

Molly Graham: This begins an interview with Tom Karl on April 1, 2022 for the NOAA 50th Oral History Collection. The interviewer is Molly Graham. It's a remote interview with Tom in Mills River, North Carolina, and I'm in Scarborough, Maine. Because this is a remote interview, I want to make sure I have your permission to record on the record.

Tom Karl: Sure.

MG: Okay. Tom, I would like to start at the beginning, if you could just tell me where and when you were born. I

TK: I was born just outside Chicago in 1951.

MG: I'm curious about your family history and how they came to settle in that area. What do you know about your father's family history? We'll start with his side.

TK: Yeah. I don't really know what brought them – why they chose Chicago to settle in. On my father's side, German ancestry was certainly where they emigrated from. But I never did ask and never was curious to know why Chicago. I just remember they settled on the Near North Side of Chicago.

MG: Do you know which generation immigrated to the United States or which generation came to the Chicago area?

TK: I think it was mixed. I think on my grandmother's side, they were second generation; my grandfather's side, first generation. So how did they meet? As a kid, I never asked how my grandparents met. I know how my parents met, but I don't know how my grandparents met.

MG: Where did your grandparents live?

TK: You mean in Chicago?

MG: Were they also in Chicago?

TK: Yes. My father's parents got married and lived in Chicago not far from Wrigley Field. My mother's parents lived on the South Side of Chicago. My father grew up on the Near North Side of Chicago. My parents met because my mother's sister married my father's brother. So, they met either at a social function or just coming to each other's house. They got introduced, and that's how they got married.

MG: Well, that's very convenient for family get-togethers and reunions. You don't have to choose which side you go.

TK: Exactly. I had, I guess, double cousins or something. Because my mother was the sister and father was a brother of my cousin's parents. So pretty close there.

MG: You mentioned Wrigley Field. So, were your family Cubs fans?

TK: Yes, they were strong Cubs fans. I still am a Cubs fan, so is my brother, but not nearly as strong as probably we were in 2016 when they won the World Series.

MG: I forgot to ask what your mother's heritage or background was.

TK: So, my mother's heritage is from Italy. Their parents emigrated from Italy. I think I know a little bit more about their parents. My grandfather came to this country shortly before World War One. He worked in the U.S., and my grandmother stayed in Italy. Then she came over here, maybe five or ten years later. They raised a family, had five kids, and lived on the South Side of Chicago.

MG: Do you know approximately when your parents were born?

TK: My parents were born in the 1920s

MG: Did you ever ask them about the time periods they lived through, like the Great Depression? Did anybody serve in World War II in your family?

TK: Oh, yes. The war was a big issue – World War II. My dad was in World War II along with his brother. That was obviously a life changing experience. That's where he – I think he was eighteen or nineteen when he signed up. It was his quote/unquote "college," so to speak. He didn't really like to talk too much about it. I know he was in Italy, in Germany, and all over the place. I suspect it was rather hard on him. I've seen some of the letters he wrote back to his mother and you could tell it was pretty difficult. I do recall him saying he met his brother. They met up somewhere. I guess he was in another division. I remember seeing some letters and some of the times they had together – a brief encounter.

MG: It sounds like they were both in the Army.

TK: Yes. Yes, although I think my father's brother was more in the bookkeeping end. Even in the military, you've got to, out in the field, do some bookkeeping work. So, he wasn't quite in the frontlines like my father was, I think. So that was something that I think my father envied a little bit. His brother had a "cushier job".

MG: It sounds like he met your mother after the war when he was a little bit older.

TK: Yes, it was after the war. That's right.

MG: How did his life unfold after the war? What industry did he find himself in? What work did he do?

TK: He worked for – at that time, there was Illinois Bell, which later got bought up by AT&T. He spent his entire career working for Illinois Bell, which then later became AT&T. He started out coin collecting there. For young people – well, you've probably seen phone booths, if people have seen the old *Superman* movies. His job starting out was collecting coins from these phone

booths. Eventually, he ended up being what they called a Public Business Exchange (PBX) installer. Before he retired, he was in charge of all the phones in the Wrigley Building and the Tribune Building in Chicago. So, they just assigned one skyscraper to a person, and he was responsible for the communication system in that building. So, it was a great career for him. He worked a lot of hours. I remember a lot of overtime. He spent a lot of Saturdays and a lot of nights working. He really started out, obviously, blue collar. So, he had that strong blue-collar ethic. I can remember him taking me, in his younger days, on his mail routes. The post office would hire people at the holidays to deliver mail. I can remember once or twice, he would take me with him to walk with him on his route, which was kind of fun as a kid. I must have been about six or seven years old. It was a good, hard-working life. He spent his career doing that.

MG: You said the war was his college. Was he ever formally educated?

TK: No, he never was. Out of high school, he went to the war, and that was it. I don't want to get ahead in the story, but he developed a strong interest, as a kid, in meteorology. He would have liked to have done meteorology in World War II, but I don't think he ever had a real opportunity to go to school and train for that.

MG: Where do you think his interest in meteorology came from?

TK: I don't know where it came from. I think he was unique. He had two brothers and two sisters in his family. He was the only one interested in weather, but he always was from a boy because he would tell me about the snowstorms and the ice storms and the heat waves that he experienced. So, I don't know where that came [from]. It was innate, I guess.

MG: Well, it must have been so exciting for him to share that interest with you and then to see the things you did with that as a career.

TK: Oh, yes. He was known in our neighborhood as "The Weatherman." Back in the '50s, weather wasn't quite as it is today. So, the expertise wasn't quite there. Although he didn't get formally trained, he learned a lot of meteorology through his own initiative, his experience. He'd go outside, look at the clouds. We actually, as a hobby growing up, had weather forecasting contests, himself and me, where I would do a five-day forecast, and we'd measure snow and rain, temperatures, clouds, and score points. It was quite interesting. You get your information at that time from the newspapers. There were one or two people on TV or radio at that time. TV was just coming on. In fact, one of the first Seal of Approval members of the AMS, the American Meteorological Society, Harry Volkman, started in the late '50s. We listened to him regularly. Meteorology was just coming into its own back in the mid, late '50s, and he was right on top of that.

MG: I think of the Midwest as being a great place to observe weather behavior and patterns because you guys get a little bit of everything there.

TK: Yes, and it always seems to be changing from the standpoint of – if you're in California, I guess you get used to the fact that predicting fog is the big highlight of the day, the time the fog breaks up. But in the Midwest, it's rarely more than two or three days of one type of weather.

MG: Did your mother work outside the home?

TK: Yes, she did a lot of different jobs. She actually taught as a substitute teacher in the school I went to, [my] grammar school. She was a secretary. She was – I guess I would call it – a social arranger for Avon. She did all the parties and planning for Avon, and Avon was pretty popular back in the '60s. So, she was pretty involved with that – '60s and '70s. They even brought her on after she retired. She worked there probably off and on until her low seventies. She really enjoyed it.

MG: Oh, good. I think in your survey you said your family moved to the suburbs when you were five. Had you been living in Chicago up to that point?

TK: Yes. Jjust different places in the Near North Side of Chicago. Then, for a time with my grandparents on the South Side while they were building a house up in the suburbs. So, spent probably a year with my grandparents and my parents on the South Side of Chicago.

MG: Did you have other siblings at that point?

TK: No. A first sibling came when we moved to the suburbs. That was my brother. He's about four and a half years younger than I am.

MG: Okay. Were there others to follow?

TK: That's it. Just us two.

MG: Do you remember that move? Do you have memories of living in Chicago before you move to the suburbs?

TK: Yes, I have vague memories, but not very many. The most vivid memories I have was living on the South Side of Chicago with my grandparents. I must have been about four years old. Prior to that, just not really much. I do remember some neighbors having a nice dog that we used to go and pet on the Near North Side. But other than that, it was really primarily the – I remember living on the South Side of Chicago. Even then, I was interested in the weather. My father was interested in weather. I always knew when we were going to get snow living on the South Side of Chicago because you could go outside, and I could smell it. When it was cloudy, it smells like snow. Little did I know they lived west of a train switchyard. In the switchyard, when you live west and winds are blowing from the east in the wintertime – and normally in the wintertime, cloudy skies, there's not a lot of mixing going on. So, you're going to smell the diesel. So, as a kid, I thought it smelled like snow. But it was just the fact the wind was from the east, blowing this diesel smoke. I thought, "Well, that was a good predictor for snow."

MG: What precipitated the move to the suburbs? Was it upward mobilization? Did they need more room to spread out?

TK: Well, I know my mother was the youngest sibling. My father was kind of in the middle. All of the brothers and sisters were moving out and building houses in the suburbs. So, I'm sure that was a big attraction. My cousins only lived about a mile from where we ended up building the house. I suspect they all talked among themselves and said that was the place to be. They all ended up on the northwest side of Chicago.

MG: That was in a town called Niles.

TK: Yes. And some of them lived in Niles, some of them in Arlington Heights, some in Chicago, something called Edison Park, which is just inside the city limits, but very close to Niles. So, everybody was located probably within a ten-minute drive or less.

MG: What was Niles like? What are your early memories from living there?

TK: Yes. Niles was one of these towns, typical suburbia. It was kids galore because all of the new houses going up. Previously, that area was cornfield and swamp. It was built – block houses. You have one block with maybe fifty houses on it. In those fifty houses, everybody had two or three kids, sometimes four or five. So, you can have a block – your block would have several hundred kids, and ten or twenty of them all your age, within a year or two. So, in that neighborhood, it was nothing but social gatherings of kids. I don't know how the parents managed because it was playing baseball on the street and football under the lights and by the streetlights. So, it was kind of a kid's paradise from that perspective. A number of parks with Little League and baseball. It was a great place to grow up as a kid.

MG: Yes. You grew up in a time that I'm always just so fascinated about, the late '50s and '60. You grew up in a time when there were so many cultural and social changes. What stands out to you? We can start with the 1950s. What was in the cultural milieu at the time?

TK: Well, one of the things that stands out to me is that if you were a kid, for one thing, parents never worried about – now, I can remember being seven, eight years old, getting on a bike, and [being told] “Just make sure you're home by dinner.” But when you were in that neighborhood, there wasn't anything you could do that some parent wouldn't notice and call your parents if you were found doing something. It was amazing the network they had. But we never had any constraints on if we wanted to go out. There were a lot of swampy areas – go to the swampy areas and look for tadpoles or crawfish or catch frogs. People didn't worry about that. There was always someone who could tell your parents where you were. Of course, kids were oblivious to it. But I was always amazed that – “We saw your son riding his bicycle way past? Did you want him over there?” So then your mother would ask what you were doing.

MG: Yes. There were a lot of eyes on you.

TK: That's exactly right.

MG: Well, tell me about the schools you attended.

TK: I went to a public kindergarten and after that was Catholic grammar school. I was able to walk to school, which was great. It was two blocks away. I went to all-boys Catholic high school. Again, that was in the neighborhood. I could ride my bike or walk there. In my grammar school days – at that time, you there were a patrol boys to help with the traffic. That was interesting, being a “patrol boy.” We got some interesting weather. I can remember walking back from patrol in some snowstorms. It’s always nice to come in late to class, but because you were a patrol boy, it didn’t matter. I spent a lot of time with school activities. It was a Catholic school, so, of course, I was an altar boy. And just a lot of social activities. Between that and sports, it kept us busy. When I say sports, in those days, a lot of it was unorganized. As I said, there were so many kids in the neighborhood – pick-up games where you’d play baseball, football, hockey, basketball. You can go to the parks. They would flood the parks in the wintertime. You could play hockey. I can remember playing hockey under the moonlight with snow on the ground. It was light enough. You didn’t need any lights. So, it was a lot of fun.

MG: Yes, it sounds idyllic. Were both of your parents Catholic as well?

TK: Yes.

MG: Was the Catholic Church a big part of your upbringing and how you had to spend your Sundays?

TK: Yes, that was Sundays and going through all the sacraments. There were always big social gatherings. Having fifteen, twenty cousins, it seemed like every month, there were some functions at somebody’s house. We’d spend a lot of time at my grandparents’ house, almost every other week on Sundays, maybe once every two or three weeks. It was a long drive back then to go across from the North Side to the South Side. But they did quite frequently. So, the cousins would be there on Sundays. Because it was an [inaudible] Italian neighborhood, Italian grandparents – food was just constantly being made, people walking in and out, eating constantly on Sundays. It was a lot of fun.

MG: Being so close to Chicago, were you able to go in and enjoy the things the city had to offer? I’m thinking of the Field Museum and sports games.

TK: Yes, Field Museum. Shedd Aquarium. Wrigley Field was a favorite place. I can remember because my father didn’t live that far from Wrigley Field. So, we’d go to Cubs games. When he got a vacation, that was a big highlight. So, we spent a lot of time doing those kinds of activities. I can remember, as a kid – it’s funny – you remember when you got sick. One of the sickest times I remember is my neighbor took us to the Chicago Field Museum, and they had a coal mine. You go down the elevator and the coal mine. I can remember getting so sick. It’s too bad. It’s one of the experiences I had – I can only imagine. I’m there with my neighbors two kids (they took me as their guest), myself, and I can remember my friend’s mother just sitting with me as the others went and did some things because I was so sick. I just sat at the bench. So that’s what you love; you bring your neighbor’s kids to the museum, and he’s sick. That was perfect.

MG: You were a little bit too young, I think, for the polio epidemic. Was that a concern? Or did you know kids who had been impacted?

TK: Yes, my uncle had polio and was in braces all his life. So, it certainly was prominent in our family history. So, we all got the polio shots and made sure we were up on our vaccinations, which is a strange thing today with people [who are] uncertain about vaccinations. I know even one of my neighbors here says, “Well, I don’t believe in vaccinations.” I said, “Well, would you get a polio vaccination?” I don’t know whether they would or not, but it certainly is a godsend from that perspective.

MG: I’m with you on that.

TK: Well, what else stands out to you about your early childhood and school years? Were you developing an interest in science and starting to think about the next steps in your education?

TK: I knew from five years old that I wanted to be, at that time, a weatherman. As I got a little bit older, I realized the field was broader than weathermen. A meteorologist had a greater perspective. But I knew immediately that’s what I wanted to do. I was kind of fortunate. From as young as I can remember, I wanted to be in something involved with weather, the climate. I remember I have weather records going back to – I guess it was – 1961. So I must have been ten years old – a diary every day of the high and low, cloud condition, snow cover. My father and I would use those records to validate our weather forecasts against each other. So, it was something that I always had an interest in.

MG: I’m so fascinated by that. You were already archiving weather information at such a young age.

TK: It was great. It was great because we could look back and find out what happened on a specific date and time, and it’s right in our neighborhood. I can remember my father and I getting into arguments because we’d forecast X-amount of inches of snow. As you know, measuring the amount of snow can be different depending on where you measure. So, if he said four inches and I said two inches, there was always – well, who was right and who’s wrong? We’d score points. That was fun.

MG: This would be a common theme throughout your career – wherever you take the measurements from.

TK: Exactly.

MG: One thing I didn’t want to forget to ask about was one of your first jobs when you were eleven, handing out advertisements for a TV repairman.

TK: Yes.

MG: How did you get that job?

TK: The neighborhood grapevine where [inaudible] everybody knew each other. At one of our baseball games – I think it was (Darnold?) TV said that he was interested if the kids wanted to help him with advertising. Of course, my mother [said], “Yeah, sure. Great. Be happy to help.” I remember getting up early on Saturday mornings; I think it was six o’clock because we’d get out there between seven and nine and put out these little cards. I don’t know how old I was, maybe ten or eleven. We’d go places – I had no idea sometimes where I was, but they’d always have two kids, so you wouldn’t get lost. You’d have one on one side of the street, the other one on the other side of the street. Then, what he would do – he’d drop us off and then there were probably about ten kids all total. He dropped them in these ten areas. Then come back, circle back, and pick us up.

MG: Did you have other part-time jobs or summer jobs throughout middle and high school?

TK: Yes, I ended up – I remember the one and only job that I spent probably a week doing, and my cousin and I were, I guess, fourteen, and you were supposed to be sixteen. Of course, we said we were sixteen. We lasted a week. It was at a Howard Johnson’s. I don’t know if they’re still around anymore. It was really eye opening for both of us. I can remember just seeing cockroaches in the kitchen, which I was not used to. I can remember – one of the vivid memories is one of the cooks was making a big pot full of spaghetti, and it spilled all over the floor. He picked it all up and threw it back in. I guess it’s boiling; it didn’t matter. It was really eye opening for me. We lasted a week there. We both quit. It was the first job, I would say, into the real world, where you weren’t delivering cards for this TV guy, [which] was more of a neighborly thing. That was the first job that you were treated as an employee that nobody really knew who you were. They were just one amongst many at this location. So that was a good eye-opening experience. But then after that, I had some great jobs. As soon as I turned – I think maybe I was fifteen. I think they let you do this back then; you could be fifteen and a half. I worked for Carvel ice cream. You probably have Carvel still in that area.

MG: Not in Maine. But I grew up in New York, and Carvel was a big deal there.

TK: It was the greatest thing. We had two people (husband and wife), they had no children, they ran two Carvel stores, and there were probably about ten, fifteen kids. I say, “kids” – sixteen, seventeen, fifteen, eighteen. Summertime was our busiest time, which is perfect. We were out of school. They were also open in the winter on the weekend. So, we could work on the weekends, which I did. It was great because it was a lot of fun. They took us to – at that time was called Superdowg, late at night, 12:30, 1:00, after Carvel closed, they’d put us all in a station wagon, and that was a big treat for us kids back then. If you made mistakes, you could bring the ice cream home. You don’t want to intentionally do that. But it was a lot of fun. The girls and guys there were just always laughing. It was great fun. We got together, did things, went to the beach, went to ball games, so it was fun.

MG: It sounds like fun. In high school, did you have any particular teachers that were mentors to you or helped encourage and support your interests in science at that time?

TK: Not specifically. I had some great teachers. But meteorology wasn’t a subject you could take in high school. Weather was more basic, basic math, basic physics, basic chemistry. But I

had some great teachers in high school who – I look back at it, and I wonder how they put up with us, but somehow they did.

MG: Did you stay in a Catholic school throughout all your high school years?

TK: Right, same school. My brother went there. I went there. Most of my friends were there. So it was, again, kind of a neighborhood [school]. Everybody knew everyone. All the parents knew almost every kid at that school. The school had about sixteen hundred kids, I believe, about four hundred in each graduating class. It was a fairly good size.

MG: Was it a particular order of nuns?

TK: The high school was brothers and lay teachers and some priests, too. Some of them were – you can imagine with a bunch of boys, some were pretty darn strict, and they had to be. You hear these stories. I never was part of any strict stories, but you'd hear some people – “This person got thrown out of a window.” Back then, the violence in school wasn't between kids, but you'd hear that teachers would take some pretty drastic actions to make sure kids stayed in line.

MG: I've heard stories from my dad about the nuns and their rulers.

TK: Yes, that was in grammar school. I never had any rulers on me. I vaguely remember someone using it, but it's not that prominent that I recall. But they darn well were strict, that's for sure. The nuns made you tow the line.

MG: You had said earlier that you were admiring the TV weather people. I was curious when you started to think, “Oh, that's what I would like to do.” I was also curious what those early weather reports looked like.

TK: Actually, it's hard to say what came first, the chicken or the egg, because I knew I wanted to be into weather forecasting. A motivating factor is, even as a kid, always thinking you can do better than the weather forecast. So that's a strong motivation, especially since my father and I were competing on who could give a better weather forecast and trying to be objective about it. That was a lot of fun. The TV weather forecasts started out to be pretty simple. They would have pieces of paper, I remember, covering the weather forecast. The piece of paper would be an advertisement like – I'm not saying it was Illinois Bell, but it could be Illinois Bell, and then they'd pull off the piece of paper and show you what the forecast was for tonight and then tomorrow. They would draw little low pressures and high pressures and fronts on the map. Eventually, it became more sophisticated, obviously, over time. But early on, it was pretty rudimentary.

MG: What were the things that you thought you could improve upon? How would you make your imaginary broadcasts better?

TK: Well, it's funny, because I never really thought of myself as a broadcaster. So, I was always focused on how could I make the forecast more accurate and more reliable. That's probably why I ended up more in the science area rather than in the broadcast area.

MG: Did you graduate from high school in 1969?

TK: Right.

MG: So, talk to me about just the cultural and social movements of the time up to that point. There was Kennedy's assassination in 1963. Then the Civil Rights movement. The 1968 Democratic National Convention was right down the road from you.

TK: Yes. Certainly, the Kennedy assassination was a big deal. I can remember walking home to lunch from school, and someone said the president was shot. That was a big deal. That weekend, I remember seeing the funeral and then Lee Harvey Oswald and that whole ensemble of events. So, people were, I think, struck by how could this happen. But then, in the later '60s, with the unrest, with the civil rights, I got to say, being in high school, I was pretty much oblivious to a lot of that. I mean, I was aware of it going on. But again, I was more focused on other things at that time. As a kid, I just didn't have the perspective. I could see what was going on but didn't really – it wasn't until college where you really could see the perspective of the Vietnam War. But in high school, I think I was a little more naive than most.

MG: I was going to ask if you were concerned about Vietnam, because you were obviously of age. Were you able to get a deferment?

TK: Yeah. Well, they came up with a numbering system, and what number you got was whether or not you got drafted. I think my number was 253, which was pretty high. So, I never really had a lot of concern. A lot of the people who had lower numbers were concerned. So, from that perspective, I just went on to college and didn't have to deal with it, which I know other people did.

MG: How were you thinking about your college career? Where did you apply? Tell me about that process.

TK: It was really simple. I had to have one that we could afford, and the other one it had to offer a bachelor's degree in meteorology. So, there weren't many choices. At that time, it was only Northern Illinois University. University of Illinois, which now offers it, was – for graduate school, you could work your way into it, but it was NIU, Northern Illinois in DeKalb. And so, it wasn't much of a decision for me. "That's where I'm going." Because out-of-state was just too expensive, and in-state was the way to go.

MG: Well, tell me a little bit about your first year on campus, the things you were studying, and the courses you took.

TK: Yes, the first year was obviously a major adjustment.

MG: When I went to school, I remember the big issue was I knew math and science were key. And although I had a fair bit of both in high school, I always said, "I don't know if I want to be in with the math majors, who are going to take, at that time, first year calculus the first

semester.” So, I said, “I’m going to take advanced algebra,” which is a five-hour credit, “and then I’ll take calculus the second semester when I won’t have to be in with the math majors.” That was my logic. So, I did that. Obviously, it was pretty easy for me. I’ve got obviously pretty astounding grades because a lot of it was review. But I thought, “Well, that’s great, kind of reviewed a lot of the things that I already learned.” So, it was a good decision. The next semester I took calculus. I ended up minoring in math, but when I first went, I was a little bit intrepid about how well I would do against people who just wanted to focus on math alone, since I was more interested in the science as opposed to math alone. So, it was a little frustrating initially because I had to take prerequisite classes before you can get really into meteorology or even physical geography, which is closely affiliated with meteorology. So, I spent the first-year kind of – I can get through this, then I can get to the fun classes. Eventually, I think the second semester, took some physical geography class; it was great, one of the best classes I’ve taken. Then I got into the meteorology classes, and it was a delight going to these classes. It was trying to better understand what I already thought I knew, and then realizing, “Boy, there’s a lot I don’t know, a lot.” I can remember as a kid being so frustrated in high school – the Weather Bureau at that time – part of NOAA [National Oceanic and Atmospheric Administration]. Maybe I should back up a bit. My mother was so great. She wrote a letter to someone in the Weather Bureau [and] said, “My son’s interested in weather, in meteorology. Is there anything you have that could help him?” And they sent a bunch of material. In that material was a selection of books. I must have been in grammar school. I remember one was discriminate prediction by statistical analysis. I said, “Well, that’s what I want, prediction.” So, I ordered this book, which was quite expensive for me. I don’t know how much it was. Even if it was ten dollars, it was a lot of money for a kid. So, I got this book, I opened it up, and I was so disappointed. It was just loaded with equations that I couldn’t understand. Now, I don’t have that book any longer. But over time, I realized it really wasn’t very complicated. As someone in high school, early years of high school, it was just beyond me. So that was the nice thing about going to school; you could recognize, yeah, there’s going to be applications for this over time.

MG: Yes. I was going to ask about that process of when you started understanding the forces and theories behind the weather patterns and behavior you had been observing your whole life.

TK: Yeah, I think it was in college. I remember Professor Allen Staver was a fantastic teacher and mentor. Northern Illinois University was the best place to go from the perspective of there were one, two, three, four, five professors, not all there at the same time. But they knew everyone by name – because the meteorology class was small; there were like eighteen, nineteen of us in our freshman year. Then, of course, eighteen, nineteen in the upcoming freshman year. So, the whole department, with students, probably about fifty kids. So, they knew all of us, and you could really develop a great relationship with each of them. Each of them had their own specialties. Boy, they were very patient with me. I can remember writing computer programs to calculate vorticity advection, and it just wasn’t working right, and going back to them, and realizing I had an integer declared instead of a floating point, and we got that straightened out. I was always frustrated about thunderstorm prediction. How do you know when they will occur? Allen Staver was in the military, got his PhD in Wisconsin at University of Wisconsin, Madison. I said, “How do you know it’s going to be a severe storm today? Tell me.” I was so frustrated; I couldn’t quite understand. He brought a lot of years of experience. So, it wasn’t just one thing;

it was many things he put together. He tried to be patient and teach that to me, which, I think, [was] reasonably effective. So, it was a great experience in college.

MG: Were there a lot of World War II era or retired radar men from the Army who were your professors?

TK: Well, in graduate school, that played a big role. Undergraduate, they came from a little different background. But when I went to graduate school in Wisconsin – I don't know – I'd say at least half of the department, or maybe more than half – all the leaders of the department came from the German side in World War II. Some of them emigrated to South America, and then Madison is where they ended up. These were really, at that time, the innovators in meteorology and weather satellites. We had quite a well-respected, internationally known group of professors at University of Wisconsin. So that was intimidating and interesting at the same time. My major professor, [Werner] Schwerdtfeger, was head of the German Luftwaffe meteorology section, but never became a Nazi. Their were great stories about what he did in World War II, trying to get all the people that worked for him out before the Russians came. He stayed to make sure even the last secretary, the last assistant, was out of the country. But he ended up going to Argentina, as the Chief Science Officer for Argentina for a number of years before he came to the US. I can remember when I went to school the first time and I talked to him. I hadn't met him before. I could barely understand him because his accent was so heavy. I thought, "How am I going to get through this?" You had to listen so intently. So that was an eye-opener. But he was very, very knowledgeable. His colleagues were very, very knowledgeable. His expertise was the climate in Antarctica. So, I was hired on as a graduate assistant. So, I kept all his records. My thesis was on climate of Antarctica, but it was just right up my alley because he would scour the world to get these recordings and information on the weather and climate in Antarctica, that no one else had, not even the National Climate Center at that time, part of NOAA, because he had records they didn't have. He would offer them up to NOAA over time, but it was quite an interesting stroke of luck that I ended up with him and continuing on the thing I was always interested in.

MG: Had he spent any time there having been in Argentina previously?

TK: I don't think he ever was in Antarctica. He was in, obviously, southern end of South America, but I don't think he ever went to Antarctica. I don't remember him ever talking about it. He knew a lot of people who were there. But I don't believe he ever did.

MG: Was he the only one talking or teaching about climate at that time?

TK: No, there were a number of people at Wisconsin. Reid Bryson is a famous climatologist. Eberhard Wahl was in climatology. There were several. It wasn't as popular then as it is now. Climatology then really wasn't much about global climate change; it was more about what we think of as general climatology, climate dynamics. At that time, it was still, I think, respected as really important. It just wasn't the focus as you see today.

MG: In your undergraduate experience, what other courses were you taking? How were you focusing your course of study?

TK: I was trying to take as much statistics and math as I could. I think I said earlier, I ended up getting a minor in math and really enjoyed statistics and probability. So, that's what I tried to focus on. I wasn't in love with differential equations. I did it because I had to do it. And matrix algebra was fun for a little bit, but the statistics and probability, I really, really took a liking to that, so I tried to focus in that area. The irony back then is, for whatever reason, in undergraduate school, they give you these placement tests. I always thought I was terrible in English and humanities and much better in science and math. So, I took the test, and they said, "Well, you placed out of English, and we're going to put you in the Honors English. And really, you only need to take one semester," which was silly, because that was my worst subject. Writing was very difficult early in my career, and I really needed to learn how to write. So, I don't know what happened. I always think they got my tests mixed up with someone because, as I said, when I took Algebra, I took the easy way out to start out. That was really my strong suit, but I was a little more intrepid. I can remember being in this first-year, freshmen, advanced English. There were mostly girls in the class, and I recognized they simply had better language skills than most of the guys did at that time. So, I struggled through that class. It was probably one of the only C's I got in my undergraduate curriculum. [laughter] But it just wasn't something I really enjoyed that much.

MG: You mentioned there were about fifty students in your undergraduate Meteorology Department. How many women were there?

TK: Not many. I would say out of fifty, maybe two or three. It was very few, very few. I'm trying to think whether there was even any in my class. I think the two or three might have been in the younger classes than I was in. It was different in graduate school, but undergraduate, very, very few.

MT: What about life outside of class, your social life? What kind of activities were you involved in? I'd asked earlier about maybe the protest movements of the time.

TK: Yeah, I got to tell you a story about protests. We had a meteorology building at NIU, which was five stories, I believe – it could have been six, and it had a great rooftop view of pretty much the campus. My roommate had keys to the building, because he took care of the weather instruments. He would actually do the daily recordings and do a little bit of maintenance. At that time there, the protests took place on campus during the riots of that year. That must have been – gosh, I'm trying to think – '71 or '72 – against the Vietnam War. So, he was up on top of Davis Hall, which was the meteorology building. He had another colleague with him, another meteorology major. They were just watching what was going on, the protest down below. I guess the security people saw them up on top of Davis Hall, so they went up to the roof and interrogated [them] – "What are you doing up here?" They said, "Well, we're weathermen." I don't know if you knew back then The Weathermen were a faction. So, he said, "That was the worst thing they could have said." So, they had to explain what they were doing. So, that was the closest that we came. I wasn't up there, but that was the closest I came to the Vietnam War protests. But it was kind of a funny story.

MG: Yeah, not those Weathermen.

TK: Right, exactly.

MG: Maybe you don't know, but why do you think the Weather Underground adopted that moniker?

TK: Weather Underground?

MG: The Weatherman, the radical protesters. Do you know where that came from?

TK: I have no idea. I have no idea why they were called the Weathermen. It seems strange, doesn't it? I guess we never asked.

MG: Had you heard about what had happened in Wisconsin around that time?

TK: Sure, with the explosions and blowing up the building. Yeah, that was quite a big deal. We certainly heard about it, knew about it. It was unfortunate, but there wasn't much we could do about it.

MG: How were you spending your summers during college?

TK: I had a couple different jobs. I worked in a factory for a couple of years, which was interesting. I had a construction job, which was one of the most eye-opening jobs. It was biggest motivator for – no matter how many hours of studying and college you needed to do, to keep studying. I remember that summer I ended up breaking my foot – a scaffold fell on it. It was probably, for me, one of the most difficult jobs. So, what we did is we were putting in suspended ceilings. So, we'd be assigned different buildings, major shopping centers – I remember one big, huge insurance building. This is in the Chicago area. So, it'd be during heat waves. You can get up to ninety, ninety-five. If you're in these buildings, the top of the fifth floor or the eighth floor, all the heat would rise, and you're putting [in] suspended ceilings; it probably could be a hundred and five, a hundred and ten up on the top of these buildings. So, you're climbing up these scaffolds, and you would have a pneumatic – I forget what caliber drive pins – gun that you would shoot into the concrete to get the drive pin to stick and then move on to the next spot. So, you did that all day long. I remember after the first day, I was so sore. The one good thing I can remember about that summer is I ate more food than you can possibly imagine, never gained a pound. It was interesting working with these people who did this day in and day out. I said, "I just admire how they could do that." It seemed monotonous. It was interesting because some of them were interested in physics. I remember during a lunch break, we talked a little bit about it. I think they all envied me because they knew I was going back to school. They were going to be doing this forever. So, I really came to respect the blue-collar workers, how they can persist and do that. Certainly not an easy job. I can't imagine – it's one thing to do it when you're twenty. I don't know how you do it when you're fifty. I can't imagine.

MG: Forgive me if you said this, but how did you get this job in the first place?

TK: One of the jobs my mother had was she was a bookkeeper for a manufacturer who did ceilings. The guy who owned the company came in and said, “Yeah, I need some help this summer.” [She] said, “Well, my son might be interested.” So, that’s how it took place.

MG: I’m not sure we’ve talked enough about your mother. It sounds like she was a really great advocate for you and connected you to opportunities that would support your interests and career. Can you tell me a little bit more about her?

TK: Yeah. She was well-known in the community, but it was social through the church, but not only through the church. Everybody knew everybody. So, as opposed to using Facebook, telephones and social gatherings were the rule of the roost. Through these interactions, she just had a great network and was a great advocate for kids and our family. I know she would help other kids in terms of – “Hey, you can apply for a job here. You can go to work here.” It was a great neighborhood. People were very supportive of each other.

MG: It seems like she was proactive about helping support your interests, too. She wrote away to get those books for you.

TK: Yeah, she definitely was very supportive. She, I would say, never, ever second guessed. If I had thought I wanted it, and it was important for weather, she was all in on it. If it was for my career, great. Very supportive. When we were going to school, [she’d say], “Yeah, if that’s where you need to go, let’s make sure you can get in there. So, it was a great relationship from that perspective. I can remember coming home from college, bringing home all that wash, and she’d wash it. Going off to school, [she’d] pack up all kinds of food to take with me. It was very easy. When I compare it to what some people had, I just had it almost handed to me on a silver plate.

MG: I think when you were an undergrad, you joined AMS [American Meteorological Society] for the first time. Do I have that right?

TK: Yes, that was a big deal to join the American Meteorological Society as a student member. We’d have our student meetings and bring in some keynote speakers. Of course, the professors were all interested in getting students on board as well. So, that was the first involvement with AMS.

MG: Do you remember some of those early conferences?

TK: Well, they really weren’t conferences. We’d bring in people like Stan Changnon, who was at the University of Illinois and Head of the Illinois State Water Survey. Sometimes a graduate assistant would give a talk. We’d get people from the University of Chicago. So, it was not from the standpoint of bringing someone in internationally or nationally, but someone within driving distance who could come up and give a talk. That was great.

MG: Dr. Changnon’s name just came up in an interview I did recently with Dr. Russell Schnell in Boulder.

TK: Sure, yeah. Stan was a great friend, obviously an Illinois person. We had a lot in common. He was a great mentor to me. We worked on some major projects together. He got to know my wife fairly well. He was a unique individual. Everyone's unique, but he was unique-unique. He would write a paper – it seemed like every two weeks, he'd write up a new paper. And talk about a climatologist; he was the true-blue climatologist and interested in not only climatology but the impacts of it on human systems.

MG: You just mentioned your wife. Did you meet at NIU?

TK: Well, my first wife. We met at NIU. We ended up getting divorced in 2000. And shortly thereafter, I met my current wife. We always say "current" to keep her on her toes (jokingly). We've been married since 2001, I guess, 2002. We built the house I'm living in now. We lived in her house for about a year or two while we're building this house. So, it's been great. My ex-wife still lives in the area. She actually worked at the National Climatic Data Center. She's retired. She remarried and is located probably about thirty, forty miles away from us now.

MG: Had you always known you were going on to graduate school after undergrad?

TK: Yeah, there was no question. It never entered my mind that I wasn't going to do it.

MG: Had you considered other places besides Madison, or is that the spot you knew you wanted to go to?

TK: You know, it's interesting because I actually applied to a couple places – University of New York at Albany because I knew I wanted synoptic meteorology, and they have some great synopticians. So, I was accepted there. I didn't hear anything from the University of Wisconsin, Madison. But then came and said, "Well, look, we can offer you an assistantship, as well." Weighing one versus the other. I decided to go to Madison. It was closer. My Professor Staver got his PhD there as well. And another professor, (Prof. Vilmo?), who has since passed away, got his PhD there. Another professor at NIU got his PhD there. So there was a little bit of history, and it just seemed like, "Well, if they've all done it, maybe I should do it."

MG: Were you also intrigued by some of the German scientists and meteorologists that were there? I'm thinking, of course, of Verner Suomi, who is very well known in satellites.

TK: Yes. I don't want to say they're better than University [of New York], but they clearly had some big name people. So, it was no question that it was going to be a great education, if not a little intimidating with the kind of people you knew that were over there.

MG: You've said that a couple times that you felt intimidated. Where do you think that came from? I mean, you're clearly so bright and successful. Was it just because these professors were so accomplished? Soumi was known as the father of satellites.

TK: Yes. Well, it always felt like that – which is a good lesson. I always felt like for many people, they just seem innately intelligent; it seemed like they never had to study. They went to the test, and they got an A. It was like, "Man." And I spent lots of time studying, hours in the

library. I knew I had to put in the work. It wouldn't be something where I just showed up and there I am. Whereas it seemed like, and I'll never know – you can't put yourself in someone else's shoes. But I know when I was an undergraduate, there were three of us, two of the people from the Weathermen story and myself. We all shared an apartment. One of them was extremely bright – because I know how much time me and my other roommates spent studying. He almost never studied. He got a hundred on almost every test. Now, he ended up not going into meteorology. He ended up going into computer science. I've kind of lost track of his career. . So, I knew that there were some people who just were so gifted; they just walk in – I'm not saying they'll never study, but with a minimal amount of time. So that was the part – it was like, "I'm going to be competing with these kinds of individuals." So that was the intimidating part.

MG: Well, tell me more about your graduate school experience. Who were you studying under and with? What was that time like for you?

TK: Schwerdtfeger was my major professor. He was good friends with all the German professors. So, you did get secondary advisors, and Dr. Wahl was one of them – Professor Wahl, one of my secondary advisors. He had expertise in statistics, which was perfect. So, when I did my work, he would try to emphasize, make sure you're doing the right statistics on your analysis. So that was a great relationship that they had. I know that Dr. Schwerdtfeger worked well with a lot of the other German professors because they all had common experiences. So, I don't know for sure, but I can imagine they would get together and pick out these students who need help in what areas, and who's really bright, and who's going to go on to focus in one area versus another area. So, I think that was helpful from that perspective. One of the more interesting classes at Wisconsin that they offered was "Dynamic Climatology." It was taught by a professor called [Lyle] Horn. All the students loved him. He just made it so much fun. Yet, climatology, in that time, still may be regarded as maybe not so dynamic. But [inaudible] this class called "Dynamic Climatology," in which he brought in the principles of meteorology and applied it to climatology. It was really great. Another great professor was Heinz Lettau, a very famous micro meteorologist, and had some great classes, taught a lot of microclimatology in undergraduate, but he had a unique way of teaching micrometeorology, really brought in some unique perspectives, and was so well-known. I don't want to jump ahead of ourselves, but indirectly, I think he was responsible for the first job I got at NOAA.

MG: We'll have to come back to that, I guess. I don't want to miss anything in the meantime. I was out in Madison a couple years ago, and I interviewed Paul Menzel and Tim Schmidt. Did you know them? Or did your time overlap there at all?

TK: Yeah. Paul Menzel – certainly knew him because that Co-op [Cooperative] Institute [for Meteorological Satellite Studies] we worked with at the National Centers for Environmental Information and the National Climatic Data Center. Paul was part of NESDIS [National Environmental Satellite, Data, and Information Service], and I was in NESDIS. So, that's how I knew Paul. I didn't know Paul as a graduate student, but I knew Paul through our NOAA interactions.

MG: Tell me more about life in Madison? I think it's a perfect place for a young person. Were you married at that point when you came?

TK: Yes, just had gotten married. What I remember about Madison mostly is taking cross country skis out. It was a great cross country ski area. So, wintertime on the weekend, if we could get out, we would do it. Back then, you were waxing your skis and you had to know what the temperature was going to be, otherwise, your skis won't work very well. So, spent a lot of time – I wouldn't say a lot of time – my free time cross country skiing. When I wasn't doing that, there were so many nice lakes and parks. You could take wonderful hikes up there during the summertime. So, that really was the recreational part.

MG: Do you remember where you lived in Madison?

TK: Yeah, I lived right on Lake Mendota in an apartment. In fact, you could see the Lake.. It was maybe a hundred yards away. It was always interesting because you could see when the lakes were going to freeze and when they'd thaw and the frogs coming up and how early they'd start chirping. I was able to walk to the meteorology building; it was about a mile and a half. So, that was very convenient. All my classes were there. I don't think I ever took a class outside of the meteorology building. Maybe at the computer science building, which was across the street from the meteorology building, where my wife at that time worked. So, it was pretty convenient. There was a nice Italian restaurant on the way. So once a week, stop over at the Italian restaurant.

MG: Perfect. Yes, I remember Madison having great restaurants. Concurrent to your time in Wisconsin, there were some cutting-edge technological developments being done. I'm thinking of the McIDAS [Man computer Interactive Data Access] System. Was that something you were able to utilize?

TK: McIDAS wasn't quite ready for primetime yet. In the eyes of many people, it wasn't really operational at that time. I would say it was experimental. It was just getting going. University of Wisconsin, Madison had a relationship with the local TV stations and the public stations. They would try experimentally to bring out some of the new graphics. So that was the beginning of the revolution of graphics. In fact, Terry Kelly, who I think still is the owner of Weather Central – he might have sold out by now – was the first one to really bring graphics, not only to Wisconsin, but sold it to many locations around the US and I'm sure globally.

MG: You had a job with Weather Central as a forecaster.

TK: Yes, I did some weekend TV stuff and some radio stuff early in the morning. I did that after I had graduated. It took me about eighteen months to get my master's degree. I spent about six months, maybe seven months doing TV/radio forecasting for Wisconsin. Terry Kelly really was instrumental in helping me line up those positions. Some of them were with his company, some of them were with the university, as a forecaster.

MG: And how were you feeling your way through all of that work? How did you find it?

TK: It was fun. But going back to when we first started our conversation, the presentation of the material wasn't as much fun as developing the material. So, I recognize my forte really is doing the science. I'm more interested in the science than the presentation. So that was a good six, seven months to really recognize what is it you like and what it is you don't like. So, I liked more of the science and the weather forecasting at that time.

MG: How long did you spend working for Weather Central as a forecaster?

TK: I'm just guessing. I graduated in December, probably started in January – until that summer when I left. I think we left in early July to the University of Oklahoma, where I was going to do my PhD. I had gotten accepted to be in the PhD program. Jay Fine was going to be my professor. I went down there. I talked to Schwerdtfeger first. He said, "They're really into severe weather. It seems like that's something you really like. A good school from that perspective. So, that's where I went. Packed up all our belongings and moved down to Norman. Spent about four weeks there, and that was it. I never even made it to opening day of school. I had applied to NOAA back in May because I figured I wanted to do some weather forecasting or science. I don't know if you want to go this far at this time.

MG: It's up to you. This does feel like we're about to enter the next chapter.

TK: Let me finish the story then. So, I applied in May to – or maybe I applied in January. I think I applied in January to NOAA. In the meantime, I'm doing all these other jobs with Terry and Weather Central. I think I got a card in May, something about delay in processing and don't expect to hear from us for months – it's the government's. It's like, "Forget that." I was anxious to move along in my career. Oklahoma just seemed like a reasonable fit. I got down there and sure enough, after a couple weeks down there, I got this letter from NOAA saying, "We have a job for you in Research Triangle Park [RTP] – air quality climatology." I'm like, "What is air quality [climatology]?" Climatology struck me, but air quality? I never took any air quality classes. So why would I even want to do that? It sounds like studying stagnation conditions. I'm interested in dynamic weather. So, the next chapter was how did they even recommend me for this job, the position. Well, it turned out, I had studied under Lettau with that one class. I mentioned in my application letter that micrometeorology was particularly interesting to me. Dr. Lettau taught me micrometeorology is [inaudible] what I said – something like that in the letter. The head of the RTP laboratory wanted a letter of [recommendation]. He wrote back to me. It must have been in July. when he wanted a letter of recommendation. I just wrote to Dr. Jim Mahoney. I don't know if you remember Jim Mahoney. Jim Mahoney was the senior – let's see. What was his position? He was a political appointee at NOAA. I think it was the Deputy Administrator of NOAA, one of the deputy administrators with NOAA, also had great relationships with the Secretary of DOE [Department of Energy], and essentially was in charge of climate for all of NOAA and other agencies as well back in the Bush era. I had written a letter to him. He was president of ERT, which is Environmental Research Technology, in Boston back in the '70s, the pioneer in air quality. He knew I'd studied under Lettau. So, he said, "Yeah, this guy's got to be apparently pretty good because he studied under a great professor." So, Larry (Niemeyer?), who was then head of ERL RTP lab said, "Yeah, this is the guy we want to hire." You got to remember back at this time jobs weren't as plentiful as they are today. You can apply, and you're going to get some response. Back then, people were struggling to find work.

There were some hiring recessions going on. It wasn't the same environment that you have today. In any case, they wanted me to come in early September. So, I had to make a choice. Did I want to go to graduate school for the PhD or take this job at NOAA? It was a hard choice. The straw that broke the camel's back was my wife at that time was taking a job not nearly as good as the one in Madison. So [we] said, "Well, let's go try Raleigh." So, we went to Research Triangle Park. That was my first job at NOAA, which was a great decision in the long run.

MG: I thought your decision had something to do with the Oklahoma heat.

TK: Well, the Oklahoma heat was – it was amazing. That was something to experience. I don't remember so much the heat, but I remember, in back of our apartment, there were some old rusty bikes and wagons. I was pulling them out when we first moved there to get them out of the way, put them out to the dumpster, and seeing these spiders and cockroaches – the size of them – I've never saw [them] as large in my life, having grown up in the Midwest. I was just amazed at how big these bugs could get.

MG: Before we close up for today, I just wanted to ask if you had written a thesis and what it was on in Wisconsin.

TK: Yes, it was on the climatology of Antarctica. The claim to fame for that thesis – I don't know if anyone ever read it, except when the UK had its problem with Argentina – what was this? What was the island in South America off of Argentina? It was a fight over sovereignty. Because my thesis was on climate of Antarctica, I got all these requests for my thesis. I think they're probably the only ones that read it. It was not for the reason I would have expected; it was for a political fight over who owned what islands – the Falklands, the Falkland Islands. So, that was interesting. But the thesis was right up my alley, trying to understand what controls the climate of the Antarctic Peninsula, whether it was storms. They had some unusual characteristics of the way the temperature sunk in the winter. This coreless winter where it was anomalously warm and anomalously cold.

MG: Just so I'm primed and oriented for our next conversation, we'll pick up with your time at the ERL in Raleigh and working under – was it George Holzworth?

TK: Right.

MG: You were there for four years before you spent some time in Alaska. I just want to make sure I have the timeline correct.

TK: Yes, four years there, going up to Weather Service Forecast Office in Anchorage, spent a year up there, then came down to Asheville.

MG: Does this feel like a good place to stop for today? Is there anything we're missing up to this point?

TK: I've got a little bit. Do you want to just cover the four years at Research Triangle Park?

MG: Sure.

TK: Are you okay with that?

MG: Yes, of course.

TK: So, when I went to Research Triangle Park, I was fortunate; I got assigned to George Holzworth. He was the branch chief. There was his branch, which was analysis. There was another branch that was modeling. At that time, EPA [Environmental Protection Agency] had just formulated their organization. It had been in place for a couple of years. This whole group that I was assigned to had moved down from Cincinnati. They were part of NOAA, but they were being paid – their salaries – by the EPA. So, the EPA wasn't going to go out to hire a bunch of meteorologists. But NOAA had them, so they said, "Look, NOAA, we'll pay all our salaries. We'll pay NOAA. You can use that to pay their salaries." So, we had this building in Research Triangle Park. It was a group of probably – I'm guessing – forty meteorologists. It was a great time to be in that field because they were hiring young, really smart people, modelers, analysis people, and I was part of that group. There was the older group that had come from Cincinnati. So, a great dynamic of some new young blood with some people who had the experience. I remember the greatest thing George did was, the first day, he said, "Well, okay. Here's what we're going to do. Remember, I'm coming in after Labor Day. He says, there's this – the conference, the end of October. So you're going to present a paper there. I said, "What?" This is eight weeks to put together a paper presented at a conference on air quality. I hadn't taken an air quality class. It was the best thing he ever did because he just threw me in the soup and said, "You're going to do it." He gave me the regional air pollution study, which was a major study in St. Louis, to try and understand the transport of air quality in and out of urban areas. So, this was a heavily instrumented city – a lot of unique measurements. At that time, [there was] a lot of data collection. I mean, it'd be puny compared to today's standards; but back then, it was significant. So, I had all that data to analyze and make sense of, which was a goldmine. I mean, no one had this. I was given a great opportunity. It was so much fun because new people were coming in [who were] my age; we have a lot in common. At that time, there was a great environment. Research Triangle Park was dynamic. It was growing. A lot of new young scientists. There were a lot of federal scientists there. We had, in Research Triangle Park, softball teams, organized softball teams. I was the one who gave us our name, the Dust Devils; that was voted on as an interesting name. So, it was a great environment, both socially and intellectually, to really begin your career. George just said, "You're going to write papers." Then he saw some of my writing and said, "Wow, you need some help." It was great. So, he sent me over to EPA; they had a building about a mile away [inaudible] sent me – just drove over there. He set me up with some people to help in writing, gave me some pointers, really spent a few months trying to critique what I was writing, worked with some people who'd been around a long time, and got to know, how to submit papers and publish papers and what to do, and presentations. So, I can remember the first presentation in October having note cards. I couldn't believe people had to listen to that. I couldn't believe it – having note cards, those three-by-five note cards, and giving a talk, looking at your note cards. At that time, we had transparencies. One of the best stories I have is one of the presenters in Raleigh had a set of transparencies. He was talking about a curve, a regression curve, X-Y plot, number of points, and he was saying, "Well, the relationship wasn't as good as he wanted." But he couldn't see

this. This cockroach climbed up on the transparency; it just spent a lot of time walking along this line. So, the next speaker, who had been around a while, Steve – I can't remember his last name. He's very well known. I wish I could remember his name. He's long since retired. He said, "Well, if we just could have had an army of those cockroaches crawl up on his X-Y plot and line up on that line, we could say a little more about this relationship." I thought that was really funny. It was a great environment, and I can't imagine having a better four years. The reason I left there, which we can leave it after this, was – well, maybe I should finish Anchorage because that was only a year. The reason I left was I always felt like I never really was in the NOAA segment of doing weather forecasts and was always interested in weather forecasting. Here, I'm writing papers and doing all this science on air quality, but not really doing a weather forecast. George thought I was crazy [for] applying to Anchorage. No increase in pay, going up there – he just thought it was crazy. Well, it's crazy that a late twenty-year-old would do it. It'd be crazy to do if you're fifty. So, I went up there. At that time, we had a daughter, still pretty young. Went up to Anchorage, Alaska. My father and I drove. I drove to Chicago. We drove up to Seattle in my car. He flew up with me. We scouted out the area, got a place to live, [and] the baby and my wife then followed later on. So, he got a chance to see Alaska, which he never had done, at least the Anchorage area. I quickly realized, however, how difficult shift work was. The way they did shift work was they rotated backward, which was the worst way you could do it. Because I was the one with the least experience, I got called up constantly to fill in and had crazy shifts working weekends, regular on the weekdays. So, it was pretty bad. I remember being sick a lot up there. I loved the forecasting, but I really didn't appreciate the crazy shift work. So, I said I'm going to have to change. They promised I'd get an assigned research shift. Well, they promised. They said, "We'll give you an assigned research shift once a week to do some science." Well, they were always short-staffed; you could never get any science shifts in. So, I applied to the Air Traffic Control Center right up in Alaska. I said, "Well, I won't have to move, and I'll be able to still do forecasting. It'll be in the upper atmosphere." Not exactly what I wanted. So, I got accepted to that, but I also applied at the same time to Asheville, the National Climate Center. They saw that I'd written these papers, and I'd forecasted in Anchorage and said, "Perfect, come down to Asheville." We can leave the story there. But that's how I ended up going to Asheville; it was simply because – Anchorage was a great place to live, but the craziness of the shift work and a lack of any science capability drove me out.

MG: I'm curious how your career would have evolved if you had stayed there.

TK: Yes. There were a lot of people who'd been there many, many years. [inaudible] probably at the Air Traffic Control Center – I don't see that as being a really great career move, probably would have still been there. It's hard to say. It wasn't my love of life. One lesson is don't do anything out of convenience. But that was more one out of convenience. So, I got the thing in Asheville. That was going to be research-focused climatology – after ten years [of] figuring out this is really what I would like to do.

MG: If you have a couple more minutes, I wanted to ask a few more follow-up questions about the things we've just talked about. On your way to Norman, Oklahoma, at that point, had you applied to other positions that you were waiting to hear back from?

TK: Yes, it was just Norman. Norman was the only one I applied to. At that time, that was going to be my next step. I had kind of forgotten about the NOAA thing because George told me over time that it was a snafu and government paperwork. But when you're a young kid, it's like, "Oh, they just forgot about me. I better move on. I can't wait here for a couple of years, hoping something might happen.

MG: What had you intended to study in Norman? What were you going to focus your PhD work on?

TK: Well, we didn't have a specific narrowed-down topic, but it was going to be something with severe weather, severe thunderstorms, or tornadoes. But we hadn't settled on a specific topic yet – an area. The irony is I was going to study under Jay Fine. He may not have been the person I eventually ended up studying under, but he was the one I had the assistantship with. Jay Fine actually left Norman. He went to the National Science Foundation, ran a big program in dynamic meteorology and climatology. I worked with Jay many years from a NOAA perspective. So, that's one thing about meteorology, especially at that time; it's not that big a field. You don't want to make enemies because you're going to run into these people for sure.

MG: Did the scope of your work at ERL change over the years you were there? Did you start to look at new things, other things, or make different discoveries?

TK: This is in Research Triangle Park? No, it was always with the regional air pollution study data because that was going on for a couple more years while I was there. Like I said, it was a goldmine of data to be discovered. I remember the first paper I had written was about the transport of ozone in and out of the St. Louis area. Still being rather naive at that time, I got this nasty letter from a congressman in St. Louis, saying that I was irresponsible and why didn't I let them know about this paper. I showed this to George Holzworth. He said, "Ignore it. It's political." But I hadn't realized until that time – wow, science can actually be quite political because I wrote a paper saying yes, this transport of ozone was out of the St. Louis metropolitan area into the suburban areas. At that time, there was a big argument – how far air quality criteria pollutants could be transported. So, again, being a little naive, focusing on the science was a wake-up call.

MG: And something that you would have to think about throughout your career, how these things intersect and influence one another.

TK: Right, exactly.

MG: My last question for today was just to tell me a little bit more about George Holzworth if you have a few minutes. His research on air pollution was pretty groundbreaking for the time. Did you stay in touch throughout your career? I know he just passed away last year.

TK: Yes, he was great because he and his wife were very welcoming. We went to his cottage, and like I say, we carpooled together for many years when I lived in Raleigh, and then we stopped when we moved to Cary. I moved to Cary and lived there for two years. He just was great. It was a great environment, a lot of get-togethers with colleagues and introducing us to

people. I can't imagine having a better first official supervisor of a real job than George was. I can remember he had a son who eventually went to Naval Postgraduate School and was a nuclear submarine commander (I think). I remember he came back, and his son was maybe my age or slightly younger. His sound told him he wasn't going to have any parties, but George got a water bill for" – whatever it was at that time – "fifty dollars." Must have been some party! I can remember him grouching about that. I thought that was kind of funny. Kids are going to be kids, right?

MG: Right. Did he ever say "I told you so" when you came back from Alaska a few years later?

TK: Not really. I think everyone was amazed that I ended up back in North Carolina. Actually, George worked very closely with the National Climate Center – Dick Davis, who passed away a number of years ago, and they worked on data. Dick giving him the data [and George developing a small model to use that data that was used for mixing rate climatology calculations. They had a great relationship. So, me coming to NC – I guess it was surprising that I could end up back at an institution that he had great relationships with and worked quite a bit with.

MG: Well, this has been really delightful so far. I'll email you some dates after we hang up. When we come back together, we can pick up in Asheville.

TK: Sounds good. Okay.

MG: Well, thank you so much for your time.

TK: Alright. Thanks, Molly. I enjoyed talking to you.

MG: Alright. Have fun with your family this weekend.

TK: Okay, thanks. I appreciate it. Bye.

MG: Bye-bye.

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Reviewed by Molly Graham 6/11/2022

Reviewed by Tom Karl 7/12/2022

Reviewed by Molly Graham 7/29/2022