

Jinny Nathans: This is Jinny Nathans, AMS archivist. It's June 5th, 2018. I am at the WAF/NWP conference in Denver, Colorado, and I am interviewing John Brown. Please begin.

John Brown: Okay. Should I just go down this list?

JN: You don't have to do all the questions, you really can talk about whatever you want, however you want. And if there's something you don't want to talk about, then don't do that question.

JB: Okay, well. Regarding my decision to become a meteorologist, I developed an interest in weather at a very early age. I was born and raised in San Diego and went to high school there, and some of my earliest memories were of rain showers coming in off the ocean, across Point Loma and over our area, I lived in Mission Hills. We had a good view from our house, I'm sure that played a role in my interest. I was also interested in other aspects of science and a variety of things, but meteorology always seemed to kind of take precedence. When I found out that I could actually make a living at it, in ninth grade, I decided that that's really what I wanted to do. My dad would have preferred me to become a professor at a top-flight medical school, because he was a surgeon. But that was not to be. I started my college career with the intention of majoring in meteorology, went to UCLA and got a bachelor's and master's there, then went to MIT and got a Ph.D.

As far as teachers and mentors that made a difference, I'd say there were many, but five particularly came to mind. The first one was Joanne Simpson. She was at UCLA for a brief period in the early 1960s when I was in school, and she actually was pregnant with her daughter at the same time in the same room that a cousin of mine was pregnant with her youngest son. Joanne got an earful from my cousin about this cousin of hers that was interested in weather. Then I had Joanne as a teacher in the junior meteorology classes, the first really technical class, and during the spring, I had worked at the Weather Bureau Airport Station in San Diego between my sophomore and junior years. So I was already involved with the US Weather Bureau at that time. I don't know any details, but she had done a lot of hurricane research, and she arranged for me to get a position at the National Hurricane Research Project in Miami, and that was really a wonderful experience, to go down there and meet a lot of people, be exposed to real convection. I didn't get a chance to go on any hurricane flights that year, but I subsequently worked down there for several summers and thought that my career was going to be studying hurricanes.

Another person that was important was T.N. Krishnamurti, Krish died a couple years ago. When he was starting out, he'd graduated from the University of Chicago, and he was starting out at UCLA, having a rather tough time, in fact they denied him tenure. But he and I got along quite well, and I remember we studied the Kuo Convective Parameterization together, we went to Kuo's paper. After that I went to MIT and there met... you know, that was the heyday of MIT, the glory days, and I don't know if you're familiar with the event that occurred at MIT this year, the first and second of February there was a commemoration of the lives of Jule Charney and Ed Lorenz. And I went to that. The department was clearly, I would say, the number one department in the world at that time. There I met Fred Sanders and Norm Phillips. I think many people at this conference, older people of course at this point, could say that Fred had a strong influence on their careers, and certainly that was the case for me. Fred maintained a wonderful atmosphere on

the 16th floor of the Green Building where his students were located, and I can't say enough good things about him. We maintained a friendship that continued till he passed several years ago.

Later on in my career I met Norm Phillips, because I wanted to do a numerical model for my thesis. Norm is, as anybody who's studied any history knows, a dominant figure in the early years of numerical prediction, and he was a wonderful advisor too. Tough, demanding, thorough, but dedicated to his students. Really I learned an awful lot from him, both from Fred and Norm as examples, and Norm for his deep knowledge of all things having to do with numerical models. My first real research project was my PhD thesis, and that was an idea that I came up with myself, it was actually inspired by the work of Ed Zipser in *Journal of Applied Meteorology* in 1969. Ed was another person that I would consider a mentor, I could add him to this list.

I joined the AMS in '64. I still have JASes from that era in my office. I have always been one to read paper journals, I find them easier to read than I do online, though I do both, but I've had to throw out a lot of my old journals because they run me out of house and home. I go back as far as I can remember, I've been a member continuously since then, it's possible that I forgot a year or two in there where I didn't pay my dues, especially as a student, but... At that time AMS was the only meteorological organization, so it was natural that I should join, and I've certainly had no regrets about that.

"Any article from AMS journals which made a significant impression..." I mentioned Ed Zipser's from 1969, I think that would fit the bill, but oh, gosh, there have been many, dozens, hundreds, maybe, that have made impressions.

"What surprised me about my first job or didn't surprise..." I don't know, I can't really comment on that, but milestones in my career, I'd say 1962 was my first job, that was summer student trainee with the US Weather Bureau airport station San Diego. I met there Joe Golden and Colin Campbell, who were in the same situation I was, we wrote a little paper together, I remember that, that appeared in some obscure Weather Service publication. I'd say 1966, my decision to go to MIT was a major milestone, because that opened up opportunities that I've never had otherwise. I taught for a number of years at Iowa State, but I did not get tenure there. I consider that as another milestone, as it probably was a good thing, I would say. It really opened up some things. I went to Iowa State not sure quite what to expect. I thought that I would like to teach, but I discovered that I was more of a one-on-one or one-on-two type person than I was a good classroom teacher, so I think that was a blessing. From there I went to NCAR and came to Boulder, and I've been in Boulder ever since, for forty years now. I went to NCAR and they had a big turmoil and rift in '78. I went over to NOAA and got a job there and I've worked there ever since, so I'd say that 1978-80 period was also a milestone.

I should comment about that period apart from my career. As part of writing this history of weather forecasting that I'm involved in with Stan Benjamin for the hundredth anniversary, I think those of us who've been around awhile know that there are certain periods of time where things seem to happen with a great deal of energy. I think an early example, certainly an early example, maybe one of the best, is the Bergen School in the early 1920s, and then the University of Chicago in the Rossby years in the 1940s. But I think a comparable period happened for the

respect of mesoscale meteorology in the late '70s to mid-to-late '80s in Boulder at the 30th St. facility of NCAR. Not up on the Mesa, but the mesoscale people had moved off the Mesa or down to 30th and Arapahoe, or near 30th and Arapahoe. The NOAA people were there also, and a tremendous amount of good stuff came out of it. A fundamental understanding of supercell thunderstorms, the first real documentation of what are called mesoscale convective complexes, and a much better understanding of flash floods.

This group of people was not only dedicated to the science, but also to improving forecasting. So a lot of impact on the National Weather Service came out of this period. The beginning of the Weather Service modernization came out of this period. The so-called, I can't remember the real acronym, but the PROS program, which was really an attempt to prototype a future weather service forecast office, that came out of this period. A lot of developments came out of that, so that was a very exciting period. I would say the most exciting period in my career was that period from 1978 to close to 1990.

As far as acting as a mentor, I think that's something that I have some ability at doing. I've mentored a lot of people over the years and continue to do so. I think an aspect of that which might be overlooked is that I review a lot of papers, I consider that to be an act of mentoring and helping to educate people on how to write journal papers, to think clearly and to constructively make suggestions as a reviewer. I've never accepted any editor's job, I've been offered them, but I have never accepted one because I didn't feel I had the time and energy to do that.

I would say that this is been a very rewarding career, I'm obviously near the end of it, I've been at it for 50 years, but it's been extremely rewarding to watch the progress over the years and participate in some of it.

JN: That's wonderful to hear. Can you talk a little bit about what the event for Charney and Lorenz was like?

JB: Yeah, that was something that John Marshall and MIT put together. I'm not sure of all the background of it, except that 1917 was the year of birth of Charney and Lorenz both. The influence of those two folks was enormous. Probably as much as any two people in meteorology, including maybe not quite as much as Rossby. Rossby was incredible, but Charney was brilliant of course and Lorenz was brilliant, but very different people, and this was brought out. There were a number of people that spoke, former students. I was of course not, I was with Fred Sanders and Norm Phillips, Charney attended my thesis defense and I don't recall that he had any other official capacity, but he was interested in convection.

A number of people spoke, former students and associates of one kind or another on the first day, the first half day I'd say. It was a good time to reminisce and think about the enormous impact that each of those men had. I was privileged to go on some hikes with Ed and Howie Bluestein, who is also an MIT graduate, he and I were officemates and remain close friends. Howie always had a strong friendship with Ed Lorenz, and I remember a number of hikes that Howie and I and Ed Lorenz went on, sometimes with Rich Rotunno and one or two other people. Ed was a lover of the outdoors. You'd get him on the trail and he would talk and he would reminisce about events, hiking experiences, and weather and hiking and it was just wonderful.

Ed was known for his reticence, extreme shyness. I first came to MIT and I remember this little man who when I'd pass him in the hallway it was almost like he wanted to disappear, but behind that was a, I think Charney was quoted somewhere as saying that he was a scientific genius with the heart of an artist, and I think that's a pretty good description.

The next day of the Charney-Lorenz symposium was a scientific symposium on various aspects of work that particularly Charney had done, and Lorenz too, it was an all-star cast of speakers and that was very stimulating as well. I'm thankful that I was in good enough health to be able to make that kind of a trip. So, anything else?

JN: No, unless there's anything final that you'd like to say. This is been a great interview, and particularly to hear about that event from you has been fascinating, to hear you talk about Charney and Lorenz.

JB: I could say also, I took Charney's class and he was not a particularly good classroom teacher, he would get messed up in derivations. He'd try to do it spontaneously and he would get messed up, but if he'd put down the chalk and just talk, it was marvelous. You could get an idea of his thought process and learn from that. I think all of us at MIT benefited from that one way or another, directly or indirectly, in that period. So, anyway, it's been a great ride.

JN: That's fascinating. Thank you very very much.