of time that they were going to perspire a lot. And you knew why they perspired.
- C: I wanted to see with measurements how much they lost. We collected the sweat to see what was in it, and what was coming out in the sweat. We measured the volume of blood, total volume of water in the body, and the volume of what is called the interstitial fluid to see if by losing sweat all of those different spaces were affected in the same way. We measured the concentration of all kinds of things in the blood, such as sodium, potassium, chloride, phosphate, protein, and so on, to see how that changed. We measured glucose concentration to see how it changed during exercise. We measured lipids and basically everything that we could set up and measure in our lab.
- P: Did you go beyond the football team? Did you do the basketball players?
- C: Not at that time. We did ten players. We studied them before and after their afternoon practice. We did two of them each day, then we put all the data together. What was happening was very clear. The biggest loss proportionately was from the blood volume. The next biggest loss was from the interstitial fluid. The intracellular fluid did not really change. It would go down a little bit.

P: Was it after all of this that you germinated the idea and developed the concept of Gatorade?

C: Yes.

P: This was the preliminary work setting the stage for the solution?

C: This told us what we needed to give them.

P: How long did this experiment go on?

C: The actual collection of that data took just a week. We did two of the players a day for five days.

P: Where did you do this? Did you set up a minilab?

C: We went up there [to the field], picked them up, brought them down to my lab. It took about two hours.

P: Now that was before they started their practice, before the game?

C: Before they started practice. They drank nothing during practice. We picked them up again after [practice], brought them back to the lab, and collected all of those things again.

P: They must have been pretty smelly by that time?

C: It was not too bad. Then we took them to the General Gaines Steakhouse (a local restaurant).

P: I hope somewhere along the line you let them take a shower.

C: Yes, they got a shower.

P: But they did not get the shower before you took them back to the lab.

C: That is right.

P: Ordinarily, when I think of the football players, I think when the game was over they go in, they take off those uniforms and get into the shower. Was this when they began to replenish the lost fluids from their body?

C: Not until they start drinking.

P: Did they drink a lot of water when they left the game?

C: Yes. They drank a lot.

P: But not the ones you were experimenting with?

C: The ones I experimented with did not drink anything until after I tested them.

P: But today, when the football game is over, they go back into the locker rooms, do they start drinking at that time?

C: Today, they drink on the field. I think 99 percent of the football teams in the country did not let them drink during the game. They could chew on a wet towel or something.

P: It seems to me I remember, even in the old days here, we had a waterboy who went out with this wooden bucket. I used to remember seeing him letting the players drink water. I am talking about the 1930s and 1940s. His name was Tootie Perry. He was the well to do guy, the one who owned the land out there that was acquired by the University. This was the thing that he did. Everybody knew Tootie Perry with his wooden bucket. Every time there was a break in the game, a time out or something, there was Tootie waddling out there, giving the players water.

C: This was probably the only school in the country that did that. Most of them had a waterboy, but he would run out there with four or five towels that had been dropped in a bucket and then he would take wet towels out there.

P: Why did they think that giving them water was bad?

C: I am not sure. I do not think anything had ever been done to indicate that it was. But all kinds of dire things were predicted if they drank water during the [game].

P: I had always heard about sex prohibitions before a game, but I had never heard this about the water prohibition.

C: The sex prohibition was [enforced because they] would stay up all night and then be tired on the day of the game.

P: I mean, jokes were always told about that, but I never heard about the water situation before.

C: Water was just not used.

P: But now they allow the players to drink water, Gatorade, or whatever.

C: Yes.

P: I see them with the cups out there. Although, I had not thought about drinking until right now.

C: That was one of the things that became general practice after Gatorade appeared. The University of Florida did very well while the players were drinking it.

P: Later on, did you carry your experiments beyond just the football to see whether there were differences in people who were running track and people playing basketball?

C: We did a study on the track team after that. We did not do a very formal study, but we got random samplings from a number of basketball players. We did the swimmers later.

P: They lost too?

C: They lost more than the guys running track.

P: But they were in the water?

C: Yes, but that eliminated evaporation as a route for heat loss. Convection goes up, but comparatively, convection is not a very effective way to lose heat. So what happens really is the core temperature of a swimmer goes up faster doing a comparable workload than it does in someone running track. The losses of sweat are greater. The loss of sweat goes up as the temperature goes up. Because the temperature goes up faster and more in the swimmer, they lose more sweat than the guy running track.

P: What happened to Dwayne Douglas?

C: He went into business here in town. He was selling some kind of paper cartons that some company around here made.

P: So he did not continue his involvement with your research?

C: No.

P: Was this how you became involved with the athletic program on campus?

C: Yes.

P: So you were never the team doctor or anything like that?

C: I became the team doctor.

P: But not when you were first involved?

C: No, that was several years later. I have forgotten whoever it was before me who decided that it was just too much of a load, and decided that just before fall practice was to begin. All of them had to have a physical before they were allowed to complete. So my fellows and I went up and we did the physicals. I became the de facto team physician.

P: Did you conduct the physicals at Shands?

C: I went up there to the gym.

P: Was this a thorough physical? Did they not have to take X-rays or anything like that.

C: Well we took some X-rays but [only if] something on the physical exam suggested we needed it.

P: These exams were more thorough than the kind of exams you got in the army?

C: Yes. We did a thorough exam. We picked up a number of things. There was a guy named Hadley, a great big guy. He was a tackle. [During] his exam, [we found] he had a big liver, his spleen was palpable and so on. He had infectious mononucleosis. We got the bloodwork done, and that was indeed what he had. I recommended to [coach Ray] Graves that he not be allowed to play because of the big swollen liver and spleen. If you got hit, if you had a blow in the stomach, you could split the liver or the spleen.

P: It could be fatal?

C: Yes. I recommended he not be allowed to play. He did not like that at all.

P: Graves did not like it or the player?

C: Hadley did not like it. Coach Graves said thanks, and told him he could not play. I gained great respect for coach Graves then. Hadley was fussing about it. What Graves told him in effect was, look, you make B+'s and A's in class. We have to maintain some grade point level for the entire team. You are going to

keep our grade point average up, so you will be serving the team by studying and making good grades.

P: He was going to be an academic football player.

C: That is right. [The coach said], next year, when your liver and spleen are all back down to where they ought to be, then you will be a tackle on the team again. That was what happened.

P: Hadley bought that argument?

C: Yes, he did, but not cheerfully.

P: And he had no choice in the matter since the coach told him what to do. Now are we talking about the 1960s or 1970s?

C: That was in the 1960s.

P: In those early years as a physician, you were not looking for drugs and they were not into drugs. That had not yet appeared on the scene, had it?

C: No.

P: There was no testing. There were no problems and you all were not testing for that kind of presence in the fluids?

C: We took care of metabolic problems. There was one guy, I cannot remember his name, who was a defensive back. They said he had a bruised rib. He was not going to be able to play in some big game coming up. We saw him and found that he had a nerve being pinched by a muscle. The muscle was in spasm, around the nerve and pinching the nerve. I sprayed his back with ethylchloride and froze it. The pain went away. He played in that game. Gators won the game; I think he intercepted a pass. The scouts from Houston saw him and offered him a contract with Houston. We did things like that. Coach Graves was very supportive and very appreciative of our work.

P: I hope by this time that the athletic department was furnishing you with tickets to the games?

C: At that time, you could buy them from the football players. George Dean, you [might] remember him, was an end. Later he was a coach out at Buchholz and won the state championship there. He was hit on the head. He had amnesia for about ten days. We took care of him during that time, and made sure that he did not play or practice until he recovered. Coach Graves asked us to see players. We would see all kinds of problems involving the trainers, Cunningham

and Brady Grayhouse. I do not think our advice was always taken. On a number of things, they knew more about it than we did.

P: Before I get into the Gatorade story which is an involved one, I want to end the chronology of your academic career. Tell me about the two years that you spent in Germany. How did that happen?

C: That was a sabbatical.

P: That took place in 1982 and 1983.

C: Yes. It split the year. I went in May 1982 and came home in May 1983.

P: It was not a Fulbright [fellowship] then?

C: No.

P: Did you arrange for that through friends or professional people on the staff?

C: Yes. I knew the nephrologist at the Clinicum at Grosshadorn [near Munich, Bavaria, Germany].

P: By this time you had your reputation with Gatorade, did you not?

C: Yes, and with dialyzing schizophrenics and stuff like that. I actually met the head of renal medicine at the Clinicum in Grosshadorn through the dialyzing schizophrenic.

P: Was Grosshadorn the location?

C: Yes. It was a subdivision of Munich.

P: Was Clinicum the name of the institution?

C: Yes.

P: Was it a hospital?

C: It was a hospital medical school, pretty much like this. It was all in one big building, on the outskirts of Munich.

P: Was it a very famous medical school and hospital?

C: Yes. After World War II, Germany set up these clinicums--a medical school and hospital combined. They built them in strategic areas around Germany. There

was one in Berlin, Nuremberg, Frankfurt, Munich, and so on. I think there were nine of them.

P: Did your whole family go on this expedition?

C: Yes.

P: Getting all of you over there [must have been difficult]. You had housing of course.

C: We rented an apartment while we were there.

P: What were your responsibilities? Did you see patients?

C: No, I did not see any patients.

P: You lectured?

C: I gave some lectures in both medicine and physiology.

P: Was your German good enough so that you could do that in German?

C: All of the teaching in the medical school area was done in English. On the ward, if you were seeing a patient, the patient would probably talk in German. For the patient's benefit, you would talk to the medical students in German so the patient could understand you. The classroom teaching and the laboratory teaching was all done in English.

P: Was this professionally a really rewarding experience?

C: Yes.

P: And everybody enjoyed doing the sightseeing, seeing Munich, and all that?

C: Munich is a wonderful city. We have been in all the major cities in Germany and a lot of the smaller ones. I think of all of them, Munich is my favorite city in Germany.

P: It is a beautiful city. We have been there a couple of times. I am sure that we have not explored it to the degree that you have, staying there for a year. Now let us get to the Gatorade situation. Start off by saying how and why.

C: The "why" was basically Dwayne Douglas's question. We wanted to find out what really happened.

P: But you had the questions that you posed to Douglas, did you not, about why the players did not have to go to the bathroom.

C: *He asked me why do players not wee wee during the game.*

P: Oh, I see.

C: He knew that from his own experience. That alone I could answer after ten minutes of talking. It was of interest to know how much did temperatures go, how high did blood volume change, what happened to blood-sugars and lipids, and all of the other things.

P: You had not thought about this before, you had no reason to.

C: I had no reason to. All of those were questions that we wanted to answer with studies we did on the football players. By the time we got all the data analyzed, all of that was very clear. What happened was that their blood volume went way down. With the blood volume down, the heart cannot put out as much blood. We did not know it at that time, but we found in later studies, what happened was as the amount of blood the heart pumps each minute goes down because blood volume has gone down, initially there is no pumping of blood to the skin, to maintain the flow to working muscles. Not pumping it to the skin, the players cannot get rid of the heat they are producing. They are not carrying anything to the skin, so instead of evaporating, the sweat will drip off in large measure. They get more cooling from that. That makes the blood volume deficit even worse, so flow goes down, cardiac output goes down, flow to the skin eventually goes down to basically nothing, then it will extend down to muscles everywhere, and to the brain and so on.

Another problem was that there is more water in sweat than there is salt. You lose water proportionately in much larger amounts than you lose sodium. So the concentration of sodium in the blood goes up, up, and up. Most of the time, your serum sodium is normally about 140. If your sodium got up to 145, you would be dreadfully thirsty. By 150, you would just about kill to get a drink of water. A lot of people are confused at 150. At 155, most everyone is confused.

P: When you say confused, you are referring to your orientation?

C: You cannot respond to things. If someone is going to hit you, you do not respond to that at all. You see the blow coming, but it does not record. Your response to it is so slow you cannot get out of the way.

P: This happens if one's sodium level reaches 155?

C: Yes. Some people will be unconscious. Some of them will have convulsions.

- P: Is this what happens to people who get lost in the desert?
- C: That was basically the problem. Those were two of the major problems. You are also losing large amounts of salt. You are proportionately losing more water though.
- P: So the sodium builds up in the system.
- C: The volume of blood goes down, the sodium concentration goes up, and everything gets worse. The next thing that happened was that they were burning up sugar. Most players had a low blood-sugar [count] by the end of practice. A normal blood-sugar is 80 to 120. Some of these guys had blood-sugars in the forties. If you were sitting here, and I lowered your blood-sugar to forty, you would have all kinds of problems. You would be nervous, weak, and sweating from that. The brain subsists entirely on sugar, so your mental responses would be slower and so on. We had three things, of those each by itself would to some extent incapacitate a player. Put them all together, and you can have real problems. The solution was to give them water, but with salt in it, to replace at least to a large degree the salt they were losing in sweat. Give them sugar to keep their blood sugar up, but do not give them so much sugar that it will affect how the stomach and intestine work. You cannot give a whole bunch of sugar. You have to give a relatively small amount. If they were to drink enough to replace the water and salt they were using, then that way they would get enough sugar to keep their blood-sugar up. Sugar and sodium act together to increase the rate at which this stuff is absorbed from the intestine.
- P: Does this mean they had to ingest all of this during the course of a game, which would fundamentally change the whole idea of not allowing the players to drink anything?
- C: That is right.
- P: That itself must have been a hard problem to sell to the athletic departments.
- C: Again, one of the reasons I have respect for coach Graves was that when we explained to him what we had found, he professed no ability to really understand what we were saying, but he accepted it, and hedged his bets a little bit. We could try it on the freshman team. They had a game they called the Toilet Bowl, between the freshman and the B team, on a Friday afternoon. We could give it to the freshman for that game, but we were not to give it to Larry Rentz or Larry Smith because they were his coming stars.
- P: So to begin with, he gave you permission to do testing on the players after the

game. Now he broadened it, to allow you to give freshmen this solution to drink during the game.

C: A solution to the problem. So we did that. Graves and the entire bunch of them were out there watching.

P: Have you a date on all of this?

C: That was early October 1965. They were playing at LSU [Louisiana State University, at Baton Rouge] the next day. It was the LSU game in early October 1965.

P: So you fed your concoction to this freshmen group in a Friday afternoon game.

C: Yes.

P: What did you find out at the end of it? Were they renewed?

C: What happened was at the end of the first half, the B team was ahead thirteen to nothing. They pushed the freshmen around pretty good. In the third period, the freshmen came out. *They* were pushing the B team around. They scored two or three touchdowns in the third period. In the fourth period, they scored five or six more. The B team did not even make a first down during the fourth period. At the end of the game, Larry Rentz was kicking the football and yelling, boy this is fun! Let us play another quarter. Two of the B team guys who were dragging by at that point said, "Oh, go to hell," and continued plodding over to the gym to shower.

P: Nobody unfurled a big banner saying, 'Long live Dr. Cade!'

C: No. Graves came up and said he was really impressed. When I had told him we could probably give him a better team during the fourth quarter and we had surely done that.

P: He liked that.

C: Oh yes. He asked, can you make it up for the varsity to use against LSU? I said sure.

P: You got your kettle out?

C: We went down to the lab. I had plenty of salt and water. We were putting phosphate in it because it helps.

P: Did you already figure out what the proportions were of sugar, salt, and all of these other things?

C: Yes, so that one would get rapid absorption and so on.

P: Did you use it Saturday against LSU?

C: Yes, although we ran into a problem. When we got to the lab, we [found] that I only had one bottle, 500 grams, of glucose. It was reagent grade glucose at about \$5 a pound. We needed about five kilos [kilograms] to make up 100 liters which was what we planned for the team. I called the pharmacy and hospital stores; they did not have any glucose. I called a pharmacy warehouse over in Jacksonville; they did not have any. Dwayne Douglas came walking by, and he said, I have a key that will open every lab in the building. So we went up to the fifth floor, and walked into Mel Fregly's lab. I think I got four bottles out of there. Wendell Stainsby's lab right next door had five or six more. Sidney Cassin's lab had some more.

P: I hope you left an IOU in all of these places?

C: No, I did not. We got all the glucose we needed, went down, and made up our stuff. We put it in a walk-in freezer to get cold overnight. The next day, we had it in two big carboys. We had 100 liters of it in these carboys. I had them in a little red wagon and was walking across the field where the Gators bench would be. The public address guy came on and said, it is 104 degrees on the playing surface today. Because of the heat we expect to have nine or ten people with heat exhaustion or stroke in the stands. The football players are not going to be affected because they will be taking...and I thought damn, who told them?...salt tablets, said the announcer. Taking salt tablets would be just the wrong thing to do because your sodium was already way up. That would just run it up more and compound the problem. I relaxed then.

I got over to our bench. They kicked off to LSU. The defensive team went in. They finally stopped LSU at about the twenty yard line. The defense came out. The first three guys on the bench were Bennett, a safety man; Benson, a tackle; and Larry Gagner, a guard. They sat down and the rest of the defense was sitting there. I handed a cup of the stuff to Benson, and he said, what is this? I told him, this is a glucose electrolyte solution. It will replace [the water, salt, and sugar he was losing because of the heat]. Not only would he keep his energy during the game, but if he kept drinking it throughout the game, at the end he would feel better and be stronger. He took it and just glugged it all down, and wanted another cup. The next guy was Gagner, and I handed him a cup. He sort of sipped it. He said, this stuff tastes like piss. He poured it on his head because it was cold, and that would cool him off, which was one of the things we

wanted. I handed a cup to Bennett who was right next to Gagner. He took it and sipped it. He said, Larry, it does not taste like piss to me. He glugged it down. Each time I came around during the first half, Gagner would take his and pour it on his head. The other guys would drink it and comment on how good it was. I could not get into the argument at that time because I had never tasted piss. Toward the end of the first half, Gagner took his cup and drank it down. He said, Doc, I have decided I like the taste of piss. He drank a couple of cups every time he came out after that for the rest of the game.

In that game, at the half, LSU was ahead thirteen to nothing. They outgamed the Gators about 200 yards to 50 yards. In the third period, the Gators stopped them, and scored a touchdown late in the third period. It was thirteen to seven. Then in the fourth period, the Gators were really dominating play, but they had not scored until about halfway through the fourth period. They had a tackle whose name I do not remember, but I know they threw a pass to him and he went in for a touchdown. The Gators won that game fourteen to thirteen. In the second half they outgamed LSU by more than LSU had outgamed them in the first half. It was something like 250 or 260 yards that they gained in the second half. I think LSU made one first down and that was all. Graves was again very impressed. After that, they started using Gatorade in all of the games.

- P: I must say that I only drank the mixture one time in my life, very early on. It did taste terrible, absolutely terrible. I have never had any since. I guess that was before all of these other mixtures were added. I have never tasted piss, but I think that was the way I would have described it at the time. Did you think it had sort of a nauseating tasting to start with?
- C: I did not think the first batches tasted good. But by the end of the second year, the stuff we were making tasted pretty good.
- P: You doctored it up doctor.
- C: Well, we got a different flavor. I read about a lemon lime flavor that a guy at the University of Bologna [Italy] had developed that was free of turpene. All citrus has turpene in it. It becomes oxidized and it tastes sort of like turpentine. We started by squeezing out lemons. When you squeeze enough lemons to make lemonade for 100 liters, before you finish you get lots of cramps in your hands. We started using the 'Real Lemon' and 'Real Lime' off the grocery store shelves. That had a turpene kind of taste. So when I read about this turpene-free extract, I wrote the guy at Bologna and asked the guy could if I get it. I got a letter back that said, yes, I will sell it to you for \$18 a gallon. It took like three cubic centimeters (cc) of lemon and one-half cubic centimeter of lime to make a gallon, so it did not sound all that high. I wrote back and sent him a check. I think I got twenty gallons of lemon and five gallons of lime at \$18 a gallon. After it was

delivered to me, I found it had been made in the Frostproof [plant] here in Florida and you could buy it from the factory there for about \$1 a gallon.

P: I see. But you "imported" it?

C: That is right. It worked very well.

P: In other words, after this first game against LSU where it was effective, Ray Graves said, make some more. I am going to use it for every game now.

C: And they did. That same pattern occurred over and over. There were some games where they just ran the other team off the field in the first half. They were clearly a lot better.

P: May I ask why we did not win the Southeastern Conference Championship back in those early years and why we had to wait? We could have given complete credit to Gatorade. It did not have a name or anything yet at that time.

C: It did not have a name yet. That came about a month later. One of my fellows, [Harry J.] Jim Free [assistant in medicine] came back from a weekend at home and said, why do we not call it 'Gatorade?' That sounded great.

P: Of course. Was the "-ade" for Cade?

C: It was "-ade" like in "lemonade." We debated that. We thought we would make it "-aid." But if we did that, we were afraid the FDA [Food and Drug Administration] would say this was therapeutic and we had to have clinical tests on one million people.

P: The "-ade" gives you credit also, so it worked out beautifully. So the first year, 1965, it was just for the Florida Gators.

C: That is right.

P: Nobody had heard of it elsewhere yet?

C: They started asking me to make stuff for recruiting.

P: This was still the Gainesville operation?

C: Coach Graves and several of the other coaches asked me to make concentrate; they would take a gallon of concentrate that would make thirteen gallons of drink.

P: But these gallons were just in plain jugs, there was still no labeling?

- C: They would take it to the high school coach or somewhere where they wanted to recruit a player, and get into their good graces.
- P: So in a way, they became your advertisers.
- C: That is right. I am sure they took it to half the high schools in Florida. All of these schools wanted us to make it for them too. The next year we did, and we sold it.
- P: Did you get requests for the formula or was it just a matter of made up juice?
- C: Both. No one could translate the formula into the number of teaspoons. Neither did they have the scales to weigh it accurately.
- P: I can see that the high schools would not be so equipped. And when did the athletic departments of the other schools begin to file requests?
- C: That was not until the next year.
- P: I suspect that kind of news spread quickly.
- C: Yes, it did. We were getting inquiries from all kinds of people. There was a boxer, Jerry Quarry, who was rated third or fourth in the world. He would try to knock his opponent out in the first four rounds. If his opponent got past the fourth round, he would frequently knock out Jerry Quarry, in the eighth round or so, when Jerry ran out of gas. We sent it to him. He started drinking it between rounds. His whole career turned around.
- P: Was it not necessary to get a patent for this?
- C: We applied for a trademark on Gatorade. When we sold it to [Alfred J.] Stokely [chief executive officer of Stokely-Van Camp, Inc.], they applied for a patent. That was over a year later [in 1967].
- P: Now you use the pronoun "we."
- C: I had three research fellows who had taken part in the experiment. In addition, my secretary at that time, and Kelly, one of my lab technicians [took part in the experiment]. When we started selling Gatorade, we set up "Gatorade, Inc.," a corporation. They all had shares of stock in that. When we sold it to Stokely, we set up the Gatorade Trust for all of the people who had contributed to it, technicians, fellows, secretaries, and so on.

- P: Was there a large number of people?
- C: There were about ten in all.
- P: Dwayne Douglas was not involved in any of this?
- C: No, I forgot to do it, and I still feel guilty about that. Anyway, everyone in the lab shared in it.
- P: Now you began bottling this stuff and shipping it out of Gainesville?
- C: We would make it in a jug, and put it in a jug that held a gallon. It would dilute down to make thirteen gallons.
- P: Where did you do all of this? Where was the physical plant where this work got done?
- C: Mostly in my lab, which was at that time in the basement of Shands. We would send it out on Greyhound busses.
- P: Who would you send it to?
- C: We sent three gallons to Jerry Quarry's manager. And to the Alhambra, California School District.
- P: So you were sending it to athletic programs, but not yet commercially, to Winn Dixie, Publix, or retailers like them?
- C: [We sent it to] athletic programs and to the Cystic Fibrosis Foundation.
- P: Were they paying you for the cost of the jar, shipping, and all of those things?
- C: Some of them did, but what happened all too frequently was that a school district called and asked about it, like the doctor did for Alhambra, California. I sent him 110 gallons of it. I think we were going to charge him \$4 or \$5 a gallon. I sent him a bill, which he never paid. I called him and asked him about it. He said, I thought this was a gift from one doctor to another. That happened a lot of times.
- P: Did any of them try to steal the formula from you and manufacture it on their own?
- C: Yes. Not at first, but later. For example, the [University of] Georgia people came down, got some, and took it back to Athens [Georgia]. They had their biochemistry people see what was in it. They started making it and called it

Bulldog Punch.

P: Bulldog Punch? [Laughter]

C: Yes. Florida State made some that way and called it Seminolade. [Laughter] The Houston professional football team called, and I sent them several gallons of it to try out. They measured it and started making it, and called it either Half Time Punch or Quick Kick, I do not quite remember. They started making it for their own use *and* tried to sell it on the market. There were five or six occurrences like that.

P: So within a year or two, there was already competition?

C: Yes. At the end of the first year, the last game was with Miami and it was played here. After the game, a reporter for *The Miami Herald*, Neal Amdur, went down to the field. The Gators had won in a big fourth quarter surge. At that time, Dr. [Everett Lincoln] Fouts [professor of Dairy Science and head the department and of the Agricultural Extension Stations] was putting it up in milk cartons for us at the Dairy Science lab. Neal Amdur walked over and asked coach Graves if the team was drinking milk during the game. Graves told him no, this was Gatorade. He could not tell Amdur much about it, but told him to call Dr. Cade. Graves did tell him that he thought the team did a lot better drinking it and so on. Neal Amdur called me at home and wanted to come by and talk to me about it. I called Graves to ask him if he had any objection to that. He said to go ahead. Amdur then wrote an article about Gatorade that appeared in *The Miami Herald* the next day. The story got on the AP [Associated Press] and UP [United Press] news services, and ran basically in every newspaper in the country.

P: By this time now, it had this identifying name, Gatorade?

C: Yes. With that dissemination by Neal Amdur, we started getting calls from all over the country. From Miami Amdur went to *The New York Times*. Over the years, he wrote four or five more articles about Gatorade.

P: It must have created a sensational amount of interest because all of this took place in 1965 and by 1967, just two short years later, Stokely was interested.

C: One of my fellows went from here to Indianapolis to start a kidney division at the University of Indiana. He was taking care of one of the Stokely-Van Camp officers and got invited to the Stokely-Van Camp Christmas party. There, he told them about Gatorade. He told Alfred J. Stokely and two of the top vice presidents. They were interested. He called me then and told me they were interested, and asked me to send a sample up there for them. So we sent a gallon of the stuff up there. By that time, it tasted pretty decent. The

Stokely-Van Camp people liked the way it tasted. They liked the idea. They liked the reports on what it did. We were getting a stack of letters about that high asking about getting it. That was the next thing they wanted. I sent all of those letters up there. They came down in March of that year, 1967, and signed an option to look at it for ninety days. During that time we would not talk to anyone else. In May, they called back and wanted to sign a contract that would give them the right to manufacture it. They got it out [on the market] in July [1967].

P: Who designed the label?

C: The thunderbolt? That was Stokely [-Van Camp].

P: And they did not want to change the name? They liked the name Gatorade?

C: At first, they did not like the name. They wanted to name it Quench.

P: Quench?

C: To quench your thirst.

P: I know, but I like Gatorade better.

C: I did too. They did too, after they did a recognition survey. They found that in Indiana, something like 70 percent of the people had heard of Gatorade. The same thing was true in California, New York, and wherever they did these recognition surveys. They finally decided that article by Neal Amdur had reached a lot of people. They all recognized the name Gatorade, and it was sort of catchy. So [Stokely-Van Camp] retained that name.

P: When did they begin to develop the several flavors? I do not know how many flavors they have now.

C: We made several flavors.

P: You made the orange and the lemon.

C: We made a lemon-lime, orange, and grape here. We sent samples.

P: How did you do the grape?

C: I got unsweetened Koolade and used that for flavor.

P: Does it have any caloric value?

C: The unsweetened Koolade? No.

P: Even the sweetened ones could not have much.

C: I am not sure. We used unsweetened because we wanted glucose and not sucrose in it.

P: When you sold this to Stokely in 1967, where does the University come in? I knew that there was some sort of a hassle there. I understood that they had always disregarded it. They did not think it was going to be a particularly lucrative deal.

C: After the Neal Amdur article and all the inquiries that caused, I went up to Tigert Hall, and talked to [J. Wayne] Reitz [president, University of Florida, 1955-1967] and, I cannot remember the guy who was in charge of research, but I told him what we had done.

P: You told him you had an inquiry from Stokely?

C: We had not had the Stokely inquiry at that time.

P: Oh I see.

C: I told him I thought it had commercial value. All the teams that play the Gators would have to start using it or something like it. I thought all of those teams would want it. When LSU played Texas A&M, Texas A&M was going to have it.

P: So you predicted great growth as far as athletic activities were concerned.

C: Yes. I thought that every athletic team in the country would want to use it. That would be the market.

P: This was not [William Earl] Bill Elmore [associate business manager]?

C: No. I might think of [his name]. When I told him about the potential, his response was only 20 percent of products put on the market ever sold enough to pay for their own developmental costs. That does not count making a profit at all. The odds were against it. He said the University had no money for doing this. They had no one assigned to the job of developing products, so they were not interested. If I were [interested, I should] go ahead and make it. We were getting all these letters by that time. I went to the bank and borrowed \$500 to buy glucose, salt, and so on, to make it. We started bottling it.

- P: In your lab?
- C: Yes. [We were] sending it out, but we still did not make any money because of places like the Alhambra School District.
- P: But you had a secretary that the University was paying who was doing these things. The University at this moment was not interested in sharing.
- C: No. They expressed no interest in it at all. They said if I wanted to do it, to go ahead and do it, but there is no way the University was going to get involved.
- P: So that was how it stood for about a year.
- C: Longer than that. Stokely-Van Camp was selling it. The first year the royalty paid on it amounted to \$29,000, I think. The second year it came to about \$69,000. The third year it was over \$100,000.
- P: Stokely was doing the promoting?
- C: Stokely was doing all the advertising and promoting.
- P: The University was not involved, so this was an arrangement between Robert Cade and his associates.
- C: The Gator Trust.
- P: Was this "Trust" your company?
- C: It was a legal entity. We owned shares in it. [It was] a beneficial trust. Any royalty paid by Stokely went into the Trust, and the Trust distributed it to the shareholders, according to their percentage of [share-]holdings.
- P: I see. You did not hold a title like president or anything?
- C: No. When it got over \$100,000 in royalties, in the third year, I went down to Clearwater and I gave a talk to the ex-Gators.
- P: The former Gators, the lettermen?
- C: All University of Florida alumni with any interest in football.
- P: Such as the Gator Boosters are now?
- C: Yes. A reporter there asked how much Stokely was paying. I told him it had

been \$110,000 or \$115,000 that year. He asked how much the University was getting. I told him nothing. He was really incensed about that, and demonstrated a little bit. Then he came up and talked to [Stephen C.] Steve O'Connell [University of Florida president 1968-1974]. Steve O'Connell got interested in it. I was at a meeting in Munich [Germany], presenting a paper on ammonia.

P: Where were you?

C: In Munich at an International Physiological Society meeting that year. One of my graduate students and I were on the program, with a paper about ammonia production in the kidney. While we were there, I got a call from someone here in town, who called me long distance, to tell me the University was going to sue me to get Gatorade.

P: They had not discussed this with you ahead of that time?

C: No. When I got home, I went up and talked to someone in Tigert Hall, I do not remember who it was. The University's position was I had invented [Gatorade] as a faculty member. I had signed the contract that said anything I owned [any work I had done here] belonged to them, so they owned all of it. They wanted all of the royalty to be paid to them. They even wanted payment for the back royalty that the Gatorade Trust had received. I told them, look, I never signed that contract. They looked in my file, and indeed I had not signed it. I do not why, but whoever was supposed to bring it to me had not done it, when I joined the faculty. So I had never signed it.

That changed things a little bit. They eventually went ahead and filed a lawsuit asking for all of the Gatorade royalties plus whatever had been paid up till then. That was going to be heard here, in a state court. On a Friday afternoon, we went into court. They had sued each member of the Trust individually, the Trust as an entity, the bank, and Stokely-Van Camp, Inc. Each and every one of those different [defendants] had their own lawyer.

[Thomas S.] Tom Biggs [Jr.], who was the University attorney, came in and asked for a delay because the University was not ready. We had to pay all of our lawyers for time that they had spent. It cost quite a bit of money, I do not remember just how much. The case was going to be heard in Tallahassee, next month, as the court met here one month and in Tallahassee the next. We walked into court [in Tallahassee] and the same thing [happened]. All of our lawyers were there. All of them had to be paid. Tom Biggs was not ready. It was put off. That happened nine times! Finally, the next time it was to be heard in Tallahassee, the NIH had joined the [University] in suing us. That time they walked in and asked for a delay.

P: Who was the NIH?

C: The National Institutes of Health. They walked in and asked for a delay.

P: Why did they become involved?

C: I was a Career Development Awardee of the NIH. They were paying my salary. I had a grant from NIH to run my lab.

P: You said they went in and asked for a tenth delay?

C: They had joined the University in the suit to recover Gatorade and it was the tenth time that the [plaintiff] asked for a delay. The judge said no, we are going to hear it right now. This was ridiculous. He said, you [the plaintiff] filed a suit and when you file a suit, you are supposed to be ready to go to court. Now, ten months after the first hearing, you are still saying you are not ready. I am not going to tolerate that here today. So the case was heard, and the judge ruled in our favor. That phase of it was over.

P: What percentage was the Trust getting from this?

C: A full 100 percent of the royalties at that time.

P: Now you say it was heard in Tallahassee and the judgment was in your favor.

C: Yes.

P: This was not a jury trial was it?

C: No. It was heard before a judge. Claude Spillman, who had represented the Trust, said, you are going to have to pay the University something, so you better start thinking [about] how much you are willing to pay them. I had offered them 10 percent of royalties before the case ever went to trial.

P: More than you were getting?

C: This was 10 percent off the top, before it came to anyone else.

P: I see.

C: The [University] turned down that [offer] and went to trial thinking they would win it all. When they lost, Tom Biggs came back, and he said, how much money did you guys spend on lawyers fees? We said, lots. He said, I am telling you we

are going to appeal this to New Orleans. We are going to sue in every state in which Gatorade was sold. There were twenty-five states then. [He said], if you think you have spent a lot of money, just wait until you start defending in Arizona, New Mexico, California, Texas, Alabama, and so on.

P: Of course the University was going to have to spend money in all those states too.

C: They would have to pay too. We ended up offering them 20 percent of the royalty as their share. That would come off the top and the other 80 percent was to be distributed among the shareholders in the Trust. Everything was signed. They started collecting their money. We had to pay on the previous royalties, 20 percent of everything that had been paid to us before. That was all paid off. That is the arrangement that still exists.

P: Now, according to the figures I have, I guess furnished by you, the University has collected about \$21,000,000 to date.

C: I think there were \$5,500,000 in 1995. It is up from there.

P: But not \$21,000,000?

C: I think it is up to \$26,000,000 they have collected until now.

P: Did the University have to make a commitment of how the money was to be used?

C: Yes. They had to promise that it would be used for supporting research, which they have not done. Harold [Palmer] Hanson [vice president for Academic Affairs] came down to me and asked, how do you think it ought to be divided? I told him some of it ought to go to my lab. I wanted to set up a distinguished professorship. We could invite someone to come. Dr. Pitts was going to retire the next year and I wanted to invite him here as a distinguished professor. So I asked that money be set aside for that. What they did with the first \$25,000 that came was to set up the distinguished professorship in renal medicine. The next \$25,000 went for the Marine Institute over in St. Augustine. After that, 85 percent [of the moneys received by the University] went to the Marine Institute, and 15 percent to the distinguished professorship.

P: So that was why the [University of] Florida history program never got anything.

C: That is right. [Laughter]

P: It went to those sharks over there in St. Augustine. Was that a special interest

of yours?

C: No. Actually, [my special interest] were moneys for the medical school to set up that distinguished professorship. Medical school agreed to use it to invite Dr. Pitts. Chester Ferguson [member, Board of Regents] was really mad that I had defied the University and the Board of Regents successfully. So he and other Regents insisted that after the first \$25,000, one half [of moneys received by the University] would go to the Department of Medicine and one half to the dean. Dr. [Leighton E.] Cluff [professor and chairman of the department] and the dean got together and decided to get around Chester Ferguson; what they got would go to renal medicine for me to use.

P: So you were satisfied then with that division?

C: Not totally, but it has worked out pretty well over the years.

P: Is the distinguished service professor still [the same]?

C: No, Dr. Pitts died and then I was appointed.

P: Oh, I see. It is not an arrangement where every two or three years a new person is brought in on a temporary basis.

C: No.

P: So part of your salary [comes from that]?

C: Actually my entire salary is paid from that. I now get \$200,000 a year for my lab. The medical school got over \$2,000,000. And another \$2,000,000 stayed up on campus.

P: To be used for a variety of things selected by or determined by the president's office?

C: It was supposed to support research. They used it to put a new Gator Boosters room next to the president's suite in Tigert Hall. They put new fume hoods in the chemistry building where they teach undergraduate chemistry. They have used it for travel. They have used it to trim shrubbery.

P: How was that?

C: They used some of that money to pay grounds keepers who trim trees and shrubs.

- P: These were strange uses of that money, trimming shrubbery and travel. That was a far cry from research?
- C: So were the expenses for Gator Boosters.
- P: Certainly. I thought Gator Boosters had all the money in the world.
- C: I thought so too.
- P: None of it goes to the library?
- C: When Hanson asked me what I thought, I told him to send some [money] to the music department to support a University string quartet.
- P: Because that too has been a special interest of yours?
- C: Yes. They did not like that. Of the money that comes down here, [of the part that the University gets] the renal medicine division gets about 80 percent. I get 20 percent of it. The renal medicine division could not operate without that money. [Without it] basically they would be out of business. But it has freed me from having to write a grant request every three years and to write reports every year.
- P: Does renal medicine then seem to be one of the best funded programs at Shands?
- C: Yes. It has probably been the best funded programs over the years.
- P: It does save you, as you said, the necessity of taking the time to write grant applications.
- C: Right.
- P: What about you personally? Have you not waxed prosperous from this?
- C: Yes. I get a share from the Gatorade Trust. When the check is sent from Stokely [-Van Camp] to the Trust, the Trust writes 20 percent of that to the University. The other 80 percent is divided among the shareholders in the Trust.
- P: Are you the principal shareholder?
- C: No. I divided it up equally between everyone that had taken part in it. I now get 13 percent of the Trust money, which is basically 10 percent of the total money.

P: So as a result of the time and effort that they put into it, all of the ten or so people who share in this have done well?

C: Very well.

P: Do all of them spend their money buying old Studebakers?

C: No. They have spent their money buying yachts, airplanes, big houses, and so on.

P: How many flavors are there to Gatorade?

C: I have lost track Sam. There are a whole bunch of them.

P: Gatorade is distributed all over the world, is it not?

C: Yes.

P: Stokely [-Van Camp] sold out to Quaker [Food Company]?

C: Quaker bought Stokely, all of it.

P: So Gatorade came under that sale.

C: Yes. That was what Quaker was buying it for. For a while, they kept making Stokely Van Camp Pork and Beans, but they sold that off too. The only thing Quaker kept was the Gatorade.

P: Where is that manufactured today? Where is corporate headquarters?

C: Corporate headquarters is in Chicago. There are five or six manufacturing plants scattered around the country.

P: Are there any overseas?

C: Yes, in Germany, Italy, and Australia.

P: Were you invited from time to time to their national meetings and recognized as one of the godfathers? Did they put a crown on you?

C: No, mostly they gave me a hard time.

P: Why?

- C: One thing was that they want to reduce the royalty. The other was, over the years, we did more research, and we made a drink we called TQ II, for "thirst quencher," roman numeral two, for second generation.
- P: Is this sold commercially?
- C: No. We tested it in the lab, and it was significantly better than Gatorade on someone working very hard or exercising very hard. It keeps up the blood volume better.
- P: So it was superior to Gatorade in terms of replenishing the body?
- C: That is right.
- P: But Quaker did not want to [market it]?
- C: No. They professed no interest in it until Pepsi Cola called. Pepsi Cola wanted to buy the rights to make TQ II. We were talking to Pepsi about it. Quaker decided they owned it anyway, and they sued us to keep us from selling it to Pepsi. Acrimonious discussions went on for a couple of years. Finally, suits were filed. The people on my side decided it was going to cost too much to go to court with them, so they recommended that we sell it to Quaker. They paid us \$2,000,000 for the rights to it. They do not want to make it because they are afraid of the New Coke syndrome. They have stuck it on a shelf and they are going to let it die there.
- P: Even though it is a superior product?
- C: That is right.
- P: Maybe somebody will pull it off [the shelf] some day and do something with it. They could call it Super Gatorade.
- C: I like TQ II, Gatorade subtitled TQ II.
- P: Since I do not drink Gatorade, I am not planning to try it either.
- C: It tastes better than Gatorade.
- P: I am going to try Gatorade again. It has been ten years since I tried it.
- C: Try the orange or grape, anything but lemon-lime. Then, lemon-lime may have gotten better.
- P: I am surprised you do not have [some Gatorade in] a refrigerator here to serve it

when you have visitors. When I went down to do the interview with Ben Hill Griffin, he had a refrigerator in his office with orange juice and grapefruit juice.

C: When we are doing an experiment using it, we have it here.

P: There is this other product I want you to tell me about, and that is Go.

C: It is a milk based drink. We have some of it here.

P: That is all right. Thank you.

C: It used to be Gator Go. Everett Fouts came down years ago, back in the late 1960s, and he said, is there something we can do for weightlifters to help them build muscle? His sons were weightlifters. I made Gator Go, which later became Go. It is a high protein drink. All of the protein comes from milk and it undergoes ultra high temperature pasteurization, so it is a sterile product.

P: It can sit on the shelf?

C: For as long as two, three, and four years.

P: Is it a powder that is mixed when you open it, or something?

C: No. It is put in these tetra-packs as a sterile liquid drink, and sold that way, already in liquid form.

P: Do you put a straw into the pack like into these packets kids drink juice from?

C: Yes.

P: How does it taste?

C: Most people like it very much. We have had a hard time getting teams to use it. [The University of] Notre Dame [Indiana] uses it now.

P: Why is it difficult to convince them after the success of Gatorade?

C: I am not sure. The University here wants us to pay a big royalty on it. The University of Florida would start using it if we would pay them a 30 percent royalty.

P: In other words, they are objecting to commercial arrangements, not to the quality of the drink.

C: There is no arguing about the quality of the drink.

P: It does good to whoever uses it?

C: Yes. We used it on the football team here. Also, [Charles Edward] Randy Reese [instructor of physical education and swimming coach] came back from Spain several years ago, after the world meet there. The Russians and the East Germans had beaten up on his guys really bad. He visited with me when he got back and told me that [by] talking with coaches and swimmers, he estimated they were working 30 percent harder than his guys. If he were to work his swimmers any harder, they would probably break down. [He asked] if we could do anything to help him.

What we first suggested was to cool off the water a little bit. They were swimming in [water warmed to] eighty or eighty-two degrees here because that is where recreational swimmers like the temperature. In Germany, swimmers who are training swim in water [kept] at seventy-six degrees, so they get rid of heat a whole lot better. We have done studies on swimmers with respect to heat dissipation, body temperature, and so on. So we suggested they cool off the water. But they could not do that because the pool up there was used for recreation too. They had to leave it at the warmer temperature.

We started studying. We looked at Gatorade, a combination of Gatorade and Go, and afterwards a placebo compared with Go. We measured breakdown of muscle by enzymes that were released from the damaged muscle into the blood.

What we found was if they were drinking Gatorade during their exercise, these damage enzymes did not go up nearly so much as if they were drinking water. If they drank Go after swimming, they came down a lot faster. So if they drank Gatorade during and Go when they finished the exercise, all of the damaged enzymes were down within the normal range within three hours after swimming. If they drank water during and a placebo after, it took about twenty-two hours for enzymes to get down to normal again. It took eight hours if they drank water during and Go afterwards. If they took Gatorade during and water afterwards, it was again somewhere around eight hours. But the combination of the two came well within three hours. Since we did the study, the swimming team has been using Go and Gatorade all these years and still uses the combination.

P: Is it a commercial thing? Can you go to the store and buy Go?

C: No. They are selling it through multilevel marketing. They are selling it in bulk to hospitals. Actually, the biggest sales now are hospitals and cancer patients.

P: Who is manufacturing Go?

C: An outfit called Market International, and it is made in Savannah, Georgia.

- P: So unlike Gatorade, produced by Quaker and before that by Stokely, Go does not have a big name yet, because at this moment there is a limited market for it?
- C: Yes. I think it is probably going to go broke.
- P: Even though it is a superior product?
- C: People who have no appetite, or cancer patients treated by x-ray and chemotherapy who cannot eat, almost all drink Go and like it.
- P: Is it unlike this Ensure?
- C: Ensure tastes terrible. Go tastes pretty good.
- P: I have never tasted either one of them. But you see Ensure promoted and you can buy it in the grocery stores. The commercial advertisements suggest that it is like a milk shake. I am not going to try it, you understand, so they cannot get an endorsement from me.
- C: All of those commercial drinks that are on the market now, none of them really taste good.
- P: If Go tastes better than Ensure and it does do a lot of good things for the body, I am surprised that a commercial operation has not come after it?
- C: I do not know why that is so, but I am not all that surprised because Go is relatively unknown. Now [investors] look for and find something that is already established. Still, I agree with the general who said, he who gets there first, with the most, is going to win.
- P: Are you working on something new now?
- C: Not right now. We are doing some basic things on heat lost through the lung. We are studying exercise capacity in women at four different points in the menstrual cycle and stuff like that.
- P: Is this connected with work that [Morris] Notelovitz [former professor of obstetrics and gynecology, director of the Center of Climacteric Studies] is doing or is that completely separate?
- C: Completely separate.
- P: Did you say that you did become the [Gators'] team doctor?

C: Yes, for about four years.

P: How did that happen?

C: That was when they had to have physical exams done. Their regular team doctor had resigned. Graves asked me if I would do these exams.

P: Your responsibilities did not go beyond the examinations?

C: No. We were in the training room every day. We consulted with the people there.

P: Can I ask the other question I asked before: I hope by this time they were sending you tickets? [Laughter]

C: That was never done.

P: I think that was a sign of lack of gratitude or something. Now, I also want to ask you what a "Hoppin' Gator" is.

C: When I came here, I started a symposium on [every] Friday afternoon. We would drink whiskey sours, mint juleps, or daiquiris.

P: They always help with symposiums! [Laughter]

C: I was interested in the symposium. Symposium comes from *sym* and *posis*. [These are] Greek words which mean "having a party" and "together." We called it the Hepato-renal Symposium because *hepato* means pertaining to liver, and *renal* means it had to do with the kidney.

P: [Laughter]. I love it.

C: We would meet, and everyone would get their drink. I would talk about some scientific thing in renal medicine for about thirty minutes. Then we continued drinking until people wanted to leave. When you drink two or three whiskey sours, daiquiris, or mint juleps, they are absorbed relatively slowly. You have a bunch of alcohol in you when you start feeling good, and a lot more in your stomach waiting to be absorbed, so you get drunk. I guess one Friday evening, after the seminar, I got home and I went to sleep on the living room floor. I woke up in the morning, and I hurt. I had considerable pain every time I took a breath. I was wondering what had happened. Martha came in and said, that is where Mama kicked you when you were asleep Daddy. It was clear I had to do something.

What I did was make an alcoholic Gatorade in a light beer. It was brewed light

beer, with glucose, salt, and so on. The stomach would empty almost instantly and it was absorbed rapidly from the intestine. We made a "Hoppin' Gator" with 2 percent alcohol instead of 4 to 5.2 percent found in beer and that kind of stuff. You can drink one and you have just a very pleasant glow. You took in a relatively small amount of alcohol, so you burned it off quickly and you are sober. I could have a couple of "Hoppin' Gators" at the symposium, jump on my bike, and ride home. By the time I got home, I was sober.

P: No kicking in the ribs?

C: No kicking in the ribs. So my problem was solved.

P: I love it.

C: We had been doing that for quite a while. Once I got arrested for speeding on the way home, riding my bike down the hill, over by Hume Hall. Then one Friday night, a student named Lewis, I cannot remember his first name, thought it would really be funny to tell the police that Dr. Cade is leaving drunk on his bike. If you are at the top of the hill, he told them, you can arrest him for drunken driving on a bike. So at that time I rode up the top of the hill and started to turn down Radio Road. I started to turn left, going home, and there was a police car there. The guy who had arrested me for speeding two or three weeks earlier was the one Lewis had talked to, told him I was leaving drunk. I got a ticket for drunken driving on a bike. I ended up paying a \$15 fine for that.

P: It is wonderful that you are coming up with this confession. Do you realize that this is going into the archives?

C: I had forgotten that for a minute. [Laughter]

P: Tell me about your interest in hypertension. We had not talked about that.

C: Hypertension occurs in many kidney patients.

P: So there is a medical relationship there?

C: Salt is clearly involved in how severe the hypertension is. I am not at all convinced that salt has anything to do with causing high blood pressure, but if you have high blood pressure, salt intake will make it more severe. I got interested in it basically because of that.

P: I see. So it was your interest in the kidney that moved you in that direction?

C: Yes. There is another form of hypertension in which the renal arteries constrict,

or they have arteriosclerosis of the renal arteries, that obstructs blood flow to the kidney. When that happens, the kidney starts making a lot of angiotensin or renin, which makes angiotensin. That causes a severe form of high blood pressure. We did the tests to tell if that was a cause of hypertension. At this medical school at least, the kidney division began seeing all patients with high blood pressure.

P: Is this a continuing research interest of yours?

C: Yes.

P: So this will go on as long as you are here?

C: Yes. We are doing experiments in that right now. Right now we are looking at the effect of room temperature on blood pressure.

P: So you recommend that people with high blood pressure eliminate as much salt as possible?

C: Actually, I do not.

P: You do not recommend that?

C: No. Most of the time I put them on a diuretic that helps them get rid of salt through their kidney. I caution them about not eating a whole lot of salt. I tell them just not to add salt at the table.

P: Because there is enough natural salt in the foods one eats?

C: Yes.

P: Since I have a small degree of high blood pressure, I was just wondering what you were going to recommend.

C: I would try you on a diuretic first. Then there are other agents that I think are more effective than a salt free diet. That is a lot easier to do, more effective, and cheaper.

P: I do not add any salt at the table, so I guess I am fine. What other areas of medical research are you interested or involved in? Does the present work consume all of your research time?

C: Clinically, we have been doing research in lupus erythematosus. Lupus is the Latin word for wolf. Erythematosus means red, inflammatory redness. The

condition got the name "red wolf disease" because the patient with lupus gets a rash across their malar eminence [cheekbones]. It makes them look like a wolf. We have written a number of papers on that.

P: Is this a rare disease? I do not think I have ever heard of it.

C: It used to be considered rare, but it is becoming more and more common. We have treated over 300 cases here.

P: I guess if you see people like that, you might think they have skin cancer.

C: That is one of the things you could do. But there are a number of things that could cause [the disease]. The main thing it does is damage blood vessels everywhere. That is why [those afflicted] get the rash. And most commonly it kills people by destroying their kidneys. That is how we got interested in it at the beginning.

P: Do you do kidney transplants?

C: No, I take care of them before they get the transplants.

P: Do they do that at Shands?

C: Yes. We started that in 1967.

P: So it is an old program then?

C: We have done over 1,000 transplants.

P: Who does that?

C: Bill Pfaff did them for a long time and then Dick Howard came in.

P: I know Dick well.

C: He does all the transplants now.

P: So you work closely with Dick after he finishes?

C: I sort of dropped out of that. I used to be actively involved in it until about ten years ago. Some of the younger fellows in the department started taking care of the transplants.

P: You, nor Howard are responsible for looking for organ donors, are you?

- C: No, there is a special group set up for that [purpose]. Every transplant program has its own procurement team. We are members of a network. You get a patient who needs a transplant and you do the blood typing to obtain the genetic makeup. That is put into a computer and circulated all around the country. All the different procurement teams around the country are part of that network. So if someone had been bashed in the head in an accident in Montana and is going to die, they will type that patient and put the data into the computer. If we have someone who needs the same type, we notify them. They will take the kidney out and fly it here for us to use. We do the same thing for St. Louis or Chicago. Actually, we have flown kidneys to Israel, France, and so on.
- P: Bob, you have been at the University, at Shands [Hospital] for thirty-five years. You are one of the pioneers in many ways. You have had a chance to look at the situation and to examine the changes that have taken place. How would you evaluate Shands or the J. Hillis Miller Health Center now, as compared with other medical programs in the country and in the region? Is it among the top ten?
- C: It is probably among the top ten or fifteen hospitals in the country. The medical school has become better with the passage of time. It is maybe in the upper echelon of the bottom part of the top third. It was in the middle third twenty-five years ago.
- P: So it is in the bottom part of the top third now?
- C: I think the medical school is probably in the bottom part of the top third.
- P: Are you comparing this with other medical schools around the country or only in the South?
- C: Around the country, with Cornell [University Medical College in New York City], Boston [University School of Medicine in Boston], and St. Louis [University Medical School in St. Louis].
- P: How about the South?
- C: Duke [University School of Medicine in Durham], the University of North Carolina [at Chapel Hill], and the University of Florida [Medical School].
- P: These are the top three?
- C: The top three. [University of] Alabama [at Birmingham] is pretty good now.
- P: This includes facilities, the quality of students, the level of teaching, and so on?

C: That is right. Duke, North Carolina, Alabama, and Florida.

P: In that order, with Florida fourth?

C: Third or fourth. I think they are all in that upper echelon.

P: Are we in a position to attract the real stars in medicine?

C: We have a bunch of them.

P: We have no Nobel Prize winners.

C: No, we do not.

P: But do we have people just below that?

C: Yes.

P: People who are really world famous as far as their special areas of activity are concerned?

C: That is right, yes. There are a number of them here. [Albert L.] Al Rhoton [Jr., chairman of Department of Neurological Surgery] in neurosurgery is one of the two or three best. [Paul C.] Dell's [professor of orthopedics] program in orthopedics was surely in the top ten. The Department of Medicine, I think, is now probably within the top ten in the country.

P: Do you think Shands is getting too big? When I say Shands, I am really talking about the whole program. Are there too many students and too many faculty?

C: Yes it is. I was saying a while ago that when I first came here, I had forty-four students. I knew every one of them. Now, if at the end of the year I know ten of them I am doing pretty good.

P: Do you have time for students to come by and sit in your lab and talk to you as they were able to do ten, fifteen, and twenty-five years ago?

C: Yes, but it does not happen nearly as often. Basically, I do not spend as much time exposed to the students now as I did twenty years ago. I do not see them nearly as much.

P: At the Health Center now, there are many layers of bureaucracy that were not there in past years. Is that getting in the way, or is that part of the normal

growth?

C: I think it is getting in the way. It is eating up a bunch of money. We got a notice the other day that we cannot buy anything until the end of June. There is a money crisis.

P: That is not what I read in *The Gainesville Sun*. [Laughter]

C: That is the letter I got from the dean. Until June 30, I cannot order new equipment. I cannot order supplies. If I run out of supplies for an experiment I am doing, I just have to stop the experiment until the end of June.

P: Does that not seem sort of strange to you? You have the perspective to see what the situation is here.

C: That is right, it does seem strange. But that is what the letter said.

P: I am not going to ask you what you did with that letter.

C: I gave it to Jackie [my secretary].

P: I thought maybe you filed it like I do with so many of those things.

C: That was what I did with it. The University has a great big money crisis. Then you look at the dean's office. In the last five years, they have appointed over thirty assistant and associate deans.

P: Expensive ones too.

C: They all get a lot more than any professor gets. That is eating up a bunch of money.

P: You know they had a list of those salaries in the paper the other day. All of them are [making] well over \$100,000 a year.

C: Well, that is their state salary. In addition to that, many [assistant and associate deans] are getting an Academic Enrichment Fund salary.

P: I did not know that bureaucrats in their offices were able to dip into the [Academic] Enrichment Fund.

C: They do so.

P: Were you involved in setting that up at the time it was established?

C: I was in on the discussions. Every department had a [part in the] discussions.

P: I thought when you arrived it was already in place?

C: It was in place, but it has been modified a number of times.

P: I have the explanation about that from some of the people who were here. George Harrell, [Emanuel] Manny Suter [dean of the College of Medicine], and [Samuel P.] Sam Martin [provost of the Health Center] were, of course, involved.

C: That was at the very beginning. Over the years there have been modifications. I have been involved in discussions regarding many [details]. [For example] money collected in my name, how is it distributed? It used to be so much to the department, so much to the hospital, so much to the dean, and then some to Tigert Hall. The proportion of each of those distributions has changed over the years. So less comes back to the clinicians and to the Department of Medicine or surgery. More goes to administrative areas.

P: Bob, are you thinking about retirement?

C: Yes, I am thinking about retirement for a couple of reasons, mostly because I have had two heart attacks.

P: Serious heart attacks?

C: Yes. We talked about the ejection fraction of the heart, how much of its total volume it puts out, how much goes out each time it contracts. That [figure] ought to be 60 to 70 percent. My ejection fraction is about 20 [percent]. The result is that I get short of breath with just modest exercise. Ten years ago I could run a marathon. Today I get short of breath walking 200 yards.

P: Are these fixable conditions?

C: No.

P: Both heart attacks came as a result of this condition?

C: Yes.

P: Would that be a factor in helping you make a decision on retirement?

C: I am officially on half time now.

P: I see.

C: I work a lot more than that. [The halftime arrangement] allows me to pick and choose the things I want more. If I get really tired at 2:00 in the afternoon, I can go home and take a nap.

P: In many ways you are your own boss in selecting the project you are working on and the time you [spend on that] work.

C: [With respect to] the time I was [my own boss], yes.

P: Have you yourself turned out from your students any great stars who are playing a major role in medicine today?

C: I think now I have students who are heads of renal divisions at five medical schools.

P: Then that is a real feather in your cap that you must be proud of.

C: Yes. I do not know that any of them are major stars.

P: But on the other hand, they are doing important work.

C: Yes. They are doing important work both in teaching and administratively. They have turned out some very decent research too. Then I have two other students who were heads of renal divisions and have retired now. I think that we have turned out some good people who have made real contributions in a number of areas.

P: Bob, I would like to ask you some questions not tied to your life as an academic or your life as a physician, although I guess you are never really separated from all of that. I asked you earlier about the campus and your involvement there. You said you had been in the University Senate for a while. Were there other campus activities you are involved in, maybe not in an official way, but just involved? I know you like music a great deal. Were you involved in any of that activity?

C: I used to play in the University symphony [orchestra]. I played the violin for six years and the viola for about ten years.

P: Did you study violin and viola?

C: I played the violin when I was a child. In my last year in high school I played in the San Antonio Symphony [orchestra].

P: If you were good enough to play in the University symphony, you must be good.

C: My mother said I was among the 10,000 best violinists in the world.

P: Oh, she was prejudiced. What did the conductor of the symphony say?

C: I sat in the first chair of the viola section for ten years.

P: Well, you see?

C: My mother used to come in and sit behind me and listen to me practice. When I turned around and she was there, she would tell me how beautiful that was. One of those times she said, I think you are among the 10,000 best violinists in the world. I said, mother, thank you, but how many violinists do you think there are in the world? She said, probably 11,000 or 12,000.

P: [Laughter]. She was just trying to be witty.

C: I have been invited to play at national conventions. I play in church with some frequency.

P: So then, you still keep up with your music?

C: Yes.

P: Why did you drop out of the University orchestra?

C: When I played in it, they had their rehearsals at night, on Mondays and Wednesdays. It took about three to three and one-half hours each Monday and Wednesday. Then they changed [the rehearsals] to daytime at 1:00 p.m. I could not make it to the rehearsals, so I dropped out.

P: I see. Do you go to their concerts on campus?

C: Yes.

P: Are you a financial supporter of the music programs?

C: Yes.

P: What do you do?

C: I give money to the Gainesville Symphony Orchestra, the Great Artists Series at

the Center for Performing Arts, and the Department of Music here.

P: You do not have a scholarship program or anything?

C: I have a scholarship, but not for [music]. If a music student applies, he would be considered. My wife and I set up a scholarship program. We have thirty scholarship students each year. It is a \$6,000 [award for each].

P: For any student on the campus?

C: And at other universities too.

P: Is this based on academic performance? Do they qualify only as a result of high grades?

C: No. We consider grades and need. We try to pick out students who we really think are going to apply themselves. If we get an application from a high school student who has a C average, we might fund something for him, but that is not really what we want.

P: Do you have a family foundation that does all of this?

C: Yes.

P: So you yourself do not have to go through the selection process?

C: I take part in it. What I take part in is if I talked to some student who I think is very good, I would say to the selection [committee], I think this is a good student and would you please give this student special consideration.

P: You give thirty of these awards a year?

C: Yes.

P: A lot of money and paperwork goes into all that.

C: Arnie Zimmerman is the one who does most of the work. We put \$200,000 a year into it. [Applicants] have to fill out a form with their parents' income, what they want to do, and write an essay why they should be a recipient. That is sent in. In June each year, we meet and discuss each of the applicants, and decide on however many are opening up that year, anywhere from three to seven a year.

P: Is the selection done by a group here in Gainesville?

C: Yes.

P: Do they carry your name, the Cade Scholars?

C: No, it is the Mary and Robert Cade Foundation. Arnie has the students' names, addresses, and everything else. Every other month, when my Gatorade check comes in, the [selection committee] sends out a check to each one of the students. They have to maintain above a C average.

P: I was going to say that is not a great demand. Even football players have those kind of averages.

C: If we get some who slip below a C, they lose the fellowship. We do not boot them out the first semester. We give them a warning first. There are many who will get a C-; they get a warning and then they start studying.

P: Are a number of these students from Gainesville?

C: Probably half of them are from this area.

P: I mean do these students live in the greater Gainesville area? I mean, what about your involvement in the community? What do you do as a citizen and resident of Gainesville?

C: I really do not do much. A number of years ago I ran for the school board and lost. I ran on a platform of integration and higher taxes.

P: Oh boy! I can see those were two winning planks on the platform in Gainesville.

C: I gave the first campaign speech at Gainesville High School. All the candidates for school board gave a talk about what they intended to do. After that speech, Mary said, I know you do not really want to be on the school board.

P: Bob, I remember back during the teacher's strike, you had some strong feelings about that. The story was that you left your post here and went to J. J. Finley Elementary School and taught.

C: [I went to] Myra Terwilliger Elementary. I was there in the morning. School let out about 2:00 in the afternoon. Then I would come here and make rounds.

P: Why did you take that action? That was a pretty strong thing for you to do.

C: There were a number of reasons. I think if you sign a contract that you will be teaching, at a given time, for this year, until May 30, then you are obligated to do that. You do not walk out because you are mad. I think walking out and

deserting the students in the middle of the school year was not a very ethical thing to do. That was one of the reasons I went out and taught.

P: That was only *one* of the reasons?

C: I guess it was the main reason.

P: There were others?

C: Well, yes, but they were basically minor.

P: Did you feel that the teachers had an argument for what they did?

C: Oh yes. If they had waited until the end of the year when their contract ran out and said I am not going to sign again unless you do this, I would have been in complete support. But they had a contract that said they were going to teach until May 30, and they walked out in March. I think that was a completely different matter and they should have finished what they obligated themselves to do; then they could say, we are not going to teach unless you meet our demands.

P: Were you criticized by the teachers' union?

C: Yes, and by a lot of my colleagues here.

P: So it was not a popular stand to take?

C: No. I think probably 80 percent of the faculty at the medical school did not approve of what I did. Some of them wrote letters saying I should not be teaching out there when I was paid to teach here. They thought I ought to be fired.

P: Did you get any criticism from the higher ups?

C: No.

P: Where did you stand on the issue of integration, for instance on integrating the medical school in the 1960s? When you came, there was a black woman who had already started at the medical school, so at least the ice was broken. This was only a single student. Nobody on the faculty.

C: I supported integration. I do not approve of the way they do it now. Several years ago, after Sidney Cassin and I gave the kidney part of a physiology course, we plotted the grades. There was an even distribution from about seventy up to

ninety-five. Separate from that, there was another group that was distributed along the line. It went from sixty-five to fifty. Of that group in the sixty-five to fifty, all of them were black. There was one black student who was eighty-something. There was another one who was in the seventies. Out of fifteen or sixteen blacks, only two of them were up there above seventy. The rest of them were sixty-five down to fifty. I do not think we ought to be admitting students who have a fifty in physiology and give no promise [to do] better than that. For a number of years, we ran a course for black students coming into the next class. During the summer we taught physiology to those students, so that they would be better prepared for what they were going to face. There were four different guys, I was one of them, who helped set up that program and taught it. We did that for about ten or twelve years. They do not do it any longer.

P: Have you ever had any blacks as lab assistants?

C: Yes, I have two of them. I hired Kelly Campbell in 1963 to wash dishes in the lab. He had hurt his leg and had to stop whatever he was doing. At that time, he could not do arithmetic. I met with him in the lab in the mornings. Three days a week, we would have a class on arithmetic. He got so he could do all the calculations he would need to calculate the results on studies. Then he started working on the flame photometer, measuring sodium, potassium, and chlorides. He got better and better. I wanted to do pyruvates on one of our exercise studies. So I brought in a method on how to do pyruvates, it was complicated, and Kelly read that, set up the procedure, got his standards done, and did the whole thing. He made up standards, like how much sodium to put in for measuring unknowns in a solution, or standards for creatinine or whatever. He can do any of those. He can set up pretty complicated procedures. Now we are doing sepheder chromatography of peptides in the urine of schizophrenics and autistic children. Kelly set that up and he does it all. I think Kelly is someone who displays real wisdom in everything he does. Being wise is something that is almost totally independent from being smart. Not totally, because they overlap somewhere. But wisdom and smarts are two different things.

P: Have you been involved in trying to recruit black faculty?

C: No.

P: Do you have any in your department or have you had any?

C: There are a couple of blacks in the Department of Medicine.

P: But not in your area, involved with the kidney?

- C: I have had black fellows. I have had a half dozen black fellows over the years and they have been good. Some of them [were] very, very good. That was basically it.
- P: One of the areas I forgot to ask you about was this popsicle bar, the Ten Plus Bar.
- C: That was the high protein bar. The idea was that you could eat a popsicle and you would get real nutrition from it instead of just sugar and water.
- P: Is that still available?
- C: No. It did not make it. It evolved into Go, which is a high protein drink.
- P: The frozen stick sounds like a good idea for kids.
- C: Well I thought it was, but there were all kinds of problems in marketing something like that. Unfortunately we got into the market just at the time all these frozen juices were coming on the market. They would sell for a lot less than [what] we could make, which had 30 percent of the protein requirement for the day. If only we had been able to teach the public the benefits of this. Then the ones who bought it would have been the ones who understood the value of it. Others would look at the price and buy the cheaper thing.
- P: I think it would be great for kids.
- C: They could come home in the afternoon and instead of sugar and water, they could have something nutritious.
- P: I know you are a very inventive person, so I want you to tell me what this hydraulic football helmet is all about?
- C: George Dean, a defensive end, was one of our original Gatorade subjects from the first day. During his freshman year, he got hit in the head and had amnesia for several [days].
- P: You told me, [it] lasted about ten days.
- C: Yes. So I started thinking, how could I better protect the head? At that time the helmets had a web suspension--a woven cloth suspension that had a spring effect on absorbing energy. Because of the nature of the material, it was not a very natural absorber. So if you received a blow on the head, that tape went up like that, and came down very quickly. And all of this energy was sent through to the head. But if you put in a hydraulic absorber, then that energy from getting

a blow was absorbed and not sent through the head. If you combined these two, and had both a spring absorber and a hydraulic absorber, the head was protected a whole lot better. We designed a helmet with both a spring and hydraulic system built into it. It absorbed energy very nicely.

P: Did it work?

C: Oh, it worked beautifully. It sold for about ten years. I do not know if you remember, there was a professional football player, Willie Lanier, who was a linebacker for Kansas City. He had concussions so many times they advised him to stop playing. He heard about this helmet, and he got one. He played another five years and did not have another concussion the entire time. The Gators wore them for five or six years.

P: And they do not wear them now?

C: No, not now. Some of the helmets they use now are more effective than the ones that preceded our hydraulic helmet. None of them really absorb energy and protect the head the way the hydraulic helmet did.

P: But you were saying, [your helmet] was superior in its construction and in the effect it had on the player?

C: That is right.

P: Why do you think it is not being used any more?

C: It costs a lot more money to make it. Universities that had plenty of money could buy them. And there were a lot of professional players who used them. Actually there were a fair number of universities that used them. I have forgotten what the costs were, but this thing cost about five or six times more than the conventional helmet.

P: But on the other hand, it protected the individual so much more?

C: That is right.

P: I would think a university like Florida, for instance, or FSU, that seems to have lots of dollars to spend, would think this is exactly what we need.

C: Both Florida and FSU used them.

P: Used them, but do not use them now.

C: Yes.

P: So this was never a successful commercial venture?

C: Yes [it was], it made money for five or six years.

P: But they are not on the market today?

C: No.

P: Did your helmet carry a brand name?

C: It was a "Gladiator" something. Gladiator was the company that made it. I think it was Gladiator Hydraulic Helmet.

P: Bob, as I say, I know you have a life away from the campus and a life away from the lab. Obviously music is one of your passions. You play music, and you enjoy doing that. Do you do it regularly? You said you play in church?

C: Yes, I play in church four or five times a year. I practice.

P: A lot?

C: Almost every night. Five or six nights a week for thirty minutes to two hours.

P: Is anyone else in your family musical?

C: They all are. My wife plays the piano. She accompanies me on a lot of things. Martha is an excellent pianist. She has accompanied me a number of times. Our daughter Phoebe plays the piano, and she has accompanied me.

P: You should have a small recital for your friends and invite me over. I would like to hear you. I love music, and I would really like to. Maybe some night I could stand outside your living room window and hide in the rose bushes. Which brings me to your gardening interests. What about that?

C: I have grown roses since I got out of the navy. When I got out of the navy in 1948, I came home and built a rosebed in my back yard. I dug down to a depth of five feet. I put a layer of small rocks, about six inches thick, and ten inches sand on top of that. Then I mixed the dirt from our yard with sand and leaf mold for the upper layer. I planted roses in that. They did just magnificently.

P: And you have continued growing roses since. What motivated you in the navy to move in this direction? You did not have that inclination before, did you?

C: No. I am not sure. I got so I liked roses.

P: Do you still grow roses?

C: Yes.

P: I understand some of those you have produced you named for your children?

C: That is right. They were some of my hybridized roses.

P: Like the Martha rose, the Phoebe rose, and that sort of thing?

C: Yes.

P: How many bushes do you have now? Is this a big operation?

C: This year I have physically not been able to take care of them as well. A number of them died during the winter.

P: Do you not have a gardener?

C: No. [This year] Mary and I planted about a dozen roses. I think we probably have forty or fifty now.

P: That is a lot, enough to cut and fill your house with roses every day.

C: That is right.

P: They are all beautiful roses?

C: I think so.

P: But you might be a little prejudiced on those. Do you grow other things besides roses? How about vegetables?

C: No. I used to have a vegetable garden in the yard, but I gave that up, years ago.

P: Do you have a big yard?

C: It is one-half acre.

P: That is a big yard. Who takes care of it?

C: We have a yard man who cuts the grass. I used to do that. Michael and Stephen, my sons, and I used to cut the grass.

P: If you had as much luck as I had with my sons, it was a constant battle.

C: It was.

P: To get them to mow the lawn I had to keep reminding them and threatening them. Tell me about your interest in the church. You have always been a religiously-oriented person, have you not? Does this go back to your childhood?

C: Yes.

P: Did you grow up in a church-going family?

C: Yes. Both on my mother's and father's side of the family there were a number of preachers. My grandmother was very religious. We lived right across the street from her. I had an aunt, my father's sister, who was also a religious woman.

P: This meant going to church on Sunday?

C: Every Sunday. And trying to live the way they taught.

P: All of your background, both sides of your family were Lutherans?

C: Yes. I just grew up going to church. The Lutheran Church has a confirmation class. When you are thirteen, you go to confirmation class every week for two years. Then you confirm the vows that were made by your parents when you were baptized and you become a full member of the church. You can take communion and things like that. I went through all of that. After you are confirmed, you attend another two years what is called the Luther League. You continue to study during that two year period. So there were four years of fairly intensive study. My father and mother, grandmother, and really everyone in my family, have all tried to live the way the church taught them about how they should live.

P: Did this mean observing certain prohibitions?

C: In the Lutheran church, there is no prohibition against drinking.

P: How about things like dancing?

C: None at all. Lutherans like to dance and they like to drink.

P: This is not the Baptist church we are talking about now?

- C: No. It is a lot different than the Baptist church.
- P: It is nevertheless a Christian church. Does it differ very much from the other Protestant churches in terms of belief and practice?
- C: All of them believe that Christ was God and died for our sins.
- P: And you share that belief.
- C: Including the need for baptism and so on, all of the churches believe one should be baptized. However, the Baptists do not think any Lutheran is baptized. You have to be baptized by immersion. The Lutheran church baptizes by immersion, by sprinkling water on one's head, and so on. The Baptists think that you should not be baptized until you accept Christ as your savior and make a profession in front of everyone in the church. The Lutheran church baptizes infants, and counts on them to learn and conform to the vows that have been made for them when they were baptized.
- P: Do you find the Lutheran church to be on the liberal side?
- C: No, it is more conservative than most of them. There are several different Lutheran groups in this country; they range from some very liberal ones to some which are quite conservative.
- P: What kind of a group do you belong to?
- C: It is probably a little bit to the right of center, the Missouri Synod. The Wisconsin Synod is way out there to the right somewhere. The Lutheran Church in America is over to the left somewhere.
- P: Does your church here in Gainesville take on political issues?
- C: Not really.
- P: So you do not have the preacher on Sunday giving you political sermons?
- C: No. I have never heard a political sermon in the Lutheran church.
- P: Does he talk about moral issues? Does the church take a stand on abortion, premarital sex, and these kinds of things?
- C: All of those things.

- P: So in the church, you know ahead of time where the church stands on these things?
- C: That is right. I think adultery has become a more common thing in the last twenty years. But I hear less in the Lutheran church about it, because a bunch of the members of the congregation may be [offended]. The preacher does not want to make them mad.
- P: It is like students using the f-word. It is an every day happening.
- C: The Lutheran church treats the Ten Commandments as commandments, not suggestions. There is discussion of what does "thou shalt not commit adultery" mean. The church takes a relatively firm stand on most all of those things.
- P: What role do you play in your local congregation? Where is your church?
- C: It is over on Fifth Avenue.
- P: I know where it is, near the campus. I know exactly where it is. Now what role do you play in it?
- C: I have taught a Bible study course, called the Bethel Series. Bethel loosely translates as House of God. It covers the entire Bible in a two year period of time beginning with the Creation, the Fall, and so on. My approach to it is that God has used all this period of time to teach man about himself and how He wanted man to behave. Man was sinful and God could not accept that. He is teaching how he is going to redeem man from his sin. I go through the Garden of Eden story, for example, and how Adam and Eve have sinned and how they felt guilty. They hid in the bushes when God came into the Garden, and they tried to make clothing for themselves out of fig leaves. God reprimanded them, but then He made clothing for them out of animal skins. Their skin was covered, and then He booted them out of the Garden.
- I approach that as God saying that man cannot, by his own efforts, cover his skin, or his sin, or redeem himself with fig leaves. God can cover man's sins, in that context the genitals are sin, so that his man-sin is no longer seen. I think it is Psalm 33 where David says, "Blessed is the man whose sins are covered to whom no iniquity is imputed." I think that is what God is saying through Christ. He is going to clothe us through a new garment, a shining garment of white that will cover our sins. We are still sinful but God refuses to see our sins and covers them. There are a whole bunch of things throughout the Old and New Testament saying basically the same thing.
- P: Are you and your family regular churchgoers, attending every Sunday?

C: Not every Sunday.

P: Nearly every Sunday?

C: Yes. Forty-five to fifty Sundays a year. During lent and before Christmas, we have Wednesday services. Counting those, we average [going to church] more than once a week.

P: But you are more than just a churchgoer.

C: I teach this Bible study. I play the violin as part of the service.

P: Does your wife take an active role in the church?

C: Yes.

P: What does she do?

C: She taught the Bethel course once.

P: Have your children accepted the church activity to the degree that you did, or have they rebelled against it as so many young people have?

C: Martha is as active as Mary. Our son Michael out in western Texas is [active]. Emily and Phoebe are both very active, Celia and Stephen not so much.

P: But generally speaking, you have been able to pass on the torch to your children, in terms of your support and involvement. Are you a financial contributor to the church?

C: Yes.

P: So they lean on you for that too?

C: I do not know that they lean on me. The only person who knows how much money you put in at First Lutheran is the treasurer who counts the money and deposits it in the bank. No one else.

P: I was going to say, churches need money to pay the salary of the preacher, utilities, and so on. From a very practical point of view, they have to look to people like you for support. Obviously you consider yourself a church supporter, so you are willing to do that without feeling that they are taking advantage of you.

- C: Mary gave 10 percent of our income. When I was making \$50 a month, we tithed \$12 a month.
- P: They do not expect you to tithe anymore?
- C: Occasionally they talk in church about tithing.
- P: Then you look at Mary and Mary looks at you and you smile. [Laughter]. Let me get to an interesting part, this Studebaker collection of yours. You came out of a 1937 Packard, and you bought a Studebaker in 1957. Is this what ignited you?
- C: Sort of. That was a good car; we drove it for 150,000 miles.
- P: Sort of like me and my 1986 Honda out there?
- C: We drove [a Studebaker] up to New York. I was driving into the city every day. Mary needed a car at home. One of the women at the church we went to told us one Sunday morning that the guy next door to her had an old Studebaker. She did not know the year, but he wanted to sell it for \$10. I was going to Chicago that afternoon, to a convention, to give a paper. But after church I went over and bought the car.
- P: For \$10?
- C: For \$10. Included in [the price] were five gallons of oil.
- P: You got a bargain, Bob!
- C: Also a new chamois skin.
- P: Was there anything else included?
- C: A new spare tire. I drove [the Studebaker]. That afternoon I left for Chicago in it. I drove it all the way there without real trouble. I found it got about twenty-seven miles per gallon of gas, and twenty-five miles per quart of oil. It was apparent why that five gallon drum of oil was there. Eventually I put a new motor in it. I still have it. It had over 55,000 miles when I bought it. It has over 400,000 miles now.
- P: What year is it?
- C: It is a 1951.

P: And you bought it for \$10?

C: Yes.

P: Of course, since then, you have invested in it a little bit beyond that \$10.

C: One year I had two fellows. Each bought a new car, one a new Plymouth station wagon and the other a Chevrolet of some kind. They were telling me I ought to get rid of my Studebaker and get a good reliable car. So we made a bet, on how much it would cost us in upkeep for our cars, aside from routine gas and oil, on things going wrong so they had to be repaired. At the end of that year, I had spent \$9 on repairs for my Studebaker--one of the wheel bearings started wearing out.

P: You had two Studebakers by this time, did you not?

C: Yes.

P: Another one you bought and the 1951.

C: I was driving the 1951 to work. It was burning a wheel bearing. I bought a new wheel bearing, took the drum off, greased it, packed it, and put it back on.

P: It sounds as if you knew something about the operations of a car. You did not have to take it to the garage?

C: That is right.

P: That saved you money.

C: I spent \$9 the whole year.

P: What about the other two guys?

C: One spent \$150 and the other spent over \$300.

P: So you won even though you had a much older car?

C: Yes, I won.

P: No Plymouths or Chevrolets in your life?

C: No.

P: So how many Studebakers have you acquired over the years?

C: I have fifty odd, that I have restored now.

P: You own fifty Studebakers now?

C: Yes.

P: You never sell one, once you acquired it?

C: I sold one years ago. It was one of the early ones that Stephen and I restored. I started restoring them because Stephen wanted to learn how to work on a car. The first one we did was an old Volkswagen bug. It would not run, and it had a bunch of rust on it. We got a Chilton's repair manual, took the engine out of it, took it apart, rebuilt it, and put it back in. When it ran, it was the biggest thrill I ever had. It was a bigger thrill than when we did our first kidney transplant.

P: [Laughter]. I love that.

C: It ran, and it ran well.

P: Do you still have it?

C: No, we gave it away. We welded some new metal where the body had rusted.

P: Where in the world would you keep fifty Studebakers in Gainesville?

C: We bought ten acres of land northwest of town. At first, we had just five or six of them and they were just parked all around the house. Mary was getting more and more upset. People would ask her where she lived. She would say, "At the west-end junk yard." So I finally took the hint, went out and bought these ten acres. We put up a pole barn.

P: I hope you have a security person out there guarding them.

C: No. We have never had anything stolen there.

P: I believe those Studebakers would be worth an awful lot of money.

C: Some of them are worth \$30,000 and \$40,000.

P: Do you drive them to keep them moving?

C: Yes. I do not know if you noticed, but there is a sort of brown car out there. It

is a 1963 GT Hawk. It is one I restored seven or eight years ago.

P: Well every day you need to drive a new one just to keep them in running order.

C: All of the children drive them too.

P: I remember once meeting Martha at the airport and she told me she was going to a Studebaker car convention, I believe in Boston. I said I have never heard of anything like that.

C: The Studebaker Drivers' Club has an international meeting each year. It is in a different city every year. It lasts a week. It ends with judging the cars, an awards banquet, and a parade around whatever town they are in.

P: And you attend those meetings?

C: Yes. Stephen started attending them in the 1970s. The first one I went to was in 1983. That was at South Bend. We took one car there. I think we have missed just one year since then. This year, we will be taking nine of them to Los Angeles.

P: You are going to drive nine Studebakers across the country?

C: We are going to tow one of them. It is a 1911, although I think it would make it across the country.

P: So every member of the family is going to be driving a car?

C: There are some neighbors who will go with us. Martha will drive. Celia will drive. Celia's husband will drive. My son Stephen will drive and so will I. I have a nephew who is in the air force; he and his wife are going to come down from North Carolina; they are going to drive.

P: Has anybody written you up on this Studebaker collection?

C: There is a book called Magnificent Obsessions. It is about collectors of different things. They have one on collecting automobiles. Stephen and I are in that book.

P: You were featured in there as Studebaker collectors?

C: Yes.

P: Where do you find these cars?

C: People call me now.

P: Now they know you are a collector.

C: The last one I bought is an 1982 Avante. It had only 7,000 miles on it.

P: Do they still make Studebaker cars?

C: The last one, an Avante, was made in 1990. None have been made since then, but they did make them until then.

P: What is the oldest one you have?

C: The 1907.

P: The one you are going to tow?

C: No, that is the 1911.

P: You have a 1907?

C: Yes.

P: That must be a pretty valuable one.

C: It will be when I get it restored. It runs very nicely now. I had it out. It does not have a speedometer in it. Stephen was following me in his car. I was making fifty miles an hour in it.

P: That is pretty good.

C: It was screaming.

P: Do people look at you as you drive down the road?

C: Oh yes. A few years ago we drove nine of them to Portland, Oregon. We have a CB [citizens band] in every car so we can keep in contact. Miles away we could hear the chatter on CB from the truckers who were talking about those old Studebakers going down the road. People will pass you and give you a thumbs up sign.

P: You do not think some of those truckers were saying, wonder what those crazy old people are talking about? Studebakers? I have never heard of Studebakers.

C: A lot of young people have not.

P: I know. It is almost a lost memory to a lot of people. Young people have not heard of such cars. You start talking to them about automobile history and it is as if you were talking about ancient history. So you have gardening, the music, the church, your Studebakers, that is quite a number of things that keep you active and that you get to take care of in your life outside the University of Florida campus. But I also seem to recall that you once called me, because you were interested in something in the Bahamas. I am not sure exactly what it was. Were you not interested in where [Christopher] Columbus first landed or something like that?

C: Yes. I am writing a book on that. Columbus's log was lost. It may still be in existence but no one knows where. Columbus wrote a diary that he kept for Queen Isabella and recorded the events of the day, how far they sailed, and this, that, and the other. The day they approached their first island was described in there and all other things, the island itself was described.

P: It was one of the Bahama Islands?

C: Most people think it was Watling Island up north.

P: Is that not a belief that developed in the last fifty or sixty years?

C: Yes, or maybe a little longer than that. Someone who thought it was Watling wrote a book. Most people accepted that. But if you just look at the first island Columbus came to, it was a small island. It had a reef all the way around it, except at the south-west corner, where there was an opening about 100 yards wide. There was a huge area that Columbus described as being as quiet as the water in Mill Pond. The island was obviously not very big. The last day he was there, he put down his longboats. They rowed around the island, circumnavigated it, in about three hours. They took the boats up and sailed for the next island. Watling Island is twenty-one miles long.

P: So they could not have done that in three hours.

C: There is no way they could have done that. Grand Turk Island is seven and one-half miles long, and three and one-half at the widest point. You could row around that in four hours. The name of the island in Indian was *Guanahani*, which Columbus's people interpreted as "island of much water." Grand Turk has a big lagoon, that was fresh water, that ran about three-fourths of the distance of the island. They have now opened it up to the sea and the salt. It was fresh water at that time. There is Grand Turk.

P: So you are thinking it was Grand Turk?

C: Yes. Another one that people have talked about was Samoma Cay. It is about the same size, but the reef does not go all the way around it. It is just on the Caribbean side. It does not face the Atlantic.

P: What do you mean you are writing a book? How far along is it? Is your research finished?

C: Yes, my research is finished.

P: Are you actually writing a narrative account of this?

C: Yes.

P: Are you far along with it?

C: I have not gotten a lot done on the writing, but I have started. What I have done is take each of the islands that he described until he got to Cuba and I examined them. If Grand Turk was the first one, was the next island he came to compatible with what he described going from Grand Turk, Watling, or Samoma Cay? Taking Grand Turk Island as number one, all of those following islands fit into place. They left island number one, Grand Turk, at noon, and they got to island number two at about four in the afternoon.

P: The same day?

C: The same day. They could see it in the distance from the mast of their ship. That was one of the reasons they started sailing there. From Watling Island, it is a seventy-five mile trip.

P: So they could not have seen it.

C: They could not have seen it and they could not have made it in four hours. The top speed that his boats could go, even in a very good wind, was probably not more than nine miles [an hour]. If the wind was not very good, [they covered] a lot less [distance] than that.

P: Bob, I shall look forward to reading your book and the historical account. Tell me what HELP is.

C: HELP is an organization that was started by one of my kidney patients who was on dialysis. HELP stands for help each of us live productively. What it does is help raise money to help with the bills of kidney patients who are in need of help.

P: For any kind of kidney problem?

C: Mostly it is people who are on dialysis.

P: You are on that board?

C: Yes.

P: So it is a continuing operation, but started by somebody other than Robert Cade.

C: Yes.

P: You are a sponsor of that I presume.

C: Pat Powers, who is one of my technicians, was one of the people who helped. At the very first, she and this other guy were the ones who started HELP. She is still one of the major fund raisers for it.

P: I do not know that I have heard about it in Gainesville, but I guess it is an active organization.

C: Yes. Most of the people it helps are black.

P: Do they have fund raising activities here in Gainesville?

C: Yes. They have things like barbecues. Pat runs a bingo game and brings in \$800 or \$900 a week for it. It is an active organization. I think it does very good work.

P: You have been a sponsor for a variety of athletic events in Gainesville, such as marathons. Have you been supporting Little League activities or children's activities?

C: No. I supported Junior Champ. It is a summer track program.

P: For kids?

C: Yes, for children. I supported that from the very early days, back in the 1960s. I supported the Florida Track Club by sending people to meets, and I have given money to events they have organized around here. The Health Center has a couple of runs each year that I support.

P: Do you like to read? That goes back to your childhood.

C: Yes.

P: Do you do a lot of it?

C: I still do a fair amount of reading.

P: What kind of books do you like?

C: Until I finished all of them, I read all the Agatha Christie books. I still read some mystery works. I read books on history, particularly Egyptian and European during Roman times.

P: Ancient history?

C: Yes. I consider history to end in 1453 though, with the fall of Constantinople. Everything since then I consider to be current events.

P: A lot of European historians agree with you. Do you and Mary like to travel?

C: Yes. We have been to Egypt. I have been there four times and Mary has been three times. We have traveled through Greece and Italy a number of times. We have been to Norway and Sweden in conjunction with my presenting some papers. We would go to a meeting there and then we would spend the next three weeks traveling around.

P: Have you been to Asia?

C: No. We have been to North Africa, with the exception of Libya.

P: And, of course, you have been to Europe.

C: We have been in every country of western Europe, and we have been in Poland, Czechoslovakia, Greece, and Yugoslavia.

P: Did you get to Russia?

C: No. We were scheduled to go, [from Helsinki in Finland over to St. Petersburg], but we could not get on the boat the evening it was to leave. We found that they had oversubscribed it by a couple of hundred people, so we got bumped off. Our money was refunded.

P: That did not help you if you wanted to see Russia.

- C: No. The boat was scheduled to leave Helsinki in the evening and it was in St. Petersburg the next morning. You spent two days in St. Petersburg and one night on the boat and came back to Helsinki. I was disappointed.
- P: Well, you could still do that. Have you any new travel plans?
- C: Our daughter Phoebe will be stationed in Germany. We are probably going to visit there next and see things around Europe. I want to go through Hungary, Romania, Bulgaria, and that part of the world.
- P: The Balkans? Wait until things calm down just a little bit, until they stop shooting those bullets. You do not want to get involved in any wars.
- C: No, I surely do not.
- P: Are you a political person? I asked you and you said you ran for the school board but I did not hear anything beyond that.
- C: I have voted in all the elections since I have been old enough to do so. I am a conservative. Most of the time I have voted Republican. I voted for Senator [Bob] Graham [United States Senator from Florida, 1987-present] when he first ran for the Senate against Paula Hawkins [United States Senator from Florida, 1981-1987]. I voted for Reubin Askew [governor of Florida, 1971-1979] a couple of times. Generally, I have been a conservative.
- P: You are a conservative personally. You go to the polls, vote, and that is it. You do not give out any public endorsements?
- C: No. I have given money to a number of different campaigns. I did not give any to George Bush the last time he ran.
- P: You must get a lot of mail.
- C: I do.
- P: They all have their hand out?
- C: That is right. They all [say], rush this form back today with \$500.
- P: Or else the country is going to collapse tomorrow.
- C: That is right.
- P: I get some of those too. What have we not talked about that pertains to Robert

Cade, his life, profession, and activities? I know we have spent several hours here and we have covered a lot of taped material.

C: I think we have covered everything important.

P: Are there some unimportant things that you have not revealed, some things that you have been reluctant to talk about, or that I should not know about?

C: We touched on politics. I have never talked about politics except in a conversation like this. One reason was, when I talked to a patient, that patient may be a very liberal Democrat and if I expounded on my conservative beliefs, I think I could interfere with the relationship I had with that patient, which was important. So I did not talk to [patients] about [politics]. I did not go around making public pronouncements.

P: Are you disturbed by the kind of world in which we live now? Are you a pessimist or an optimist?

C: I am an optimist, but I am disturbed by the world in which we live.

P: You do not think the world is going to hell?

C: I think it has stumbled along for I do not know how many thousands and thousands of years. I think it will continue to do that.

P: Do you have faith in the future?

C: Yes. I think that the future will be as good or better than today. However, I do not think man is getting any better. I think man is as bad as he was at any time in history. I do not think he has ever been noble. I think there are some individuals who have been noble, but I do not think mankind has been. I think generally mankind was sinful and bad.

P: A lot of people are disturbed by immorality and are pointing their finger at drugs, crime, and all of these other things. As you look back on your life and into the future, once again can you say you are an optimist?

C: About drugs, I am. I am not sure. I think maybe legalizing them would be all right. I think in any event, as time goes on, it will be less of a problem. I think there are lots of young people who recognize that taking drugs is a bad thing to do. The number who recognize that increases every day, so I am optimistic about that.

P: In the paper the other day, they were showing statistics of how many more young

people are turning to alcohol. There was a big splash in the papers just last week about that. They were talking about college students, such as we have on this campus, who drink to excess sometimes two or three times a week. But I have not seen the quality of our students deteriorate, at least not in my classes. Have you seen a deterioration in students you have been working with?

C: No, not with the undergraduates I see in physical education. I think, if anything, the quality has gotten better in the last ten or fifteen years. The medical student quality is at least as good as it ever was, and maybe better. I think there are some awfully good students and nice kids in the high school classes I have been talking to. So I am optimistic about that. I think man is never going to be perfect. I use sin to describe him, but I am not sure that he has gotten any worse than he was at any time in the past. I do not think he is any better. I am distressed by things like abortion. I think that is a real abomination. I am not sure I could vote for anybody who espouses it or says it is okay.

P: Your church takes a strong stand on that, does it not?

C: Yes, and I take a stronger stand than my church.

P: You may find yourself not able to vote for anybody this time. [Laughter]. You would not want to be left out of the process, would you?

C: I might. If there are two people running against each other, and both of them support abortion on demand, I would look at other things and vote against the one who is the worst.

P: [Laughter]. I see. That is a safe way to go. I think we have pretty well covered everything. When I prepared to meet you now, I even went back and looked at the interview you did a couple of years ago with Ralph Lowenstein [dean emeritus, and professor of Journalism and Communications]. I enjoyed reading it again. I noticed you talked a lot about steroids. I do not know if today, in 1996, that is as big an issue as when he asked you that question in 1993 or 1994. Is it as big an issue?

C: It has diminished. It is still an issue. I do not think it is nearly the problem it was in high schools.

P: You were alarmed by the degree to which steroids were used in high school, very often with the approval of coaches.

C: And with doctors around there who were dispensing the stuff.

P: I remember you said there was a doctor out in San Diego who would give you

prescriptions by mail.

C: That is right.

P: So you feel that there is less of a problem today.

C: I think that people recognize the dangers of it. Parents wanted their child to get a scholarship to the University, and they approved of its use. But I think there are fewer and fewer of them.

P: One of the things I noticed that you said, that I was in agreement with, was this whole issue of the morality. I wondered about adults approving of something they knew to be wrong.

C: I think that is almost central to the argument. I think there are far more people now who would really object if their children were talking about taking anabolic steroids.

P: Because of the danger that it might do to the child?

C: For the danger of what that would do to the child. But I agree it is bad also for what it does to the character. Only I am not sure that I can muster any force in arguing against it on the character issue. But when I say it is producing hypertension causing epiphyseal lines to close in an eighteen year old boy who ought to grow for three more years then I think that is an argument parents appreciate, not in an abstract way, but in a very real sense.

P: Bob, are you working on a new medication for blood pressure?

C: No. What I am doing mostly in blood pressure has to do with the effect of temperature.

P: I see. That was what you were explaining earlier.

C: Cold causes blood pressure to go up. Warm causes it to go down.

P: I was thinking of that because you said steroids have an impact on blood pressure, which could be dangerous too, could it not?

C: It could be very bad. We used to see a fair number of eighteen year old boys who would come in with blood pressures of 180 over 110. That is a very disruptive level of blood pressure.

P: Certainly for someone that young.

- C: At any age. The eighteen year old with a blood pressure like that is not going to live very long. They are the ones who are going to have a heart attack, or a stroke, at thirty-five or forty and die. There are a lot of former football players who are still doing that. I think there are far fewer high school students who are getting into that trap. I think some of the professionals are still using it, but they are afraid they are going to get caught. The younger ones [face] recognition by their parents that this is a bad thing to do. It is becoming less and less of a problem.
- P: I guess we have reached the end of the line here now, unless there are some skeletons in your closet that you have not yet revealed to Sam Proctor?
- C: No. But there are lots of things I have done Sam, that I wish I had not done and that I wish I could do.
- P: [Laughter]. Well, what else is new in life?
- C: If I were pouring out my soul, then I would bring up some of those.
- P: Let us not do that. That is not our purpose with this interview. I really appreciate this, it has been a wonderful experience for me and I thank you for it. I hope you have enjoyed it.
- C: I have.
- P: I hope perhaps you remembered a lot of things that you thought you had forgotten.
- C: I did and it was a pleasure talking with you.