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NEW BRUNSWICK

AN INTERVIEW WITH UPENDRA CHIVUKULA

FOR THE

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Shaun Illingworth: This begins an oral history interview with Upendra Chivukula, on May 7, 2019, in New Brunswick, New Jersey, with Shaun Illingworth. Commissioner, thank you very much for coming in.

Upendra Chivukula: Yes, thank you, Shaun.

SI: To begin, can you tell me where and when you were born?

UC: Yes. It's a long time ago. I was born in 1950, on October 8th, in a place called Nellore, N-E-L-L-O-R-E. It used to be in the state called Andhra Pradesh. I was born--it was a hospital. The short name for that, it's called the American Hospital. That's what they called it. Most of my family members were born there. It's very famous for the Chivukulas to be born in the American Hospital in Nellore. We lived in Nellore for a couple of years, before my parents decided to move to Madras, at that time. Now, it's called Chennai, in the southern part of India. That's where I spent over twenty-two years of my life, in Chennai.

SI: For the record, can you tell me your parents' names?

UC: Yes, my father's name is Ramabrahmanandam. Chivukula is the last name. Mother, Sathyanarayanamma. Again, the last name is Chivukula.

SI: Do you know anything about their lives before you were born, like how the family came to settle in that area, or if they had been there for many generations?

UC: Right. My grandfather on my father's side was born in Kavali, which is only about thirty miles away from Nellore, where he was very successful. He had accumulated a lot of family wealth. Unfortunately for my father, he passed away when my father was in his teen years. My father married my mother. I think the difference between my father's age and my mother's age was eleven years. My mother comes from a village called Venkampeta, which is near Kavali. They were married in 1941. My father had a lot of money when he was young. Since he didn't have parents and people joined in bad company, he lost all the money. When we were growing up, we had very little money.

SI: Your father went to college.

UC: Yes. In those days, it's called an intermediate, which is two years. Three years in India, you get a degree. Two years, you get sort of an intermediate diploma. That's what he got. He went to a college by the name of V.R. College in Nellore. He was a decent student. He was not outstanding, but he was a decent student.

My mother was brought up in a village. In those days, in the 1940s, at that time, the women were not given a lot of education. My mother's education was stopped when she was in sixth grade or seventh grade. She pretty much did not go to school after that.

[RECORDING PAUSED]

SI: You were talking about your mother.

UC: Right. She did not get a lot of education. She was very entrepreneurial. After marriage, she went and learned vocal music, the classical Indian music called Karnatak music. Also, she learned to play a string instrument called a vina. She was able to give tutoring, private tutoring, to people, teaching music. She raised us like that. [Editor's Note: Karnatak music, also spelled Karnatic or Carnatic, originated in South India.]

When they left Nellore, I was very young, only two years old. I don't remember a whole lot at that time. Unfortunately, we don't have any childhood pictures. They were all destroyed. I have five siblings. I have two sisters who are elder to me and one brother elder to me. I have one younger sister and one younger brother. Somehow, we lost all the pictures. We lived in Madras, or today it's Chennai, for twenty-two years before I left India. I left Chennai. I came to Mumbai, before I came to the United States.

SI: Had your family, perhaps your parents or maybe even your older sisters, ever talked about the events in the decade before you were born, such as the Second World War, independence, or the partition? Did that have any effect on their circumstances?

UC: I think we were taught a lot in the school system about the struggle for India's independence. By that time, Mahatma Gandhi was a martyr. He was already remembered, already achieved the title of Mahatma. I remember Jawaharlal Nehru, the prime minister at that time. A lot of it is learned through history, reading, movies, documentaries. I learned about that time. [Editor's Note: Mohandas Gandhi, known as Mahatma or the "great-souled one," led the movement for Indian independence from Great Britain through the use nonviolent disobedience. Jawaharlal Nehru served as the prime minister of India from 1947 to 1964.]

SI: Was the move to Chennai driven just by a search for better economic circumstances, or were there other reasons?

UC: I don't really know the reason. I know that because he pretty much lost all his property, basically downsizing and wanted to move into the city. He found a job in one of the schools. Actually, there was a company called Kaveri Spinning and Weaving Mills. He joined as a treasurer type, an accountant. He joined that. I think the job brought him over to Chennai.

SI: What are your earliest memories of growing up in the city, in your neighborhood, or on your street?

UC: One thing I remember is that we were moving from one place to the other every two years. That's distinct because I went to at least three different schools in Chennai. One time, I think there was some family issue. We were shifted. My mother shifted us with my older sister and we had a grandmother, my father's mother, shifted us back to Nellore for one year. That was a tremendous trouble for us. There were some internal politics inside the family. We were in Nellore for a year.

I remember those days. By that time, I was already seven, eight years old. I was able to remember a lot of things. I went to school in Nellore for one year. I was a free bird in the sense that we pretty much brought ourselves up because there's six children. Mom and Dad didn't have that much time to really pay attention to especially the younger ones like me. I was quite daring and did a lot of things as a young person.

I used to do everything at home. I learned cooking, cleaning, everything, at a very early age of seven. I used to help my mother. I used to maintain a garden. We were all undernourished. I was weighing probably in the fifty pounds when I was eight or nine years old. When I graduated from high school, I was hardly seventy pounds. We were really undernourished, but we had the willpower to succeed.

In terms of education, in Nellore, the language is Telugu, which is my mother tongue. Chennai, or Madras at that time, was a bilingual state. The local language was Tamil, T-A-M-I-L. Telugu was also very prevalent. I studied in the Telugu medium. The local language was Tamil, so just to get by, you learned that language also. It was an interesting experience, in that even though Telugu is my mother tongue, I had to adjust to two different cultures and two different standards.

SI: I am curious, some of the other folks I have talked with spoke about conflicts between different language groups. Were there any issues, particularly in Madras, between Tamil speakers and--I forgot the name of the other language.

UC: Telugu. I did not see that growing up because I was able to speak the language. I was able to blend in. Even though people knew the language I spoke at home was different from Tamil, somehow I was able to blend in. I did not see any outward bias or discrimination. I did not see that. There could be some inherent bias that might be there, but I did not [see it], because there was a large enough population speaking Telugu. Plus, I was an athlete. I was able to spend [time playing] sports. Once you are in the sports arena, it does not matter. I used to play cricket. I used to play all the other sports. I was in running. I was in the high jump and long jump. I was able to blend in.

SI: Were there other aspects to the differences other than language? Were there cultural differences as well?

UC: Yes. In those days, we had this caste system. It's still there. There is an advanced, higher caste called Brahmins. I was Brahmin. I was born in a Brahmin family. Tamil Brahmins had a little bit of a superiority thinking. I was able to somehow adjust myself into that. I didn't have that much of a problem. I accepted certain things. I grew up as an underdog. All my life, I have been an underdog. There are two ways to deal with being an underdog. You can get depressed and you can feel, "Oh, God, what is happening to me?" Or you take that as a challenge and fight your way through being an underdog and then come out successful. The victory always sounds like double the effect when you're an underdog and you win. It is a doubled effect.

One time, I was going to the engineering college admissions. At that time, what happened was that the government changed. It went from [Indian National] Congress to a local regional party called DMK, Dravida Munnetra Kazhagam. They were more anti-Brahmin, anti-class; that was

very predominant. When I was sitting there in the engineering admissions, they started asking questions. I was answering all the questions. Suddenly, they asked me, "Are you a Brahmin?" I got really concerned that this is it, I'm not going to get my seat because there was this prejudice at that time. I told him, "Yes, I'm a Brahmin, but I'm a Telugu-speaking Brahmin." Apparently, Telugu-speaking Brahmins are respected a little more than the Tamil-speaking Brahmins. The conflict was between Tamil Brahmins and the Tamil non-Brahmins. Somehow, I was able to survive that test. I got my admission to engineering college. [Editor's Note: Dravida Munnetra Kazhagam (DMK) is a political party in India. A Brahmin is a member of the highest caste or varna in Hinduism, consisting largely of priests, teachers and other intellectuals.]

SI: Where do you think this drive came from? Was it your family, or was it more internal?

UC: I think it's a combination. My father said, "Lower your expectations." He was following the Buddhist principle, "Desire is the root cause of misery. You've got to tune down your desires" and all that, whereas my mother was very ambitious. She really promoted the value of, "Hey, you've got to work hard. You've got to succeed. You've got to pull yourself out of the situation you are in." That [was] tremendous motivation from my mother. In social situations, when you are dealing with people, when you have no money and when you come from a certain [situation], people always look down upon you. As I said earlier, it's a tough thing. You will have that pain. You'll feel hurt. You can take that and transform that into positive energy and say, "Look, I can excel. I can do better. This is my starting point. I can always elevate myself higher." I think the drive was there. The inspiration to succeed and not just succeed, excel, was there. I don't know where it came from. Everything I did, I wanted to be the best. I came in almost number one in my classes.

One time, I was studying. I studied everything in my Telugu medium, T-E-L-U-G-U. All the subjects, social studies, history, science, mathematics, everything was in Telugu language. One year after I finished my fifth grade, then they introduced English medium in the schools. A friend of mine, younger [than] me, one year, he got into the English medium. He used to say, "I'm in English medium. You're just in Telugu medium." He was trying to say that. I worked hard to learn English. I did quite well in English in India, as well as wherever I have traveled. I believe the strong principle from Dale Carnegie. Basically, it says, "People don't fail. They fail to try." I have an addiction to keep on trying things and somehow come out of difficult situations. I was able to do that. [Editor's Note: Dale Carnegie (1888-1955) was a writer and lecturer who focused on self-improvement in the areas of salesmanship, corporate training, public speaking and interpersonal skills. Carnegie is the author of *How to Win Friends and Influence People* (1936).]

SI: I am curious, since you mentioned Dale Carnegie, did you read those books when you were younger?

UC: Yes, I did. *How to Win Friends and Influence People* was the first book I read. I'll tell you about the U.S., but I think life is a lot of experiences you have. I remember this story. It sticks to my mind because I chose how you can deal with the situation, how your intellect and your presence of mind can help. One time, my uncle came to visit us. He was telling me, "I'm going to the village. I want you to come with me. I'll take you there." Chennai was a big city, and

going to a village, I would rather play cricket and spend the time here. So, I told him, I said, "Uncle, I don't think so. I just want to take care of a few things here." I was only about maybe twelve, thirteen years old. Then, the next day, my mother comes to me and says, "Look ..." She was trying to build a house. We were living in a house that was temporary, even though we lived there for almost five years. It was basically walls with mud and a thatched roof. Then, we hardly had electricity because of the fire danger. We didn't have electricity for a long time. We were able to build the foundation. In order to build the walls around the foundation, she needed money. She comes to me a day after my uncle said he wanted me to go. She said, "Oh, I want you to go to the village and get some money from our father," it's my grandfather. I was only thirteen years old, fourteen years, very young. I said, "Okay, Mom says I have to do it," so I said I'll do it.

I traveled almost 120 miles by myself. You basically had to take two different trains. You had to get off and then walk miles. I reached the place, and there was another uncle, older. There are two uncles, my mother's brothers. The second uncle was at my elder uncle's house. I was staying there. This uncle said, "Hey, I asked you to come. How come you came today?" I knew he was visiting for the same purpose, he was trying to collect money from his father. We looked at [each other] as adversaries in a competition, so I didn't want to let him know why I came. I said, "Oh, look, I changed my mind." He did not believe me. He said, "Okay."

The challenge came to me when, from there, I had to travel thirty miles by bus and then another five, six miles by [walking]. You had to walk through the fields. It's a forested area. They used to have tigers at that time. So, they would not send me alone into that. Sometime, after the rains [flooded the] area, [you had to] cross the water and all that. My aunt said, "No, no, I cannot send you alone. You're too young." I'm thirteen, fourteen. I said, "Oh, my God, how am I going to do that?" Suddenly, the idea came to me. I went to the local post office. In those days, we had postcards. I took the postcard, I wrote a letter to my grandfather, "Grandfather, my mother sent me here. I'm looking for money. You have been helpful to our family." I mailed the postcard. Basically, what happened, my mother owns two acres of land. Once they do the cultivation, after the harvest season, they sell the crop and get some money. So, I sent the card. I said, "Let the card do the work." [laughter]

After almost a week later, they found somebody to escort me to that village. I go there. In the meantime, my uncle went, and he came back. He was not very happy, because his father didn't give him money. I said, "Oh, my God, my chances are not that good." Luckily, when I went there, my grandmother said, "Oh, your grandfather has money for you." I was so shocked. That little postcard did the trick. I got the money. You try to keep the money safe. It's all cash. In the house where I was living, it was all open. People come in and out, everybody. I wanted to keep the money safe. I talked to my aunt. I took her into confidence, "Please don't tell anybody there's money. I want you to keep it. When I'm ready to go, you'll give it to me." My aunt went and told everybody. My uncle was furious. Even after thirty, forty years, he remembered that, "You are so clever. You didn't share anything with me." There are certain qualities, I guess they were there, the motivation and using the presence of mind. Though they're there, you fine-tune them as you get older.

SI: I would imagine, given the perilous travel involved, you did not go see your mother's family much, or would you visit them periodically?

UC: No, we used to go. Partly, we didn't have money.

SI: Yes.

UC: One time, my uncle came. He transferred, he worked for the insurance company. He used to travel. One time, he came. I was in college at that time, engineering college. I'd get a scholarship from the government. Whatever money I had, I saved, and [I was] helping the family through because you needed to. I didn't stay in a hostel, a dormitory, because I didn't have the money. I used to be a day scholar. Every day, I used to walk a mile to catch a train for thirty-five minutes and then walk another half a mile to catch a bus. Then, I used to repeat all that. The hardship was there, tremendous hardship. My father's income was not that much. He was too honest. If he thought that the owner of the company is dishonest, he'll quit the job. Then, we were in hardship. One time, an uncle came to me, and he said, "Oh, I want you to come to Bombay," Mumbai. At that time, it was thirty rupees, or something like that, which is hardly three dollars, and I didn't have thirty rupees. He gave me the money and said, "I want you to come." So, then, I said, "Okay, I can travel now." I [got] permission from my mother and father. I went to Mumbai. I sent a postcard saying, "I'm coming on such-and-such a train."

Then, I get off in Mumbai. I look around. Nobody's there. So, I had the address. It's a different language also. In Mumbai, they speak Marathi, Gujarati, and Hindi as the language. Luckily, I knew some Hindi, not very good at it. So, I had to find my way from there. I had to get off the train. I waited for forty-five minutes. There was no sign. We didn't have phones at that time. I couldn't afford a phone anyway. So, I had to ask the local people, find a train, got the train, got off at the right train stop, walked across some slum area, and got to the place. They were surprised, "How did you find it? How did you come?" I said, "Well, I had the address, so that's all that is needed." So, I was there.

Actually, that was a real turning point for my life, going to Mumbai that year. My uncle was there, my mother's younger brother. He was an officer. He had an officer's quarters and all that. His friends [were] also in the same building in the quarters. I befriended his friends. What I did was, my goal was I knew growing up in Chennai with my engineering degree, I may or may not be able to find jobs. Jobs in India, it was very difficult. Even at that time, it was very difficult because you needed to have connections. I had no network, no influence. My father had very limited influence. We tried that; it did not work in Chennai. When I was in Mumbai, I found out the system, so I bought a train pass, a monthly pass. Once you have a monthly pass, unlimited times you can get off and get on the train. So, I used to go every day, get off on each train stop, and I used to walk miles to check what is available, east and west of the train station. Every day, I used to do one train stop like that. I used to travel and learn the city by myself.

I remember my nephew, an older uncle's son, also came to Mumbai at that time. But he was always just laid back. He used to eat lunch and then take a nap in the afternoon. In my case, I had breakfast. I used to leave. I used to go, because I had a purpose. His purpose was to relax maybe. My purpose was to learn the city, so that way I was planning ahead for my next year, to

look for a job. My nephew used to complain to my uncle, "Oh, he doesn't take me." I asked him a few times. He didn't want to go. I said, "Look, I can't. I have to learn my life." They understood that.

That helped me the following year when I graduated from my engineering college. Again, the money was the issue. They had this Bhabha Atomic Research Centre, one of their atomic agencies, the central agency. They had called me for an interview. So, they had paid my train fare. I took an overnight train. I was traveling. The change of weather, whatever it is, I got very sick on the train. All night, I had a temperature and all that. The next day, I went for the interview. I did not do well. I didn't get the job. I stayed back because my uncle's friend was there. He said, "You can stay here." So, I spent three months in that place to look for a job. [Editor's Note: The Bhabha Atomic Research Centre is a nuclear research facility located in Trombay, Mumbai.]

I remember distinctly when my sister was getting married, we didn't have even proper shoes. We didn't have shoes, a lot of walking barefoot and all that. Also, we could only afford half, shorts basically; we couldn't afford the full pants because of cost. [It] required more cloth. For the wedding, they bought me one pant and one shirt, one white shirt and one pant, and I had one tie. That's all I had. So, I used to use that every day and wear a tie, no jacket. We couldn't afford a jacket. It was hot anyway. Mumbai was very hot. I used to get off and go and knock on doors, try to look for a job. At the end of the day, I'd come home, wash that pant and shirt, dry it up overnight, and the next day morning, iron it, wear the thing, and go.

It took me three months. I did make the shortlist in a few jobs, but I got bumped by somebody with influence. Finally, I ended up with a job. That was very lucky, in that they had six hundred applicants for one job. In India, at that time, they used to give a written test. The longer you are away from your graduation, you don't remember all the things. So, you had to brush up the day before just to do well in the written test. Out of six hundred people, six people cleared the written test. I happened to be one of them. Next was much easier. One out of six is easier than six out of six hundred, [which] was tougher. So, I was able to get my first job in Mumbai. It took about three-and-a-half months of struggle. It was a lot of mishits, but somehow I survived.

SI: I want to come back to that. You described how, even when you were seven or eight, you did a lot of work around the house. Did you have to go outside of the house to look for work at an early age?

UC: No. In India, the system was so different. They didn't have jobs that you can get like here, even though the child labor issues are there. But there was no place to go and look for [work]. Like, relatives or somebody said, "Okay, can you do this for me? I'll give you a dollar," a rupee or whatever it is; a lot of small jobs I used to do. What I'm talking about, taking care of the house, growing a garden, where I can produce vegetables. That way, we have food. Keeping the house clean. We had four rooms, maybe four times this size room [six feet by eight feet], where I was first living. I used to sleep in the kitchen. Sleeping in the kitchen means everybody has to finish their dinner. The floor has to be cleaned. Then, you sleep in the kitchen. I used to get up at four-thirty in the morning because my mother used to get up. It was a forested area. It was very dark. There are no lights and all that. Safety was an issue. At seven, eight years old, I



thought I was protecting my mother. [laughter] I used to do a lot of chores around the house, growing food and going out and buying vegetables and rice, whatever is needed. Going out and getting all that, that was keeping me quite busy, plus the full-time studies.

Some years, we used to commute because we used to move. I had one place, it was a school called Hindu Theological High School. We used to live near there. Then, we had to shift over to a different place. I stayed in the same school, but I used to commute. The commute was quite--we didn't even have a book bag, we used to carry books in hand. We had one mile you walked to catch the train. You sit in the train for forty minutes traveling. Then, you walk another one-and-a-half miles to get to school. You repeat that, which is pretty hectic when you are twelve years, ten years, twelve years, thirteen years. It's pretty hectic. So, [I] didn't really have much time to do any work outside. It was basically taking care of the house. That's the work we did.

SI: Can you describe some of the schooling that you went through? I would imagine the Hindu Theological High School was private, but were the earlier schools public schools?

UC: Actually, in India, they had few public schools. They were called corporation schools, because Madras was a corporation, the corporation schools and all that. In those days, even the public schools' tuition was comparable--I think it's a big difference in that. I think these schools were private, but I didn't even know the difference between private and public school. They were all kids from all over Madras, because the education was very inexpensive at that time. It's not like the [private] schools we here, like you go to Rutgers Prep, you pay thirty-five thousand dollars, not like that. Even in the Hindu Theological High School, we were only paying--I was also low income, so I probably paid just the registration fees and some nominal tuition fees. It was not that different. Then, the corporation schools, there also you had to pay money, but they didn't have that.

The school experience was very interesting though. One school I went to was called RBCCC School. I did my elementary education there. The classrooms used to have thirty, forty people in the classroom and absolutely no air-conditioning. Even the so-called private schools didn't have air-conditioning. If it was hot, eighty degrees, ninety degrees, that's what it is. The construction was such that inside it's bearable. I was studying in Telugu medium. One of the things I was doing was, I think one time, I came back, I was not doing well in English. I think I got less than forty percent. (At that time, in India, grading was: forty percent was passing, sixty percent was first class, and seventy-five percent was distinction.) My father was very angry at me. He said, "Okay, you've got to study with me." He sat me down. He taught me. On the next exam, I got a ninety-eight. It was just that kind of thing that was needed. I was a good student. You do sometimes slip up, but I was able to do that. A lot of the subjects, I think we needed some coaching. We had some family friend who was able to tutor my sister and I with some mathematics. Mathematics was harder for us, especially trigonometry. We got some coaching. Then, I was always in the close to hundreds that I was getting.

SI: Are there any teachers that stand out in your memory as being particularly supportive or encouraging you to think about college or engineering?

UC: Yes. The principal of my high school, Hindu Theological High School, always raised the bar for me and he said, "You have the potential to do a lot." I still remember him telling me that, "You can do this, you can do that." Definitely, that stands out.

I do remember one bad experience I had. One teacher, I think in RBCCC School, the elementary school. I was very young. I probably did not behave well, probably a discipline problem. He made me sit at a squat position against the wall for eight hours.

SI: Wow.

UC: That was my punishment. I could see all my veins in my legs and all. I had to go to the hospital to check [it] out. My father was very mad at it. We took corrective actions. It's all the learning in life that you go through, you make mistakes, you pay the price for it.

Throughout the school, I had support, support from the family, and my father's friends were teachers. They were helpful to us. They always believed in us, in spite of all of our challenges. There were a lot of people, relatives and all that, they looked down on us because we didn't have the money. We couldn't afford a lot of things. Actually, that motivated me to do better.

SI: Did religion play a role in your life growing up?

UC: Yes, definitely. I grew up as a Hindu. When you don't have money, when you don't have all the things--growing up, not even having a radio. We had to share the radio with five other siblings. You take your turn for the radio. We never saw a television. For a few years, we didn't even have electricity, for that matter. We had a challenge. One thing that kept us is the faith, having faith. When growing up in India, especially Chennai, every street corner we have a deity of a Hindu goddess or a god. Religion was part and parcel of my life. It's about doing good things, caring for the people around you, and doing service. Those are the distinct lessons from the religion, talking about peace, having that tranquility, and being kind to people around you, animals around you. That's what I remember.

SI: Was there any form of religious instruction that you received? Did you go to a separate school? Was it done through the family or just by going to some kind of religious institution?

UC: Yes. The Hindu Theological High School, one of the requirements is that in the Hindu culture we wear a face mark. We have to wear that. That was a requirement. We always started the day with a prayer. That's the extent of the religion in the school, to start with a prayer. The rest of it is like any other [school], instruction of the different subjects that you [took]. I don't know how I ended up in the Hindu Theological School, but it was a very enlightening experience for me.

After finishing eleventh grade, we had, at that time, a pre-university. Vivekananda College, that's, again, a religious institution. We call them a college, but they're not. It was one of the top schools. We were able to apply for that. The tuitions were a very nominal thing. I had to switch from all the instruction from Telugu, my mother tongue, to English within a year and do well. In one sense, the education was limiting in that we didn't study any sociology, psychology, none of

that. All I studied was mathematics, physics, and chemistry, all in English. I was able to do that and get a distinction (seventy-five percent and above).

To get into the college, you needed to pay tuition. It was probably four hundred rupees a year, which is maybe, at that time, fifty dollars for a whole year. My father said, "Look, I don't have money to send you to college because I don't have my job." I told him, "Don't worry." He wanted me to learn a trade and be happy. I said, no, I wanted to go to college. I went and knocked on a few doors. I said, "I'm looking to go to college. Is any scholarship available?" Luckily, one of the family friends took me to a foundation, where they were able to give me enough money to go to one year of school. Then, once I [earned] distinction, I was able to get Government of India merit-cum-means scholarship for my engineering.

SI: When you were going through high school and then the pre-university, was engineering always your goal?

UC: Yes. Growing up in India at that time, the options were limited. Either you go for engineering, you go for medicine, or you study some liberal arts and become an attorney. In terms of medicine, [you] can't even afford anything. So, that's not even in the plans. Engineering was the next best option that was available. Even in engineering, we have IITs (Indian Institutes of Technology). They were highly competitive. They required a certain amount of money to stay in the dormitory. I didn't have money. I settled for the engineering college. At that time, this College of Engineering, Guindy, was one of the top schools. So, engineering, and then the question is whether you become a civil engineer, mechanical, or electrical. I had some aptitude for electrical engineering because I thought there would be more job opportunities. That's all. The idea is to succeed in life. [Editor's Note: The College of Engineering, Guindy, founded in 1794, is located in Chennai, India.]

SI: You mentioned that you were very active in sports. Did that start in high school or earlier?

UC: No. You have this pickup baseball type of thing. We used to have local teams. I used to play cricket. I was a southpaw, left-handed. I learned and I did well in school. I played for my high school in cricket. I used to play other sports. In high school, I also got some trophies for four hundred meters, for eight hundred meters, and long jump. I got some awards for that. There was no training. I was trying to get up at four in the morning, run around in the fields, and train myself. I did quite well in those things, given the undernourished body and all that stuff. When I graduated from high school, I was hardly seventy pounds. When I graduated from engineering college, I was ninety-five pounds. When you don't have many resources, we were able to be quite resourceful. We used to take the bamboo and create the bamboo poles and then put a pole in between, and I used to do the pole vault using the bamboo. We used to do high jump and all the stuff. We improvised. Even though we don't have the resources, we made use of the resources that we had and we were able to get almost similar results.

SI: You also mentioned fighting over the radio with your siblings. I'm curious, would you say that you were aware of the larger world as a teenager and as a young person?

UC: Yes, I think. One of the things about growing up in India is that India, they have much better news coverage. They cover the world. We had BBC (British Broadcasting Corporation). At that time, we had this medium wave, which is the local stations. Then, you had the shortwave one and shortwave two, and you can catch some of the BBC and Voice of America. You could catch all that. I knew a lot about the Western part of the world. We used to have libraries. We used to go look it up. The British Consulate had a very nice library. We used to go there and look at the books. At that time, the U.S. Consulate in Chennai had a library that you were able to go in and look at. Now, it's hard to get in, but in those days, [I] was able to do that. We were able to have exposure. Apart from the Bollywood, we had Hollywood and all these western movies, we used to see that and have exposure to a lot of the things that went on in the West Coast.

SI: What about other activities like clubs or that sort of thing in school, or were you mostly involved in sports?

UC: We had an oratory club. We had a lot of extemporaneous speaking. [I] tried to participate. In some competitions, I did well. Some, I did not do well. We tried some of the public speaking competitions, we tried, and I was not very good at it. Over a period of time, I evolved into better, in terms of public speaking.

SI: Did you have an interest in politics on any level as a youngster?

UC: No. Growing up, [I was] following what's going on in terms of the international politics. One of the things at that time was the war between India and Pakistan broke out at that time, because West Pakistan did not recognize the elected premier from East Pakistan (called Bangladesh). After the war, Bangladesh was created. We were all scared. At one time, I remember that Pakistan had the NATO alliance with the United States. The United States brought the Seventh Fleet into the Bay of Bengal. We were all very scared [that] the United States was going to attack, put nuclear bombs on us. We had that fear. Luckily, it did not happen, but the Seventh Fleet was there. [Editor's Note: NATO stands for the North Atlantic Treaty Organization. The U.S. Navy's Seventh Fleet was deployed to the Bay of Bengal in December 1971 during the Indo-Pakistani War, which eventually culminated in the liberation of Bangladesh.]

I did want to serve in the Indian Armed Forces, but I was not physically built well to succeed. I went for the interview, because I has the degree already, the engineering degree. We didn't have jobs. We said, "Any job is good. I'll fight for the country. It's a good job." I went for the interview. I failed the psychology test. When in the military, you take orders. You don't question. I had always this questioning tendency, so I did not [do] well the psychology tests. I didn't succeed in trying to join the military force in India.

We were aware of a lot of the things. We had access, we had newspapers, *New York Times*, what they called the *Hindu*, and the evening paper called the *Mail*. My father always made us read the newspaper. He was well versed with what's going on in international politics, so we used to discuss. We were aware of all the things, in spite of not having a television. The newspapers were the big medium at that time.

[RECORDING PAUSED]

SI: During the break, we were talking a little bit about your activities as a child. You described some of the sports that you would play.

UC: Right. When you don't have the resources, you make the best of what you have. We had a sport called Kabaddi. It's a sport that's played in the Middle East and some of the countries in that part of the world. [It] basically doesn't require anything. All you need is a bit of sand. You have two sides of it. You have to go and you've got to keep saying, "Kabaddi, Kabaddi, Kabaddi." If you stop saying it and somebody touches you, you're out. Your job is to keep saying "Kabaddi" and go and touch the other people, but you cannot leave the sandpit. That was one of the sports that did not require a whole lot of resources.

We also used to do wrestling. Wrestling also you needed sand. People wrestling and trying to learn the technique. We also created high jump and pole vault. You needed to bamboo poles on either side, the crossbar, a pole over the bamboo, and a long bamboo stick [to] use that as a pole vault. Then, you could do the high jump. You could do the pole vault. Those are all some of the sports we did. Soccer, we use the call it football in India. All you need is a ball and two bricks on each side to create a goal. [We] used to play on the streets and blacktop barefooted. We used to do that. We had cricket, football and soccer, and we had all the running. For running, you don't need any of these resources, only be able to measure how fast you're running. Long distance, two hundred meters, four hundred meters, eight hundred meters, that was there.

We also used to play badminton, where it's with the woolen ball. It's called ball badminton. We used to play with a racket. Shuttlecock costs more money because it was indoor and you played indoor. I didn't have that, but I used to play ball badminton. We also used to play field hockey. All you need is a hockey stick, a puck, and a ball. We used to use that and play on the blacktop on the streets. We used to play that. I used to be in all the sports. I enjoyed sports always. It used to be one hundred degrees outside, but we'd still play cricket.

SI: Since your mother was a music teacher, did she teach you any music?

UC: That was one of the regrets in life, no. I do know music, but I could have been better at it. [We] grew up with music. We have a great sense of appreciation for the music. Did I learn methodically? No, because I was busy with school and all that. In hindsight, I should have learned more.

SI: Tell me a little bit more about what college life entailed at that time. You said you couldn't live on campus in a dorm.

UC: Yes, I used to commute.

SI: Were there other activities that you got involved in, or was it mostly just classroom work?

UC: No. When we were doing the pre-university, Vivekananda the college, where there's not much, because it's only an accelerated one-year program. As I said, we had to switch from Telugu medium to English medium in one year and also do well. There was, during the college times, a tremendous focus on getting through that one year. Then, getting admission into the College of Engineering at Guindy, that was a five-year college, where we had opportunity-- because I was a day scholar, I was commuting every day--I used to participate, there were a lot of activities on the campus. Sometimes, I used to stay overnight with friends and attend some of the events. Day-scholar life is totally different from the person who stays in the dormitory. I did miss out on some of the things, but I did the best I could. When I [came] home, I used to play the sports near the home rather than at the college.

SI: Do any professors stand out in your memory as being particularly good, bad, or inspirational to you?

UC: Yes. Some of the professors were brilliant. They inspired us to excel in some of the subjects. The engineering education in India, at that time, was five years, where you studied two years of civil engineering, two years of mechanical, and three years of electrical. We had a well-rounded education. [It was] pretty intense. When you're commuting, half the time is gone in commuting and doing homework the rest of the time. Some of the professors talked to us about what was happening internationally. In some of the research papers, they were able to provide us some guidance in that.

SI: This might not apply, but you were going to college in the late '60s and early '70s, which globally I think of as a time of great change in student culture. Was there any of that in your area?

UC: What happened in the United States, at that time, we did not have. The resources were limited, especially in terms of drugs, and all that culture, I was not exposed to any of that. I was born into a family that was vegetarian. We didn't even cook eggs at home. We were vegetarian. I stayed vegetarian for many, many years. In terms of access, we never had access to cigarettes or alcohol, none of that. The first time I had alcohol was when I was twenty-three years old. We were completely away from that. I think it could be the religious aspect. The people who I was friends with were not involved in that. Also, I was not in the dormitory. In the dormitory, there was some activities, but I was not exposed to that.

SI: We talked about your search after graduation for employment. You said you finally found a job in the Mumbai area.

UC: Right.

SI: Tell me a little bit about that first job.

UC: Yes. It's a company called Ion Exchange (India) Limited. This was a subsidiary of a British company, British Permutit, P-E-R-M-U-T-I-T. They had come up with a process called ion exchange for water purification, water treatment. That was my first job. As an electrical engineer graduate, I was able to join that company. The company was a small company, where

my work was designing the control panels. I did all the way from drafting, you know, I'd sit on the drawing board, and I used to sketch it out. My draftsman used to do the lettering. My lettering was not that great. I used to design the drawings, then bid out the projects for the panels, and also select the vendors, and testing the panels. I even had a field trip to go to the site where these panels were installed. My work [was] in design and testing, all the aspects of it.

I used to commute. In Mumbai, the cost of living was very high. I couldn't afford to find a place. I had to rent a place I shared with some other friend. We used to take a bus. By bus, I used to commute about forty-five to fifty minutes by bus to get to work. We never had any car or anything like that. All the transportation was public transportation. I used to always have the idea I wanted to improve myself. I wanted to go to Germany when I was working. They had a German institute called Max Müller Bhavan an hour from my workplace. [I] used to go in the evenings. I'd take a bus, go there, and study German for a couple of hours and then commute back home. Like that, I learned German. In the 1973-'74 timeframe, I learned German. But I couldn't go to Germany. I ended up in America. That's a long story.

In terms of the work atmosphere, Mumbai, at that time, some regional feelings were coming up. There's the local language. It's called Marathi. They were saying, "We need to keep the jobs for Maharashtrians," people who speak Marathi. I found that during my interviews, some people said, "Do you speak Marathi?" It was a sales job. I said, "If it requires learning the language, I'll spend the effort and I'll learn it." Of course, I didn't get that particular job. The regional feelings were brewing quite a bit at that time, because of the tight job market. They wanted the locals to get jobs. I come from Chennai, no, to come to take a job there. That was a challenge.

In terms of working, my colleagues, even though they spoke the different language, we were able to develop that friendship and I was able to get along. I was able to, from the beginning, even though I come from a poor family, we were quite cosmopolitan, we had exposure to different languages, different religions, different castes and communities, so I was able to blend in and develop that friendship. That was thanks to my mother and father, who had put those values in us. They never restricted us, that you [would] only limit yourself. I had very good friends who were Muslims. I had very good friends who were following the Parsi religion. We had different cultures and communities as the exposure. Another community that I was very exposed to was this community called the Anglo-Indian community. When the British were still ruling India, there was some mixture between the Indian and Anglo, so there were Anglo-Indians. A lot of the receptionists and a lot of the secretarial work was done by Anglo-Indians. I had a good friendship with a lot of the Anglo-Indians.

SI: Just for my own clarification, these different languages, do they have a common root? I think of how somebody from France ...

UC: Yes, Romance languages.

SI: ... Might go to Spain and have an easier time learning Spanish.

UC: You have the Italian, French and Spanish, and the root language is Latin. Just like that, Sanskrit, S-A-N-S-K-R-I-T, is the root language for all the Indian languages. It's called Indo-

Germanic language. If you know Sanskrit, the German you can learn easily. The grammar is very similar, some vocabulary. There's a lot of similarity. Even the Latvian language is very similar to German. Some of the Slavic languages have some [things in] common to the Sanskrit. India has about fifteen or so official languages. Some languages have more Sanskrit. Some have less, but a blend. The language called Urdu is a combination of Sanskrit and Hindi. Hindi came out of a combination of Sanskrit and Urdu. Urdu is spoken predominantly in Pakistan, which has got the Arabic roots in that. So, I think because of that, my learning Sanskrit and all that, I was able to read, write and speak three Indian languages. I was pretty comfortable in managing in seven or eight other languages in India.

When I traveled from one place to the other--one of my jobs, I remember after I designed this control panel, I had to go to a place near Baroda, which is in Gujarat, it's part of it. I went there. I was able to manage quite well, because the system was different, the cold weather. I grew up in Chennai, which is very warm. When you go to Baroda, it's near the Arabian Sea, so it's cooler.

One time, I traveled to Kolkata, which is the northeastern part of India. That was my first time I traveled by plane. That was really interesting. I was traveling on business. Usually, they'd send you by train. They had a coal miner strike, so the railways were not running. At that time, the railway system was based on coal and steam engine. I had to fly from Mumbai to Kolkata. I didn't have traveler's checks. I had cash. I didn't even have a hotel reservation. I don't know how I [managed]. It's like a blur to me, how this whole thing happened. I befriended somebody on the plane. They took me in their car or cab into the middle of the city. Here I am. It was almost eleven-thirty at night. [The] flight was delayed. I don't know anything about it. I had to find a hotel room, because I had no place to stay. [laughter] All I had was cash with me. I was able to talk to a local person. He arranged a place. I stayed there that night and slept. The next day, I went to the company to visit. They said, "Where did you stay?" I [told them]. They said, "Oh, my God, you stayed in the red-light district." I didn't know what the red-light district was. I found a place and they shifted me over to a different place for the next night. It was interesting travel, not knowing anything, the first time traveling by plane, going to a different place, and finding my way around at midnight, the different language spoken. Bengali is still spoken in that place. I was able to manage with my language skills.

SI: Were you going to oversee the installation of these panels?

UC: Yes. That first one was in Baroda, but this one, I don't remember what was the reason for the meeting. I vaguely remember.

SI: You had looked into potentially going to Germany.

UC: Right.

SI: Were you looking to emigrate for a long time or just work there for a while and come back?

UC: I had this fascination for German language and Germany. Growing up in India, some people learned Russian and they go to a Russian university for higher studies. America was



really not within the reach of the average person. It was difficult at that time. The immigration system just got changed in the late '60s. The Kennedy-Johnson immigration bill, back in that time, pretty much Indians' mass immigration was not possible into the United States. Because of the connection, many of them used to go to London to study in Cambridge and things like that. I thought about learning German and then I'll go to Germany to do a Ph.D. Somehow, that idea came into my mind. I used to go to [the] German (Consulate) High Commission, they called it at the time.

SI: Was this the West Germans or the East Germans?

UC: At that time, this was West Germany. East Germany was a communist part. It was not even part of our discussion. We wanted to go to West Germany. Germany always stood out in terms of a good relationship between India and Germany. German immigration was not friendly at that time. A family friend of mine said, "Why don't you go to America?" I said, "I'm not thinking about going to America. I don't know anybody there. How am I going to go?" He said, "No, you should apply. Go as a student." I applied to only one college at that time, City College of New York. At that time, the application fee was very high, twenty dollars. The challenge was the foreign exchange between the Indian currency rupees and dollars was very difficult to come by. The trade was not there. I was able to get twenty dollars' worth of exchange. I was able to apply to one college. I got the admission to City College.

It was a very accelerated effort. I did not have much planning. I'd usually take about a year or so, apply for scholarships, fellowships; I didn't have the opportunity. Somehow, it happened so quickly. I applied. Then, I got my I-20 for my immigration. I was working at Ion Exchange. Then, my family friend, Gopal Desai, said, "I will sponsor you to go to America." I said, "Okay." His brother Krishna Desai was the retired chief engineer in Bombay Port Trust. He sponsored me. I went to the visa office in the Mumbai Consulate. He looked at my paperwork. All the paperwork was correct. Everything is there. The only question the consular officer had is, "Why should I believe that Mr. Desai is going to support you?" I said, "You have the affidavit here." He said, "No. He's not even a relative, so I reject your visa." So, he rejected my visa. Then, I said, "Okay, what do I do now? Maybe having a relationship is a criteria." [Editor's Note: The I-20 is a document issued by a U.S. government-approved educational institution certifying that an international student has been admitted to a full-time study program and has demonstrated sufficient financial resources to stay in the United States.]

I went and found a relative and got his bank statements. I went there. The consular officer looked at it and said, "Oh, he doesn't have enough money to support you," and rejected it. My visa was rejected a second time. I went back home, "America is not for me. Forget about it. I'll make my life here." Deepal Desai said, "No, no, you are going to America." He gave me 32,000 rupees in cash, which is the equivalent of four thousand dollars. That's what [was] required. [He said], "I want you to take it, deposit it in the bank, and get a receipt." I went and got a letter from the bank manager. I went back [a] third time to the U.S. Consulate. Then, they looked at it and gave me the visa. It was three times. Then only could I tell my company that I'm going to America for studies. That's how I got my visa. It was a tough journey to come to America.

SI: How did you come over? When did you come over? How did you make those plans? You said it all came together very quickly.

UC: It was because they wanted me to be in the U.S. by September 12. I got a ticket by Lufthansa, my first time taking an international flight. Being a vegetarian, you have to tell them ahead of time flying Lufthansa. We had to tell them ahead of time. I did not know it, I did not tell. So, I was looking at everybody eating. It's a seven or eight-hour flight. Everybody's eating. I was sitting there, no food. Finally, I asked the stewardess, "Hey, can I get some food?" She said, "What?" I said, "Vegetarian." She said, "Let me go to the first class and see whether they have any food left." She brought some boiled vegetables. That was my food. Then, the flight was delayed in Mumbai, and when we reached Frankfurt, the connecting flight to New York left. They said, "We have to send you to Montréal, Canada." I took a flight to Montréal and went through the immigration and customs in Montréal and then took the flight from Montréal to New York by Eastern Airlines, which is no longer there. I took a flight to New York. That was my first international flight, to the United States. I had to immediately go to college the next day. I remember the date; September 12, 1974, I came to the United States.

SI: Did they have housing for you, or did you find a place?

UC: My friend Gopal Desai, we used to belong to a group called Satsang. They had a group home in Queens near Young Israel of Briarwood. In the extension of the synagogue, they had a group home. That's where I went. Somebody picked me up from Kennedy Airport. I went there. It was in Queens. My college was in Manhattan in Harlem, 137th Street and Convent Avenue.

SI: Before we talk about the college experience and finding work, what about culture shock in terms of getting settled in the U.S.? Does anything stand out about any difficulties in that early period?

UC: I went through a lot of the heavy-duty culture shock. I used to take the subway system from Queens. I used to take the E train or the F train, come to Columbus Circle, change for the D train, the A train to go uptown, 225th and 145th Street. The subway system, first of all, the people are different in the sense that [they are] young, old, all different nationalities. You saw a lot of diversity. In India, hardly you see non-Indians, at least my exposure, except for big cities, you see some people, but it's not like here. In [the] subway system, you see all kinds of things. One of the major culture shocks was people kissing on the subways. I had not seen that. When I was growing up in India and even in the movies, they were not allowing kissing on the screen. They had censorship and all that stuff. That was one of the challenges.

Then, the weather, of course, I grew up in Chennai. It hardly goes below sixty or seventy degrees. Here, in New York, coming in September, it was the fall. [I] started in the beginning of the fall and the weather's changing. One day, I remember, I ran out. It was a beautiful sunny day. I ran out in shorts, and then realized it was so cold. It was twenty degrees. I didn't realize. So, I came running back quickly. One day, I was walking by, and I saw something falling from the sky. I didn't know what it was. I had to ask somebody, "What was that thing falling?" I'm used to rain. It was my first experience of snow. I thought somebody was throwing something,

when there's nobody to throw anything. It was just constantly coming. [Exposure] to the cold weather, I didn't even have a coat.

When I came to the U.S., I was like ninety-six pounds. I had to get clothes in the kid's size. I didn't have money, anyway. I had the four thousand dollars for tuition and room and board. That's what I had. At the group home, I had somebody lend me a coat. I was like a mannequin wearing a coat. I was a small frame, but the coat was so loose and I used to have cold air coming from the bottom and the side. I used to freeze, very cold, so adjusting to the temperature.

Adjusting to the language, in the sense that we are used to the British way of speaking English, and the American way of speaking English was different. Adjusting to that and seeing all kinds of poly-ethnicity, it was different.

SI: Getting into your classroom work, was that difficult at all? I would imagine the math part is obviously the same, but how was dealing with the setting of an American classroom?

UC: The classroom sizes are much smaller, relatively. Even City College, at that time, was a free college. They didn't have any tuition. I used to pay tuition [at an] international rate, which was much lower compared to other schools. With four thousand dollars, you're able to do one full year of tuition, as well as the room and board. It was pretty good, compared to today's dollars. It was a free education for most people. There were a lot of people not even paying any tuition for City College.

In terms of classrooms, I came for a graduate degree in electrical engineering. Since I did power engineering, I was switching to control and communication, so I needed two prerequisites. I did two undergraduate courses in communication-related things. It was totally different. Even the education was totally different. Back in India, there's a lot of it based on memorization. Here, memorization was not the important thing. You had open-book exams. I did not know how to respond to open book. I never had an open-book exam in my life, so exposure to that, and getting adjusted to the instruction style. Also, when you are looking at the students, all the minority students and the international students used to go together, and the mainstream American students were going differently. It was a totally different experience going to college.

For me, the experience was quite rich in the sense that I needed to earn some dollars. I got a job in the library as a librarian in the circulation division. I used [to] interact with a lot of the young-aged students. I was twenty-four when I came to the United States. That's the time Watergate was going on. I didn't understand any of that. In the college setting, I used to help all the other kids find the right book. That was my first job in the United States, on campus. The second job I got was the mailman in the library, so taking the books. The books are dropped off in different libraries, so I used to take the books and deliver it to the appropriate library. That way, they are set properly.

My third job on campus was interesting. I still needed more money. After living in the group home for about a year and a half or so, I moved out. I found a friend and moved closer to the college. We were living in Spanish Harlem on 109th Street and Columbus Avenue. That was in the '75-'76 timeframe. I needed to pay the rent, so I needed to get work. They said the

stereotypical, they said, "Oh, you're Indian so you should be good at math. Go and tutor in the math lab." It so happened I knocked on the wrong door. I ended up, it was the English lab. So, I said, "I'll tutor English." I was adventurous. I said, "I can tutor English." I took the test and I passed. Then, I became an English tutor in 1975. The other young American students used to come to me, because having learned English as a foreign language, my grammar was very good and spelling was very good. I was strong in all those things. I was able to help local students, tutoring English. That was my third job. That helped me earn some money.

All these jobs also created more interaction with the people. I was able to blend in rather quickly. If you're a foreign student, what happens is you just come to the class. You sit in the class. Then, you go to the cafeteria with the other foreign students. Then, you go away. You don't have that kind of interaction. Having lived in the group home and then also working on campus doing different jobs got me the exposure to blend into the culture quickly.

SI: Was everyone in the group home from India?

UC: No, predominantly Orthodox Jewish people. I remember at Sabbath time, I used to turn off the lights and turn on lights. I used to do that. Actually, one of the stories I have, when I was living in that home, right next door was the Young Israel of Briarwood, which was a synagogue. A lot of Saturday mornings, everybody's going to the synagogue for prayers. This one lady, across the street of the home, she was crying. She was wearing all black. I saw that she was crying. People were busy. I went and asked, "What happened here?" She said, "I just came out of the house, and I saw my husband falling down." I said, "Why don't you go in and open the door?" "I don't have the key." I said, "If you want me to break the glass, I can." She said, "Okay." So, I broke the glass in the back. I opened it. He was lying on the ground. "No, don't touch," they said, because I was not Jewish. I said, "It's fine." So, they found him dead. I went back to my home. I called 911 because they can't use the phone during Sabbath. I went and called 911 and brought the ambulance and took care that. That was an interesting cultural experience also.

SI: Was there any kind of Hindu community to become a part of?

UC: Satsang was part of worshipping and following the saint. A lot of them were doing the prayers. It's not much of a religious, more rather it's a spiritual thing. It's more of a multi-denominational thing. They have Christians or Hindus. There were everybody coming together. We used to have prayers on Friday nights and things like that. We used to get together for that. There were people who were of Irish background. People were Jewish. There was only one other Indian in terms of looking like me, an Indian. There was only one other Indian. He gave me a hard time, so I had to move out of the place.

SI: Tell me a little bit more about your studies in terms of what you started specializing in at CCNY.

UC: I was studying control theory and communications, which is a switch from the electrical power engineering, which I studied in India. It was very interesting, control theory, and learning some of the very advanced statistical communication theory and heavy probability theory. It was

getting me ready for some electronics and communications type of work. That's what I was going for. My studies were really affected when I was in the group home because this fellow wouldn't let me study. He used to pick a fight. I had an exam the next day. He used to make me pretty much cry because he had an upper hand. He didn't want to study. It was maybe jealousy or whatever it is. He only had an electronics diploma. I used to tell him, "No, don't fight with me now. Let me finish this exam. We can fight later." It didn't work out that way. I did not do well. I got a "C" in one of the exams. I felt very ashamed that I got a "C" in the exam. I had to get a couple of extra "A's" to bring up my average in order to graduate. In the graduate school, you had to have at least a three-point-plus average. It was a setback for me. That's one of the reasons I moved out into the Spanish Harlem apartment.

SI: It was just his personal bad attitude?

UC: Yes. For some reason, I remember he was very bitter. He was sitting there and he was jealous about other people, that they were doing well. They had cars. They had girlfriends. I said, "Look, you want a girlfriend? Go find one. If you want a car, go work hard and you can buy a car." He had something about him that was keeping him down. I think he lacked the confidence.

He was supposed to be an electronics TV technician. He went, and he asked me to help him bring this huge console TV. In those days, they had twenty-five-inch consoles, very heavy with all the vacuum tubes and all that stuff. He wanted to start fixing it. He asked me to help. I said, "Look, I don't know. I've never seen a television. How do I help you?" He said, "You're an electrical engineer. You should help." So, I went to the library, picked up some books, and read about the inside of the television. I used to help him. Every time it worked well, he used to take credit. If anything went wrong, he said, "You screwed it up." He used to say that. It was a very interesting, odd-couple type of scenario. I went through that.

He had several complexes. He used to take it out on me. Instead of introducing me as an Indian, he used to say, "He's a South Indian." He was from Bengal. I told him, "There are no differences between South Indians and North Indians. Why do you want to introduce me as a South Indian?" "Because you are South Indian." He had certain idiosyncrasies about him that he was just grabbing on to that. He was jealous that I was going for my master's degree, whereas he did not get his degree. I said, "Look, you have the same opportunity. You actually have a better opportunity. You have your green card. I'm here on an F-1 visa. I'm very limited in what I can do. I'm not permitted to work outside because it's a violation of the immigration law. I'm on very limited resources and so on. I'm managing. Why don't you leave me alone?"

To the person who was heading the group home, he was like an adopted son for him, so my message was not heard. Finally, I told him, "Look, I have to move because I came for my studies. I have to study. I have to do well. If I don't do well, everything is wasted. I have borrowed money. Somebody trusted me and lent me four thousand dollars without any kind of piece of paper agreement. They just lent it to me, a hundred percent trust. I cannot let them down. I cannot let myself down."

I had to move to this place. This place in Manhattan, that building was not a good building. Walking in, you see all the drug addicts sitting there. You go to your room, and of course, they were not bothering you at that time. That building was falling apart. It was a dilapidated building. It was almost condemned, that building. We found another building right next to it, and we moved.

I had a very interesting experience. One time, I came back late [at] night. My roommate went into the apartment before me. We only had one key. He had the key. When I came back, it was late, maybe after one-thirty at night. I knock on the door. He would not open the door. At that time, we didn't have cell phones. So, I had to go to the street; 109th and Columbus was not a place you wanted to be at one-thirty at night. I went there to look for a pay phone, and I found a pay phone. I called. He wouldn't answer the phone. I was exhausted, tired. I had no place to go.

I remembered this old dilapidated building. I said, "Maybe I can spend the night, a few hours there." So, I went there. Sure enough, it's pretty much abandoned. I went into the room, the apartment where we were. There was no lock. I found some newspaper. I put it on the floor. I closed the door. It didn't have the lock. I slept on the floor. My faith in the divine, nothing bad happened to me. I could have been stabbed. Anything could have happened. I was able to get through it. That was the first night I felt how it feels to be homeless. I survived. The next day, everything was okay. Resourcefulness, that's one thing that has helped me throughout my life. I was able to find a solution for a problem at that time.

SI: As you were getting close to graduation, were you looking for jobs? What did you see for yourself in the future?

UC: As luck would have it, I ran into my wife. [laughter] As a mailman, I was delivering books. She was in the architecture library. I was delivering books. I ran into her. We became friends. I wanted to marry her, and she was not willing. She said, "No, I don't want to marry you." I said, "Okay. This is the last time I propose to you. If you want to marry me, next time you have to propose to me." [laughter] I left it at that. One time, I was down with bronchitis. I don't know how I got the bronchitis. I had nobody. My roommate was traveling or something. I was in this apartment for three or four days with bronchitis, and nobody was there. Luckily, one of my friends, whom I knew, she came and gave me some soup. She was helping me because, at that time, I had broken up with my current wife.

I pretty much gave up. I was trying for jobs. I was not getting any jobs. It was a tough period. I graduated in '76. New York City went bankrupt that year. I didn't even have a graduation ceremony. They gave me a piece of paper, said, "This is your diploma." I didn't even have a graduation ceremony. [laughter] I was trying hard for jobs. I did not get any jobs. I was not successful, let me put it that way. I gave up. I said, "I have nothing here." I had a fascination for Brazil. I said, "I'll go to Brazil and try my luck there." When I told my wife, I said, "I'm going to Brazil." "Oh, no, no," she said, "You cannot go to Brazil. I will marry you. I want you to stay here." It was 1976 when we got married. Immediately, she started expecting my first son. The whole thing moved on. Then, I got my job with CBS Television. That was my first job at CBS Television as an audio/video maintenance engineer.

SI: For the record, what is your wife's name?

UC: Lucrecia Dayci Chivukula. She went by her middle name, Dayci. She is a refugee from Cuba. Her grandmother came. My wife, it took her twelve years to leave Cuba. The Castro regime wanted to keep her there because she was very intelligent and [a] highly-promising communist. They wanted to keep her. The moment they realized she wanted to leave the country--and she has her own story--they sent her into the fields to work in the sugarcane fields. She went to Spain in 1972 and came to the U.S. in 1974, the same year I came to the U.S. We met in 1976 in the City College library. She came to the U.S., and the only language she spoke was Spanish. She got her degree in the humanities. She got her bachelor's degree. She wanted to go into architecture. She always says, "I went to get my master's, but I got my mister in City College." [laughter] That's how she describes our marriage. Dayci is her name.

SI: Did you initially live in the city?

UC: Yes. In 1976, we got married on November 20. It so happens we lived on 109th Street also. It [was] a furnished apartment. One of my mother-in-law's friends, she had an apartment she wanted to sublease to us. It was on the fourth floor. We used to climb up and down, no elevator in that building. [laughter] It was a furnished apartment. That was for a start. After a year, we moved into where her grandmother and my mother-in-law were living, 130 Post Avenue, in Manhattan. That's where we moved. They were on the third floor, and we were on the fourth floor. We had a small apartment. It's almost one-and-a-half times the size of this room [six feet by eight feet]. That's how we had the apartment. In 1977, we got that apartment.

SI: Had any members of your family come over to the U.S.?

UC: Yes. In 1987, my parents [visited]. I wanted my parents to come. They came. At that time, I was working for AT&T Bell Labs. I took them to Washington, D.C. and showed them Niagara Falls. I took them to Toronto, Pittsburgh, a few places, tourist places. They stayed with me for about two months or so. My father could not deal with the cold. The temperature dropped one time to twenty degrees, and he got scared. I took them to Great Adventure, took them on the roller coasters. They had a good time. They liked it, but they felt they were too dependent. They didn't drive a car. Unlike India, here you need a car, whereas in India they were pretty independent. They could go by train, bus, and they had taxis and available public transportation. They only came one time. They didn't come back again.

SI: Did any of your siblings immigrate?

UC: No. I sponsored my younger brother for immigration. Unfortunately, it took about twelve years. By that time, he lost interest in getting the green card. He was already settled in India. He didn't come. It so happened, I'm the only one who immigrated to the U.S. Subsequently, my sister's children, two daughters, one daughter is in Boston now and another daughter in California. They migrated. From my family, those are the only two that came, immediate family.

SI: Tell me a little bit about your job at CBS.

UC: At CBS, I was an audio/video maintenance engineer. It was on West 57th Street, one of the main studios they had. I had the responsibility to make sure the studios worked. I had an office where I had a television. I could monitor all the studios. I also had a red phone in my office to the White House.

SI: Really?

UC: I never used it. Never used it. Never got a call. [laughter] Apparently, I didn't know enough about it, but I had that thing there.

SI: Is that the phone they use if they need airtime?

UC: Some emergency calling, I guess, yes. I didn't know enough about it. I said, "I don't want to know." [laughter] I remember those days in the studios, Captain Kangaroo. Walter Cronkite was the news anchor, at that time. Dan Rather was just coming up, at that time. That was the beginning of *60 Minutes*, at that time. From 207th Street, I used to commute to CBS. The problem was, at that time, there were not many very vegetarian places. I found a place where Hare Krishna group, they had a temple there. They used to have vegetarian food. I used to go there for lunch. I used to pay some money. I used to get lunch.

As far as the work is concerned, it was not difficult work. CBS had a very strong television union. They were very strong. Whenever I walked by, they used to look at me to see whether I lean on a ladder or something. That's a violation because I'm not a union member. After a while, I made a friendship with them. It didn't matter. Before, I used to take somebody with me all the time. I remember one incident where somebody said the Captain Kangaroo guy got angry. I thought I almost got fired. I didn't do anything. He didn't want somebody in the studio, or whatever it is. I was there. I had to apologize to him. Otherwise, I would've lost my job, because I was a nobody and he was a big shot at that time.

I used to continue to study. I used to study at Rutgers. I used to come to Rutgers after work. I used to come here, take graduate classes. I tried to do my Ph.D. program. One time, I had to fix something in the studio, and I could not work in the studio until after-hours because the studio has to be off air. I finished my graduate classes and went back to work. I fixed something, and they wouldn't let me go home because they had to make sure everything works because the studio has to go on air. The next day morning, when the technicians came, they turned it on, and nothing worked. I said, "I didn't do anything. I just [fixed it] based on the drawings." I had a friend who kept his own set of drawings. I said, "What did I do that this doesn't work?" He looked at it. He said, "Somebody forgot to put this change in the main drawing. That's why it's not working." We had to fix that. It was nonstop, from morning until evening, going to graduate class, come back, all night waiting for this thing to work. I was not relieved until eleven o'clock the next morning. It was a tough episode at CBS.

Another example I had was the engineer, he gave me an assignment. He said, "Look, we have this audio console that is L-shaped. Somebody didn't think properly in the late-night moving. L-



shaped doesn't go through a regular door. They had a hinge, they can unlock it, and make it straight. They didn't do that. Instead, they took a hacksaw and cut the wires. It's been lying there in the warehouse for the last fifteen years. I want you to fix it." I said, "Do you have the drawings for it?" "No, you've got to find it." So, I went. It took me a month, traced wire by wire and came up with some low-noise connectors. I fixed that thing. That was my Studio 57 famous story.

The union people liked me. They wanted me to become a member of the union because of my salary. The first time I joined, my salary was less than ten thousand dollars. It was nothing living in Manhattan with ten thousand dollars. I have a child, one son, and a wife; it was not enough money. Then, I was coming to New Jersey for Rutgers. I met some people, graduate students. One of them said, "We may have an opening in our company. You may want to try it." So, I tried. He helped me. I got the job. It was a company called Electronic Associates in West Long Branch, where I was doing the nuclear power plant operator training simulators. That's the work I got, double my salary. Then, I moved over to New Jersey.

SI: When applying for jobs or in other aspects of your life, do you think you faced any prejudice at that time?

UC: Definitely. See, it's not that direct, but you feel it. I had an accent. I still have an accent. The accent was there. The name was very long. I didn't have any connections with anybody. Getting a job was tough. Apply, apply, no reply. I must have sent out a couple of thousand applications; I didn't hear anything. It could be the job market. It could be not having proper visa status. There could be many reasons.

SI: Did you move to West Long Branch or another town?

UC: Yes. Ocean Township in Monmouth County, that's where we found an apartment, a single bedroom. I think a one-bedroom apartment. I moved there with my wife. I worked in that company for two years, 1978 to 1980. Then, I still needed more money. I liked California. I wanted to move to California. I went and got myself a job in California, but my wife said, "I don't want to go to California because of the earthquakes," and all that. Then, I found a job in Pennsylvania and used my job in California [in] salary negotiations. I got a better salary in Pennsylvania.

SI: Had you actually been to California?

UC: Yes. When did I go to California? I went to Monterey, California for some conference. I was presenting a paper. That's how I went to California.

SI: At this point, were you still pursuing higher education at Rutgers?

UC: Yes, I was doing that. I did my qualifying exam. I passed everything. Somehow, I didn't do my thesis that well. Then, I moved to Pennsylvania in 1980. I had a different job. I used to commute from there. I used to commute from--it's just before King of Prussia. It's in Montgomery County, Pennsylvania. I used to commute. Somehow, the Ph.D. thing did not

click. I didn't finish it. I had all the qualifications, except for the Ph.D. dissertation. I have ABD, anything but dissertation degree. [laughter]

SI: What initially attracted you to Rutgers?

UC: It's hard to remember. Rutgers was, I think, one of the most inexpensive universities, at that time, compared relatively. How did I end up in Rutgers? I don't know. City College, I was already done with my master's degree. My wife also wanted to move out of the city and said, "I don't want to raise my children in the city." We were not living in a posh neighborhood. We were living in very poor neighborhoods. She saw so much poverty around. She wanted to move away from that. I started looking into New Jersey. Rutgers was the university that was big at that time.

SI: Do any of the professors you worked with stand out?

UC: Yes, Professor Puri was there. He passed away recently. Professor [Pedda] Sannuti was my thesis advisor. At that time, Dean Marshall was a very good friend and was very helpful. They gave me some assistantship. [Editor's Note: Narendra Nath Puri passed away in 2015. Dr. Puri was a professor of electrical engineering at Rutgers for thirty-eight years.]

SI: Tell me a little bit about the job in Pennsylvania. You were working in wastewater treatment.

UC: Yes, wastewater treatment. This is a company called Leeds and Northrup Company. They were developing a language called Control Diagram Information Language, C-O-D-I-L, CODIL. That's the language they were developing. How do you control the waste treatment plant? I didn't know anything about waste treatment, but I was as a control engineer. I went there. I worked there for a year or so. My wife was complaining. [She] said, "Pennsylvania is too far." I said, "Too far from New York? It's not that far." She wanted to come back to New Jersey. So, I started looking. I tried at AT&T Bell Labs. At that time, AT&T Bell Labs was prestigious. I didn't know if I was able to get in, but I was able to find a job there.

SI: Is that when you moved to Franklin Township?

UC: No, actually. I was living in Hatfield, Pennsylvania, where the apartment was also not that good. It was like a basement type of apartment. My wife used to complain. But we were able to save money. I was able to save money. When I came to New Jersey, I got the job in 1981. June 30th I started at Bell Labs. I was able to look around for a house. I was able to buy a house. My first house I bought in Howell Township in Monmouth County. It was a tough thing. The house was only 76,000 dollars. Jimmy Carter was the president. Inflation rates were very high. I got a loan for eighteen percent. I couldn't even afford anything. With my 33,000-dollar salary at Bell Labs, they said, "You could afford only a fifty-thousand-dollar mortgage." I had to get the 26,000 somehow. Somehow, I managed to get that 26,000 to put that thing in. I got some preferential rate if I opened an account with Citibank. They said, "We will lower your interest rate from eighteen percent to sixteen percent." So, I got it at sixteen percent.

Here I was with my first car I bought, a Honda Civic 1979. In 1980, my second child [was born]; the first was a son, [who] was born in St. Luke's Hospital in Manhattan. Then, my daughter was born in Monmouth County in Neptune Township in 1980. Now, I had two young kids. In those days, people were not wearing seatbelts. '81 was when I moved to Howell. I used to commute from Howell to Holmdel. That's where I used to work.

SI: I'm curious, as you were raising your kids, coming from two different traditions and backgrounds, would you make a conscious effort to include certain traditions or practices, or do you sort of live your life as you need to?

UC: My wife, when I got married, I asked her, "What kind of wedding would you like to have?" I knew that her grandmother wanted her to get married in a Catholic Church. So, I got married in the Catholic Church with her. I also had a Hindu ceremony. We were pretty open and accommodating to each other. When we were raising our child, Howell was predominantly a blue-collar neighborhood. My son had a tough time. He was the only child of color. He used to come home and say, "Mom, I want to become white. Why am I not white? Everybody else is white." We had to coach him and had to explain to him about these things, "It doesn't matter what color you are."

I am pretty open-minded. When my son was born, we got him christened, not a problem. My daughter also was christened. My wife never insisted on all those things, but to keep her parents happy, her grandparents happy, I said, "It's not a problem." So, they were both Christian, but I think they were exposed to Hinduism, Buddhism, everything. They were exposed to all the religions because they traveled with me to different parts of the world. They have been to India a few times. I waited until my son was ten years old. I took them to Europe. I took them to Madrid, Costa del Sol, Málaga. I took them to Paris, Vienna, Austria, Lucerne, Switzerland. They were exposed to all these things. I took them to temples and churches. I told them, "You choose what you'd like to have. It doesn't matter. There's only one God. It doesn't matter which way you go." That's how we raised our children, the values of being good to other people, helping the community, live the good values, don't tell lies, don't take the bad habits, and we tried to raise them that way.

I told my wife, "You should speak to them in Spanish. I'll speak to them in my language, Telegu, so that way they can learn both the languages." She thought the kids were going to get confused, and so she spoke only one language, English. The kids grew up around the grandparents, so they follow Spanish. They're not that much exposed to my language, Indian languages. Other than that, I think we didn't have any problems. My wife used to go to temples with me. She used to wear a sari and follow all the Indian traditions. When I went to India, same thing. We were quite cosmopolitan.

[RECORDING PAUSED]

SI: You were living in Howell at the time. How long did you live in Howell for?

UC: I lived there for two years. One of the things that happened at AT&T Bell Labs is that I worked in that division for two years, and then I found a job in Morristown in the computer

systems division. I used to commute from Howell to Morristown. That was quite a long commute. In those days, it used to take ninety minutes each way. I said, "Maybe we should move closer." I wanted to find a place that is equidistant from Morristown and Holmdel. That way, I can commute in either direction, and we found Franklin Township.

SI: Was your wife working at this time?

UC: Yes. I think in 1983 she started working at Rutgers as a part-time lecturer. She started doing that. My daughter used to go to the childcare here at Rutgers. She started in 1983. '83 to '88 or so, I worked in Morristown, and my wife continued teaching at Rutgers. She was doing graduate school. Then, she continued teaching as a part-time lecturer until 2015.

SI: Tell me a little bit about your first job at AT&T and what you did there.

UC: At AT&T, I joined as a systems engineer in a division where we were doing design work and managing the special service circuits. The special service circuits are the ones where you have 800 lines, 888. Those are called special service circuits. How do you manage them? One of the issues associated with that, one of the things I designed was the digital remote test system. A lot of the testing was done manually, analog testing. So, it was shifting over to software-driven testing. I was the systems engineer. I wrote about two thousand lines of firmware code in that process.

That was a good job in the sense that I learned the hard way about working in an unstructured environment. Working in Bell Labs was quite unstructured. You are supposed to come up with ideas. You're supposed to do a lot of things, which was different from my previous jobs. There were projects, projects are defined, so you go in and you do the work. Here in Bell Labs, you have to find a problem. It's like research and development. That took some time for me to adjust to do that.

SI: Were you also becoming involved in professional organizations at this time?

UC: Yes. We had started an organization called the South Asian Club. Basically, what happened at that time was that the Indian community, especially people from South Asia, their advancement was very difficult. A lot of the performance reviews reflected that, saying, "You lack leadership qualities. Your communication skills are lacking." That was a typical performance assessment. I said, "We have to change that." We started bringing in Dale Carnegie types of courses into Bell Labs. Also, we had Toastmasters, trying to create for especially the South Asian community, try to see how they can improve their communication to overcome that hurdle. That way, they can advance in their careers. I was also a member of the IEEE, Institute of Electrical and Electronics Engineers Association. I tried to participate, write papers, read papers, and tried to get involved with that.

SI: That group was all within Bell Labs.

UC: Yes, the South Asian Club was in the group. We also had some other groups. They were trying to build temples outside. We had a plan to build a temple called Guruvaayoorappan

Temple, which is in the Marlboro area. That evolved into a temple in Bridgewater called the Balaji Temple. A lot of associations were forming. A lot of things were happening, at that time. We used to have a softball league. I used to play my softball at Bell Labs. That was some of the things. It was an interesting time. I spent a couple of years, from '83 to '85, and in '85, I moved to Morristown. I spent five years in Morristown. From there, I moved back to Holmdel. Holmdel was most of the time I spent. Some time, I spent in Murray Hill, some time in Whippany. Most of the time was spent in Holmdel.

SI: Were you still working with the special circuits?

UC: Yes, special circuits. When I moved from the special circuits design, then I moved into Morristown, where I was part of the computer systems division. I was doing the technical support for selling computer systems and network systems. I used to do that. That took me to traveling to the Chicago area, where we had the switching systems for Bell Labs. Also in Columbus, Ohio, I used to provide the technical support for--we were selling the AT&T computer systems internally, but we were also selling it to Bell Corp, at that time. What's the new name for them? It'll come to me. We used to sell computers into that. They were in different locations. They were in Piscataway, predominantly. Then, it became, I think, Ericsson. [Editor's Note: In 1996, AT&T spun off Bell Laboratories and most of its equipment manufacturing business into the new company Lucent Technologies, later called Alcatel-Lucent. In 2015, Nokia acquired Alcatel-Lucent, which now goes by the name Nokia Bell Labs.]

That was the five years there. From there, I came back to Bell Holmdel again. I was part of the microelectronics division. We looked at digital signal processors and speech recognition, speech synthesis applications. Also, at that time, we were switching from analog cellular phones to digital cellular phones. The digital signal processor was part of the new digital cell phones.

SI: You were at the cutting edge of this technology. Was it all being developed there? Did you go elsewhere to continue your education? Are there continuing education units within the company or within the field?

UC: Yes, I think there's a lot of them. AT&T is a huge company. They had their own facility in Franklin Township where they were providing all kinds of accounting, finance, MBA, mini-MBA. All those courses they were providing. I used to attend a lot of those courses to keep my skills up to date. In terms of engineering, I think it was all on the job. A lot of it is proprietary technologies. We had the UNIX operating systems. Murray Hill had a lot of the technology. We used to interact with the other scientists, and I picked up a lot of things like that.

SI: You described how you formed the South Asian Club and brought in Toastmasters and several self-improvement type programs. Do you think the problem was real, or was there prejudice on the part of the company maybe towards South Asians?

UC: A lot of the times prejudice comes because of ignorance, not knowing what the other person is capable of. Given the opportunity, I think most people can excel. A lot of the times, getting over that hump, getting that opportunity, getting access to that is the challenge. When you come from a different culture, like India or South Asia, certain values are inculcated in you,

basically. You're supposed to be modest. You cannot be arrogant. You're supposed to respect the position, respect the elders and things like that. That can be misunderstood as a weakness. In American society, if you have an idea, it doesn't matter. You've got to push your idea and it doesn't matter if that other person is senior or more knowledgeable. It does not matter. If you can have an idea that you can market, you have to do it at any cost. Also, there's nothing wrong in taking credit for your work. This modesty thing, you have to leave it behind in order to succeed in America. There's cultural differences. Understanding how to succeed in an American environment, I think that was very much needed. That takes a lot of self-discipline and self-training to do that. Nobody else is going to step aside and make room for you. If you see an open seat, you're going to take it. If you don't, if you wait, somebody else will take it. I think that's the attitude or the mentality that we need to develop to adapt to the American way of life. Some people were not ready for that. You go to your meeting; in the culture, at a meeting, a lot of people speak. Most of the time they speak, it doesn't make any sense, but they still speak. They come out ahead because they express themselves. You may have all the ideas in your head and you sit back and say, "I'll wait for my turn," and that turn may never come. That is where the adaptation to the culture is essential.

These clubs, like the South Asian Club, are to discuss about this thing and also moving away from being an introvert to being an extrovert, and sharing. A lot of the cultures, what happens if I have trouble at a workplace and I don't share with anybody else, I keep it to myself. If you don't share it with somebody, how can that person can help you? Pulling people out of their shell, that's what I was trying to do through this formation. It was not just myself. It was a team effort.

We also had what is called the AAAA Club for Asian American Affirmative Action. That's what the four A's stand for. We were trying to participate and make our case to the management, say, "Look, we have potential. You have to recognize our values, our system, and take our contribution seriously." We had to create some spokespersons for that. We had to fight it.

I think the culture, if you look at it, it's the "good old boys" culture, they call it. It was there. That is there. They didn't know better; they had to bring more people in it. It took a while for them to realize that, hey, it's not just your comfort level. By including the diversity, the company has more to gain rather than just keeping the old-fashioned way.

SI: You also mentioned that there were other clubs forming, temples being created. When you first moved to New Jersey, in general, were there existing institutions for the Indian-American community?

UC: No.

SI: It was being created at that time?

UC: No. Even as late as 1978, we didn't have an Indian grocery store. I used the drive to Lexington Avenue to get the groceries. I had a big car. I had a Ford LTD. I used to take a list from neighbors. I used to buy for them, and I'd bring it for them from Manhattan. They only had one electronics store for all these 220 volt appliances. For us, there was not that much.

There was no Oak Tree Road. Even Jackson Heights was not there, at that time. [It] subsequently came. It was a whole different world, at that time. When I was living in Franklin Township, the Indian population or Asian population, for that matter, was half a percent. In the area I was living in, it was a very small percentage. There was a process an immigrant has to go through, adapting to the culture. You had to be forceful to be included. Sometimes, you have to do that. [Editor's Note: Oak Tree Road in Iselin/Edison is a heavily South Asian shopping, business and dining district. Jackson Heights in Queens is a neighborhood with a large South Asian population.]

SI: Going on in your career, you talked about the transition from analog to digital cellular. Was that at the end of your career?

UC: No. After that, I moved into the soft area, more on the business side, process management, process improvement, quality control. I got the certification as ISO-9000 lead assessor. I got the training for that. At that time, we were promoting [the] Malcolm Baldrige Award. I worked on a project for the Department of Defense-Navy. It was a project of capturing the best practices from concept to design to manufacturing, testing concepts. Bell Labs got the project. A team of us were going around the country. I had a security clearance also, a level two-security clearance. I went to military bases, naval bases, I went to the ships and submarines, trying to look at various manufacturing companies and capture all their best practices. We put together six manuals of that data, and McGraw-Hill published those four books funded by the Department of Defense-Navy. [Editor's Note: The Malcolm Baldrige National Quality Award was established by Congress to promote improved quality of goods and services in American companies.]

I also worked on supply chain management. I wrote three books on supply chain management. It was published by the AT&T publications library. They were able to publish those books. I wrote four books and then three books, co-authorship of seven books. It was on the softer side and not so much heavy engineering design but rather the best practices in quality and process improvement. I worked on some project on military systems. AT&T had a military systems division, a federal systems division in Whippany. I used to go there and I used to do the design process and improvement changes. I also worked in the satellite systems division, tried to put together the processes and improve their systems, so that way we could increase the productivity and the quality of the product.

SI: What were the biggest challenges you saw in this field of project management and systems management in general?

UC: I'll start with the work I did for the digital signal processors in marketing. In Murray Hill, they were designing this chip called a graph search machine, GSM. This was the one for speech recognition, speech synthesis. It was way ahead of its time. We're talking about the 1987 timeframe. In order to do the marketing for that and coming up with the forecast, nobody was able to do that. The marketing people were not able to do that.

The Allentown facility, where the manufacturing of these chips was being done, the vice president was really quite harsh on the marketing division. I had just joined the marketing division. I had a meeting with him. He wanted us to come up with the forecast for that thing. I

said, "Let me figure it out." Being an engineer with my sales experience, I came up with a number. The way I did that was looking at the device levels. The different researchers had a service called Dataquest, so for each of these integrated circuit chips and what's the market, I was able to look at those numbers. They also looked at the application of the chip. What are the different applications and what are the market forecasts for those chips? What percent of this will fit into those markets? I went from the applications side, I came from the chip side, and I was able to come up with a nice meeting point. My forecasts were pretty good. Even the vice president was quite impressed. He said, "How did you come up with that?" Again, it shows that you're thinking outside of the box and trying to bring that thing together. That was one of the major challenges, getting accepted as a marketing person in that organization.

Then, working as a salesperson, selling it to Bell Corp and companies like that, they said Bell Labs people [don't] have the sales skills. We were able to show that it doesn't matter that you're an engineer, you have the skills. You just have to sharpen them and use that, so showing that. I was able to sell million-dollar equipment. [I] moved from technical support to sales. I showed them you could do the sales like that.

Also, in terms of even the electronics associate, going back, when you look at it, some of the design, we used to have a nuclear power plant operator training simulator. The way it works is, the nuclear power plant is in Palo Verde, Arizona. The consultant designing that, Bechtel, was in California. My simulation company was in West Long Branch, New Jersey. The people, the way they were doing the design, simulation means you're taking the hardware and creating a software equivalent of that, and the people who were doing it were sending each drawing, converting the hardware drawing into a software drawing, and sending it to California for approval. The process was too long. I suggested to somebody, "This is not the way to do it. There's got to be a better way." Somebody overheard that and said, "Oh, you are so smart. We'll give you a project, we want you to do that." I said, "No problem."

It happened to be a project in India. It was a thermal plant, a coal-based thermal plant. They had maybe a thousand drawings. I said, "Communicating to California takes so much time, but to India it will take longer." I looked at all the drawings. Out of the thousand drawings, I created five software drawings. I created tables for some minor variations. I said, "Look, all you need is five subroutines. With these exceptions, you can always combine that thing." I cut down the design cycle by almost sixty percent. The point I'm saying is that, see, the innovation is there, it's just how to get it out.

SI: Is there anything else you would like to add this interview? We are going to come back and talk about your political career. Would you like to talk more about your work with professional organizations?

UC: Yes, I want to talk about the Dale Carnegie thing. I think I want to talk about that.

SI: Sure.

UC: In addition to having the Indian Subcontinent Club, it's called Indian Subcontinent Club. Toastmasters was one that was going on. Bell Labs paid for it, so I went to take the Dale



Carnegie class outside in a hotel and all that. The instructor took a liking to me. He said, "Maybe you can take this to Bell Labs." I said, "I'll bring it to Bell Labs." I brought it. I did the Dale Carnegie for forty-two weeks, fourteen weeks as a student and twenty-eight weeks, two sessions, as a graduate assistant. I was doing that. I went out and brought different members of the employees to come and join, take the classes. It was after-hours. I organized that thing.

A lot of people, many of them benefited from that. There are three aspects of Dale Carnegie. *How to Win Friends and Influence People*. The communication, whether it's written communication, oral communication, and interpersonal communication. That's a very important skill. Then, the third thing is stress management. *How to Stop Worrying and Start Living*, that was the third book for Dale Carnegie. Trying to build in for the immigrant communities is very useful, because you have to cope with the stress, work-related stress and all that. Also, you are being left behind because of discrimination or they're overlooking your qualifications. Trying to bring that confidence to people. Communication is an essential part of success. If you're not able to communicate, verbally or written, or you're not able to get along with different people, *How to Win Friends and Influence People*. That's an important skill set that's needed for success in the business, success in anything that you do. So, I felt very special. I had the opportunity to bring that to the people. Of course, I gave a lot of my time. In the process, I also made lots of friends. I got rid of my own inhibitions, and I became a better person.

SI: When was that?

UC: Between '81 and '83, I think.

SI: I think we've had you on the hot seat long enough for today.

UC: Right. [laughter]

SI: Thank you so much for coming in, and I look forward to continuing our talk.

-----END OF INTERVIEW-----

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Reviewed by Kathryn Tracy Rizzi 5/19/2022

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