

Recorded file: Johnson.D.1353_8_21_2013.

Donald R. Johnson

Louis Uccellini

Troy Reeves

21 August 2013

Atmospheric, Oceanic and Space Sciences Building, University of Wisconsin-Madison

Troy Reeves: OK. Today is August 21st, 2013. This is the first of a series of interviews with Donald Johnson. Dr. Donald Johnson, a professor emeritus of meteorology here at UW-Madison. Also present is Louis Uccellini who was a student of Don's and has also gone on to do other things since. I could list them all, but, you know, we're here to talk about, we're here to talk to Don. Louis is here to provide background when needed and also to answer some of my questions about his specific time on campus. Alright, Don, for sound recording purposes could you say your last name, say your first and last name and then spell your last name.

O:00:49.2

Donald Johnson: Donald Johnson. J-O-H-N-S-O-N.

TR: Thank you. And that's great. That's, how you're speaking there is perfect. So we're going to talk to you primarily about your time here on campus. But I do want to get a little bit of information, background information about your early years. So, I wonder if you could start off by talking about where you were born and maybe a little bit about your parents.

O:01:17.3

DRJ: [*] I'm from Kansas. I was born in McPherson County Hospital, although my parent's address was Inman, Kansas. They lived on a farm about twenty miles from McPherson, Kansas. [transcriber's note: McPherson County is located in central Kansas with a population of 29,554 in the 2000 census. In the 2000 census, Inman had a population of 1,142.] Birthday was April first, 1930. I was the first child of my parents, [Rudolph and Ethel Johnson *], although I had an older brother who did not survive [birth *]. I have another brother and two sisters although they are considerably younger than me, seven years, [twelve and fifteen *]. So really for the first seven years I was an only child. We lived on this farm and a grandfather lived with us, who was my mother's father. [My home *] was delightful place to be because he always spoiled me and took care of me. My parents were, as far as I'm concerned, ideal. They valued children. They valued their relations to their children. They valued their relations to each other very much. They were descendants of parents who came from Sweden during immigration in the middle 1800s and the farm that I actually lived on had been bought by my grandfather Johnson from the railroad which was a counterpart to homesteading because the government had given railroads land along the railroad lines that they could sell and have the money to actually build the tracks

and etcetera. The influential early family members, I had an uncle and an aunt who lived a mile away. My uncle loved reading books and had you might say a National Geographic collection from the day that it started, which was true. [While visiting my Uncle Carl and Aunt Mathilda *] I used to be able to look at National Geographics endlessly. I acquired an early interest in reading while going to [country grade school *] that was little less than half a mile, walked there most of the time to and from. Winters, summer or spring, I should say we didn't have school during the summer. In any event it was a one room country school and I considered the experiences I got there ideal. Actually you mention here to name teachers. Well, the first teacher was Rosalie Sellberg who became Rosalie Borg. She was actually a cousin, let's say, but she stayed at the folks because in those days there was no way for her to commute [*] to be at this country school. The advantages of a country school are many because when you finish your work you can sit there and listen to the other students or you get a book and read. I read and read and read. So I would read a book every night essentially and this is by gas light, candle light, so to speak. And did well in country school. It was one through eight [grades *] so there was no middle school. I started high school. I'll just throw this in for one piece of information, when I took the exams for graduating from the country school at grade eight, I scored the highest in the county of some two to three hundred students. So I had done well but didn't really realize how well I had done maybe. Then I went to Inman Rural High School which was eleven miles away and we did that by every morning [by walking five eighths of a mile *] to a corner where I rode [eleven miles in a Ford Model A *] with a neighbor person to this school. And in the high school, was, had about a hundred and twenty students in it. Four years and I guess I did well there, too. I had some favorite teachers I suppose. One of which would have been in science and one of which who taught mathematics and even Latin, so I did actually study Latin for two years while I was in high school. Now formative family experiences. I'm not quite sure what you look for there.

0:07:02.8

TR: Well, I can, if you don't mind I can jump in and maybe some questions here might elicit some of that. I'm always interested when somebody says they grew up on a farm. What type of farm was it? What was being raised there?

0:07:17.4

DRJ: Well it was a typical [Kansas *] farm. One hundred and sixty acres. No special crops raised. [A diversity of crops was *] emphasized at the time, you rotated your lands mostly in wheat and grains with alfalfa and other crops that would enrich the soil. There was always fairly close ties to what was called the county agent, who was very influential in how you took care of your land. For example my father was one of the first, if not the first, in the area to actually put terraces in for the conserving the land, saving it from the rains, heavy rains. Kansas was known for heavy rains, also known for its droughts. Incidentally I did live during the droughts of Kansas, experienced one of those enormous dust storms that came and daytime turned to night.

The chickens when to roost and we turned the lights on, or lamps on. [laughs] So you had quite a variety. You also had heavy blizzards, [snow and floods *] like that, too. So it was both extremes. I learned to drive a tractor at ten. That's when my father got his first tractor, but prior to that time all the farming was done with horses. I learned to take care of horses and the other animals. I was able to ride bareback on one of the horses. I loved riding horses and eventually, let's say when I was fourteen, World War II was in progress and there was a shortage of young men to help on farms so I was able to, let's say, drive a large tractor pulling a big combine for an uncle and earned a dollar an hour which was quite a nice wage at that time. Well, I used that money to buy my first pony so [laughs] that gives you some idea. Also my father had arranged and fixed up a buggy that was a carry over [from the time when *] my father had a Model T [Ford *] to begin with and then got a Model A [Ford *]. Finally [he bought *] a Plymouth in 1940, ten, twelve years later. In any event I was able to drive a horse and buggy around at my own, well let's put it this way, for scrap drives [and pleasure *]. There was a heavy emphasis on collecting scrap for World War II. I have pictures here showing school children who did that sort of thing. [At *] the end of grade school of course I went to Inman high school as I said and after four years actually graduated [*].

0:10:50.2

TR: Do you mind if I, because I want to ask about your schooling in relation to your interest in science. You mentioned I believe it was an aunt or uncle who had a collection of National Geographic, you talk about a favorite teacher in high school being the math teacher, also the Latin teacher. And are those the places where you started to get interested in science or there other places as well?

0:11:18.0

DRJ: I guess I just naturally gravitated toward science and learning about matter and composition of various solid and gaseous objects and things like that. I can't really say [however I took mathematics *], physics and chemistry in high school and

0:11.40.5

Louis Uccellini: Yeah, you mentioned living through the dust storm and obviously it made quite an impression on you. And you also noted the heavy rains, the blizzards, so as a, at any time during this schooling period did the variable weather capture your imagination? Was it, did it ever say you know start driving towards wanting to understand it? Or did that come later?

0:12:12.8

DRJ: Well how I got into weather was really because of a math professor in college.

LU: Ok, so we'll wait on that. But these experiences that you had during youth.

DRJ: That was just natural. Was natural weather events. [laughs]

LU: So it didn't necessarily drive you towards

DRJ: No.

LU: OK.

0:12:31.7

TR: And I know you were, you were young.

DRJ: Can I just say just one more thing? You talk about the low level jet. Every morning in the summertime you could see those clouds whiz [northward *] at eight hundred to a thousand feet above. They were just moving phenomenally fast from the south.

0:12:49.5

TR: And maybe at least one more thing about pre-college and that's you mentioned again that living through the Dust Bowl or the dust storms. Lots of families that would be south of you, I guess, in Oklahoma migrated to California. Do you recall your family ever thinking of moving out?

0:13:07.6

DRJ: No. Southwest. Our land, my father took good care of it. He kept essentially vegetation rotated and everything like that so you didn't have these one hundred and sixty four acres just bare land. So there was what'd you say a river close by and I talked about flood, you could go down there and do fishing, like my grandpa took me fishing in the summertime nearly every day so I learned to enjoy that sort of thing and even watched what happens when we had the heavy rains and flooding of the bottom land of our farm. As well as the bridge to the west [laughs] less than half mile away. It was covered with water. So you get this variation of course obviously, but from my limited background at that time that was natural weather variability.

0:14:13.6

TR: Don, I want to bridge us to college by asking, I think you alluded to it, but what value if any did your parents put on education beyond high school.

DRJ: Well, my parents never had a chance to go to high school, so [*] final education for them to a certain extent was at the eighth grade. My mother did go to a K-State Manhattan for a some summer work on primarily just what do you call, taking care of homes and things like that. [transcriber's note: Kansas State University, Manhattan, Kansas] My father actually liked football so he went to Bethany College for the commercial school in the fall for three years and played football. [transcriber's note: Bethany College, Lindsborg, Kansas] That was the limited

extent of their education so to speak, but my mother always emphasized and one of the primary rules for me was get all the education you could get. That was the rule, get all the education you could get. Time and time again I heard that. In a natural way, in a nice way. So they placed high amount, high amount of value on [education *]. My aunt who had this nice library, she was a school teacher and my uncle Carl he was considered to be and I think probably was one of the most educated people in that area, because he read incessantly. [laughs]

0:15:53.2

TR: So I'm, why did you choose, I have it in your CV, I don't have it handy. Why did you choose the college that you chose to go to?

DRJ: OK. I'll tell you a little about one experience. When I was just, let's say in the spring or when I was finishing high school, one afternoon or morning, I'm not sure which it was, three men drive up in our driveway. They want me to go to summer school and then to actually be a teacher at one of the country schools. These were the board members of course for [a nearby country grade *] school, but I guess they knew that I had done well in high school and things like that so they were actually offering me a position as a grade school teacher at that time, just by going to summer school. [Just after World War II in *] 1948, there was a shortage of teachers. One thing about a country school like that, the school board takes a great deal of pride, and the community does, of making sure that they try to get the best teachers they can. So now I'm not just saying it because of that, but in any event I did actually not accept that because I was going to Bethany College to get all the education I could. And that was only thirty five miles away. There were strong ties so to speak in the Lutheran Churches with Bethany College which was essentially created by immigrants from Sweden primarily in that area. [These factors *] turned me towards going to [Bethany College *].

0:17:43.0

TR: Sure. So when you got to Bethany was it, did you live on campus, what were

DRJ: Well, I lived in a private home, in a room. The first year a good friend from high school, we roomed together but then he decided to get married to his sweet heart from high school [at the end of the first semester *] that left me by myself so I was in a separate private [room *]. [In my *] sophomore year I did join what was called a local fraternity, they were not national fraternities. I stayed in this house but that was too noisy, etcetera, so I moved out [for my *] junior and senior year. I had a private room so to speak.

TR: OK, and

DRJ: And that, not that I excelled in college, but I did well enough so that I didn't have any problems.

0:18:39.0

TR: So was it at Bethany that you alluded to earlier that you, there was a teacher that helped focus your interests?

DRJ: [There were two teachers. One *] was a math teacher, [Anna Marm *], who I considered exceptional. She was never married, her students were her children so to speak. She took an extreme interest in making sure that we understood. Then there was the history of civilization taught by the college president which was a little unusual. He was a Rhodes scholar and he was exceptional, too. So I debated I suppose on whether to be an historian or [*] going to major in mathematics regardless. He didn't teach anymore after that year because he [was *] so busy, but that was really quite enjoyable experience because you get a real view of civilization's rise and fall of civilizations in terms of Toynbee, the Einstein of history so to speak, some twenty volumes on history or so. I didn't read Arnold Toynbee but I read a fair amount [about his emphasis on the integrity of successful civilizations. I have *] some of his work and used it many times many years later in the earth system science's perspectives. [I always enrolled and completed each semester, *] seventeen, eighteen hours [as well as *] sometimes summer school. I ended up with a major in mathematics, [*] a major in chemistry [and *] a minor in physics [and *] education. [*] I finished four years later but I had to work at the same time to support myself at a filling station twenty five hours a week so I was kept quite busy. I had plenty of friends, did enough so that we still have friendships today that have lasted all these years. One of my friends became a urologist, and quite a well know one who lives in Albuquerque. One of them became a designer of Cessna aircraft, also did quite well. [When *] we get to the point where [I am *] ready to [*] graduate from college so what happens?

0:21:21.0

TR: Sure.

LU: I have a question.

TR: Yeah.

LU: Where did you hook up or meet Gene Rasmusson. [transcriber's note: Eugene Rasmusson, faculty, University of Maryland, Department of Atmospheric and Oceanic Science] I've seen you talk with him a couple of times about Kansas.

DRJ: Well, he's from Linsborg, Kansas

LU: Which is

DRJ: which is the location of Bethany College.

TR: OK.

DRJ: [Gene *] had a younger brother, [Ermal, who *] was two years younger than he was, who was the same age as I. We were in the same classes together, so I really knew his younger

brother quite well. But there was always a tradition of many times going to coffee at one of the local restaurants [as *] a group of us, [*] usually in the morning, included his brother, too as far as that goes. Because of that I had then quite good ties with many of the students who were from Linsborg, including [Ermal's older brother Gene *]. Gene would come back because he had gone off to K-State. [transcriber's note: Kansas State University] [He studied engineering *], I believe it was engineering, but he also did ROTC [during the Korean War *] so when he finished up he joined the Air Force and got into meteorology. [transcriber's note: Reserve Officers' Training Corps] And that's really where [I got to know him before the Korean War *].

0:22:54.0

TR: And if I may, I want. There's a couple of questions I want to ask about college, undergrad. A couple more things about undergrad. The first is, so the math teacher, just for reference, do you remember her name?

DRJ: Miss Anna Marm.

TR: Miss Anna Marm?

DRJ: Miss Anna Marm. [transcriber's note: Anna Marm served as professor of mathematics for 33 years at Bethany College; in 1962 a new female residence hall was named in her honor] The college president was Lindquist, Emory Lindquest. [transcriber's note: Dr. Emory Kempton Lindquist (1908-1992), president of Bethany College from 1943-1953]

TR: OK.

DRJ: Now because I guess I did well enough in his ancient civilization [class *], I actually got a scholarship for tuition on the last three years I was there. So that helped to some extent although costs at that time for tuition weren't that great but it still sure helped. [*]

0:23:46.3

TR: I was just going to say, what classes the math teacher, Mrs. Marm, what classes did she?

DRJ: She taught them all. She was basically the only math teacher [at Bethany College *].

TR: Alright.

DRJ: The school was that small. [Most of the students studied to be *] high school teachers, grade school teachers and musicians. [Bethany College had *] a strong tradition in music and art. [Many of the college graduates *] went to Julliard School of Music and then we had Birger Sandzen there who was quite a well know artist still today, now long gone. [transcriber's note: Birger Sandzen (1871-1954) taught at Bethany beginning in 1894] So there well known people who excelled in their activities.

0:24:39.0

TR: Is there anything else you want to talk about about Bethany before we move on.

DRJ: Yes, these is.

TR: OK.

DRJ: because it tells you how I got in meteorology.

TR: Excellent. [laughter in background]

DRJ: One, let's say, [one *] February morning I walked into the math class and Miss Anna Marm [states *] I have this letter from the Air Force. They're offering if you have the background in science and wish to apply you can [receive *] a direct commission and be sent to various school, let's say UCLA, University of Washington, [University of *] Chicago, for one year in meteorological education, essentially at an undergraduate level. Well, you know, [the US was engaged in the Korean War *]

0:25:32.3

LU: What year was that?

DRJ: This would have been in 1952, spring of '52, and I was slated of course to have to go in the Army. I would have probably enlisted in the Navy because I had a good friend who did that, instead of being drafted. In any event, [Miss Marm *] walks in and so another person and I apply, and I get accepted into [the program *]. And then of course I was to go through the physical and all that sort of thing and get your uniform etcetera, inducted into the Air Force and off to the University of Washington where I got accepted [and *] sent. So here I am ready to go [into the Air Force *] in the fall of '52. And that's how I got into meteorology basically. I would probably not have gone into meteorology otherwise, because I [was *] accepted to graduate school in chemistry in K-State.

LU: Is that where you met Danielsen and

DRJ: No, not yet. Well, yes, at University of Washington.

LU: University of Washington.

DRJ: But there's another dimension here that you need to be aware of. That August my best friend probably in college said you know I have this girl friend up in [South Saint Paul *] and I want you to come along with me because you're going in the service and we'll go up there for a [week's *] vacation. In so doing he arranged, or his girl friend in [South *] Saint Paul arranged for a blind date with [*] my future wife, [Dorothea *]. [*] I met her [on a blind date at a summer training *] football game for the New York Giants, this is at the end of the summer for

one of those sessions when they play against each other at Augusta College, [St. Peter *] in Minnesota. Then of course we'd go the St. Paul for about a week and during that week saw Dorothea on several occasions and we started to correspond with each other [*] the whole following year. Well, then as soon as I had finished that trip I was sent to Camp Atterbury, Indiana for induction into the Air Force. [transcriber's note: Camp Atterbury, Edinburgh, Indiana] I left Camp Atterbury in Indiana [to go to *] Seattle so I took the train through Chicago, through Minneapolis, St. Paul and on to Seattle. [I stopped by South Saint Paul *] to see Dorothea because you know we had [enjoyed each other *]. This is sort of an incidental thing but I [checked *] in at a small hotel [in South Saint Paul *]. Her father was a dentist [in South Saint Paul so when he *] heard that I was in [a *] hotel he came down and brought me [*] to stay at their place. [laughs] [*] So I got to know her parents at that time. We corresponded the following whole year and finally she came out to Seattle in the spring, stayed several weeks and we [became *] engaged to be married. The thought was that [*] I'd come by in August, see her and then come back in December for a wedding [since *] I was slated to go over to Europe [as *] my first assignment. Instead of going to Korea, there was twenty eight of us and fifteen, twenty got sent to Korea and I was one of the three sent to Europe, so somehow I lucked out. But in any event so we corresponded, she came out and then we [became *] engaged to be married. Plans were to marry in December. Well, I thought about this awhile and [just *] before I left Seattle, I bought wedding rings for us. [*] When I [arrived in South Saint Paul *] on Sunday, this is a detail I know but it's part of a life, celebrating sixty years together so you have to appreciate what we both love. I asked her to marry on Sunday and we had a church wedding [and reception *] on Wednesday with a few people attending. [*] Then we went off to Lackland, Texas for my basic training in the Air Force, even though I'd been in the Air Force for a year you had to go [*] there and learn how to salute and march so to speak.

0:31:12.4

DRJ: Well that December I was sent to Europe, flew by C-54 out of Westover, Massachusetts, Boston area to The Azores and then into Frankfurt assigned to a weather station at Sembach Air Base which was [near *] Landstuhl, and Ramstein in southwestern Germany. Dorothea was able to come over in the following April. We had an apartment furnished by the military. Well, that didn't last long because they were opening up NATO bases in France that had been built [by the U.S. *] [transcriber's note: North Atlantic Treaty Organization] So they needed weathermen for France and after the colonel had gone through the [two other *] young lieutenants [stationed at *] Sembach Air Base, the two that outranked me were first lieutenants, they had come in the year before. [Since *] their wives were pregnant and there was no medical facilities in France for pregnant wives etcetera, and so they [were *] down to my level. Dorothea's not pregnant, it had only been eight, nine months and so we [were *] sent to France [*] west of Metz about fifteen miles to Chambley Air Base. We're in that area for two and a half years [and nine months *] in Germany. We both [*] loved to travel. We traveled extensively. In Europe, [*] every time we had a three day pass or took our leave. We traveled either down into Italy or

Switzerland or then eventually up to Scandinavia to visit the home place of my great grandfather [and *] great-great grandfather in Sweden. [*] Lönnerberger in [*] the central part of Sweden, south of Stockholm. So we met Swedish relatives [including two *] great aunts and [we have *] always kept in contact with [our Swedish relatives *]. And [these relatives have visited *] us here. [The military assignment to Europe enabled *] that contact with the Swedish ancestors and in fact there is a barn over there which my great-great grandfather built. It was in good shape then and still in good shape today. [laughs]

0:34:08.0

TR: Dr. Johnson, what, when you were in the Air Force what was some of the specifics of your job or what was a typical day like when you were working there?

DRJ: Well, you start out as a shift forecaster so you would work shifts, eight hour shifts and you would rotate shifts. [We briefed the pilot of *] every plane that took off. Here we're talking about reconnaissance planes that were to take pictures of the enemy so to speak although we were not at war at that time. They kept these resources over there [so we always were ready for war *]. You used all the [weather *] information you could get which was primarily by teletype, what's called facsimile. Facsimile you would get weather maps printed by some weather central, then they would send it by land line to facsimile, then you would look at your teletype sequences, all the weather reports that had to come in every hour and any special type of weather, dangerous weather [as *] special observations. Every plane that took off was required to have a briefing by a weather forecaster so you're [located *] right there in base operations in the midst of activities [which included *] a tower and [resources since the pilots *] always came there. You got to be quite well acquainted with the pilots in the particular wing or service that you were serving. So we had lots of friends who were actually pilots. They would take me on flights either in helicopters [or other planes *]. In France the AF wings as a group *] would deploy of course because they would have to practice the delivering of [*] nuclear weapons. They were called LABs [transcriber's note: Low Altitude Bombing] and HABs, [transcriber's note: High Altitude Bombing] low altitude release and high altitude release, so the place where they would practice this was in Libya, right outside of Tripoli. I would be deployed there with a wing of ninety aircraft and ninety pilots and serve as their weather forecaster for that period of a week, two weeks, three weeks maybe, I don't remember. But in any event, [on one of these deployments *] I was offered and encouraged to get in [the *] twin seat F-80. [*] This type of endeavor [such as *] where you are delivering a low altitude nuclear release or high altitude and etcetera. [It's *] quite an experience to fly across a desert, fifty feet above the ground at well over five hundred miles an hour and pull up [*] at 4 Gs roll 180 degrees and fly away as this weapon was tossed at the target. [laughs] But that's what you lived with [*] that became your sort of way of doing business. You wanted to be familiar with what they had to do and then you wanted to be able to serve them as best you could.

0:37:43.3

TR: Did, I think I may have interrupted you

DRJ: No, go ahead.

TR: So when you got to Europe, did you feel that your course work in Kansas and then your, a semester, I guess, at University of Washington

DRJ: No, it was a whole three [regular *] quarters and a summer semester so I ended up getting a bachelor's degree from University of Washington, too.

TR: OK.

DRJ: Because I had all the background in science and other courses you needed, [I acquired *] a BS from the University of Washington in meteorology.

0:38:14.3

TR: So you felt prepared because of that to do what you had to do.

DRJ: Oh yeah. I mean you were just like everybody else, I thought I was quite well prepared. We had a person there, at the University of Washington, they had some young professors who were very good. There was a person by the name of Ed Danielsen who Louis knows who specialized in dealing with analysis in what's called isentropic coordinates. [transcriber's note: Edwin Danielsen, Pennsylvania State University and National Center for Atmospheric Research (NCAR)] He was a lab instructor, in fact not only that, he, well yeah, he didn't have that Ph.D. [at that time *] but he was in charge of the lab, synoptic lab where you learned to do all your analysis, etcetera, etcetera.

0:38:58.9

LU: And he had isentropic analysis?

DRJ: Yeah. Right. Not a lot, but some. And the other person was Paul McClain who was his colleague but he was [from the *] University of Chicago. Danielsen ended up getting his Ph.D. there at the University of Washington eventually [, while McClain eventually finished his Ph.D. at the University of Chicago *].

0:39:22.4

LU: Was Paul Kretzberg [transcriber's note: spelling?] there at that time? Did you

DRJ: No.

LU: He came later?

DRJ: Well, Carl, did he go to the University of Washington?

LU: He was there for a period of time. And I thought there was an overlap with you.

DRJ: I don't

LU: It might have been later.

DRJ: Some way he had connections from Philadelphia. Did he?

LU: That's where he went. That's where he went and taught.

DRJ: I don't think

LU: He wasn't there when you were there. OK.

TR: But Danielsen was.

0:39:54.6

DRJ: Danielsen was an instructor. Right. But, Rasmusson you talked was about a year ahead of me alright?

LU: Yeah. Was he there, too?

DRJ: No, but he had gone through the [University of Washington *] a year before.

LU: Before. OK.

DRJ: So he arranged for me to stay at the same house that he stayed a year before. And when he was going to Alaska for his first assignment, he stopped by to see me in Seattle.

LU: So there's a very, when they meet at meeting like the AMS meetings they are very close. [transcriber's note: American Meteorological Society] This is where I learned that it went back to Kansas. But I didn't know it also connected at the University of Washington. This is this interaction with the Gene Rasmusson.

0:40:40.7

DRJ: [Yes *]. Well Gene, you know, he's done exceptionally well. And [Dorothea and I *] would go and stay [in Washington, D. C. with *] Gene and his wife on several occasions, [*] because they became good friends. We'd end up in Washington for one reason or another.

0:41:06.0

TR: So.

DRJ: He became president of AMS a few years after I did.

LU: He had a very successful climate career.

DRJ: Oh yeah.

TR: Don, is there anything else you want to say about your military time.

DRJ: Well, briefly in Chambley we had a different mission. Well, I've confused things a little bit because the mission in Sembach was really [military *] weather reconnaissance and the mission in Chambley was where they actually had nuclear weapons stored on base [for *] the delivery of nuclear weapons. And I guess it's from there that I got deployed to Tripoli, Pisa and Orange north of Marseille to [brief pilots *] as they ferry through to Tripoli and Libya because these planes never had enough fuel to make it all the way. They always had to stop in between and you would have to give them a new weather forecast at these bases where they stopped. So you know there were several occasions like that that we [were *] sent into southern France or northern Italy to actually support this type of endeavor. I [was *] sent to support planes in Athens once. This was an interesting experience because we were staying at a Greek air base. In the middle of the night the message [came through *] that you were to arm your planes to be ready to go because there were a series of Russian bombers who were headed towards you as if the nuclear war was to begin. Now these things happened once in a while but not quite as serious as that one seemed like. That was the time that [we *] had this problems in the Suez Canal and elsewhere. But you have to look back and I marvel at how we kept out of the nuclear war with the Soviet Union, [*] I don't know if you've heard the one about the Cuban situation, on PBS where the Russian sub was ready to launch its nuclear weapons, [however *] one guy wouldn't give them the key to do it. [transcriber's note: Two PBS documentaries aired 23 October 2012 on the 50th anniversary of the Cuban missile crisis; Cuban missile crisis – three men go to war, about Kennedy, Khrushchev and Castro; and Secrets of the dead “The man who save the world” about a Russian submariner's refusal to fire a nuclear missile.]

0:43:40.1

TR: Right. So, just to confirm, so you're saying that the time you were in Athens it wasn't a drill.

DRJ: No it was not a drill.

TR: You were, the Russians were coming with.

DRJ: Well, they traditionally did those type of things.

TR: OK. And

DRJ: We, of course, did things like, what is it? The plane that got shot down.

LU: Gary Powers.

DRJ: Gary Powers.

0:44:07.0

TR: I'm

LU: If I may add here.

TR: Sure.

LU: Just a little side note. The, I had an opportunity to meet Robert McNamara about five years before he passed away. [transcriber's note: Robert S. McNamara (1916-2009), Secretary of Defense under Presidents Kennedy and Johnson from 1961 to 1968] He was at a conference at the Physics Institute there at the University of Maryland on global warming. And I had just seen the movie Thirteen Days and I was talking about living through the Cuban missile crisis on Long Island, you know as a student, young student. [transcriber's note: the movie 13 Days is a 2000 docudrama based on the book The Kennedy tapes: Inside the White House during the Cuban missile crisis by Ernest May and Philip Zelikow] And he had just come from a meeting in Russia with people who were on the other side. And they were comparing notes and what struck him was how little they actually knew and didn't learn until they went to that meeting, you know. For example, Curtis LaMay wanted to bomb Cuba thinking that you had to bomb them before they could tip the missiles, you know, that they put the. [transcriber's note: Curtis LeMay (1906-1990), general, Chief of Staff US Air Force during the Cuban missile crisis] And what they learned was that they had already had twenty five missiles that were tipped and if they had dropped one bomb, all twenty five would have gone off. So, you know, these kind of things actually, you know, as Don says, we were lucky to get through it. Even McNamara was saying that he was marveling at the fact that we got through a number of incidences without having a nuclear war.

0:45:31.0

DRJ: Well, in France, even in Germany, but in France in particular all the dependents that were there were drilled from time to time with how you're going to go, be taken to *Bordeaux* and board ships to go home. So these were tense times in many ways. You know, you had the problems eventually that ended up in Red China, Korea, of course that is why I got into the service was because of the Korea, I guess. [Which a decade later *] ended up in Vietnam.

0:46:08.9

TR: So, I think you said it was two and a half years in the military?

DRJ: Oh no, I spent a total of seven.

TR: OK.

DRJ: Because [we liked Europe *]when I got ready to come back, I, we applied to stay there a little longer but they [didn't approve the application *]. So I guess I was maybe somewhat naïve

but I said get some stateside weather experience, I'll take an assignment in the US. And I had an offer to go to Offutt which is the central weather facility [in Nebraska *] for the Air Force, the weather center. I didn't encourage that because I felt you should let the people make their own decision. So I was sent to just outside of Oklahoma City to an Air Force defense control center which was a center with radar to look at [*] planes might infringe from the southwest, because there was always this thought that, you know, we had these type of [facilities. In this case, *] Russian planes supposedly would be coming from the southwest into the US so [we *] had these air defense control systems all over the country, in Alaska, etcetera, to guard against intruders. [*] You sat in a big auditorium so to speak of some forty five people looking at this plastic board while behind the [airmen *] would draw on the routes of all the planes that were flying through that area, keep track of them. And then you had your various wings, fighter interceptors in various places that supposedly would go up and intercept [intruders *]. But so along came the last year that I was there. [We *] ended up having our first son born in Tinker Air Force base of '59, I sent a letter to University of Chicago [*] and University of Wisconsin, two places I might go to graduate school. [transcriber's note: Tinker Air Force base, located southeast of Oklahoma City, Oklahoma] and then [in the spring *] I'd been encouraged to go to the University of Chicago because [Major Herbert Harvey former detachment commander in Sembach stated that it *] was very good, got his master's there while he was in the Air Force. [I received *] a form letter back from the University of Chicago and a nice letter from Reid Bryson [at the University of Wisconsin *]. [transcriber's note: Reid Bryson (1920-2008), in 1948 became the first chair of the Department of Meteorology, University of Wisconsin-Madison] That's one reason. In any event we said well, we'll drive up here in the springtime which we did on the way through Wisconsin to go up to see Dorothea's parents who were quite elderly in South St. Paul. We were brought into Reid's office and treated very well, with this one year old child. Then I got an offer of an assistantship [*] to come to the University of Wisconsin. [*] The [the principal of the local*] high school [in Kansas *] had been to Wisconsin and he highly recommended the University of Wisconsin although it did not have the reputation of the University of Chicago. The University of Chicago at that time was one of the three top schools in the country in meteorology. [*]

0:50:01.3

LU: And Reid came out of Chicago, too.

DRJ: [Both *] Reid and Suomi came out of Chicago. [transcriber's note: Verner E. Suomi (1915-1995) joined the University of Wisconsin-Madison Department of Meteorology in 1948, father of satellite meteorology]

LU: And Suomi was here by that time, when you came.

DRJ: Yeah, right. Suomi came in '48. Reid started [in '46 *]. So that's quite a while before I arrived.

LU: Yeah.

DRJ: [*] We moved to Madison in the fall of '59. We rented a house for a year. The person who was there was a secretary to the chairman of the Geology Department, I guess something like that. She had lost her husband, then I guess she decided to get remarried and she wanted the house back. So, [*] within nine months we had to look for another place to live. And by that time with the GI bill and the assistantship and also the fact that we had bought a house in Oklahoma which we sold, and we had saved money when we were in Europe, we were able to make a down payment and buy a house here. It wasn't much of a down payment but it was out west of town here, a small, three bedroom house, but it served us well because [*] not that many graduate students could afford to have their own house. Even though of course [a big loan was *] tied up with it. But you learned in those days that you wanted to see if you could buy or assume a mortgage from somebody who had been on GI type of support because they had low interest rates, like four and a half percent. [laughs] Seems like pretty good rate now, [laughs] it was an exceptional rate then. In any event we lived there from 1960 to 1970 and then we ended up going to McFarland [Wisconsin]

0:51:51.0

TR: So where was that on the west side?

DRJ: Lorraine Drive. I should remember the address, 905 I think, but I won't swear that it.

TR: What were your initial thoughts or maybe some initial memories about being here on campus?

0:52:12.0

DRJ: Well, when you're married and say commuting, not living down in the area, it's quite different than if you were a student right in residence. So, I had gone to college with a lot of GIs, people coming out of the Army and [other military services *] from World War II, but I was from a Korean situation and where a fair number of students who had [been in the *] military and pursuing their graduate work. We had friends like that. Also the fact that the Air Force sent students here to actually get their master's degree, even Ph.D.s while they were still in the service. There was always this fair number of students who were sort of our contemporaries of experiences so to speak, not just a brand new graduate student.

0:53:13.6

TR: What was your initial thoughts of the coursework once you started getting into it.

DRJ: Received straight A's the first year. [laughs]

LU: I'm not surprised.

DRJ: [laughs] Well, I'd never done that before except maybe, because I liked to enjoy myself in college, [at this time *] I knew I was going to go for a Ph.D. so I did the best I could.

LU: So when you arrived you knew you were going to go for a Ph.D.?

DRJ: Well, that kind of, I believed I would, yeah.

0:53:48.8

TR: So you had thought, your thought was get the Ph.D. and then teach somewhere? Is that ?

DRJ: Ah, we come to the period when what am I going to do. And I'd been out to NCAR [transcriber's note: NCAR – National Center for Atmospheric Research, Boulder, Colorado] where they brought out young graduate students [*] for summer programs. At that time they [*] had what's called Cockrell Hall [transcriber's note: spelling?] and they had the essentially the best scientists in many ways in this country to come and spend the summer and interface with other scientists from [other *] universities and also graduate students. There was the thought of going to NCAR UCAR and I think I had a chance to do that. [transcriber's note: University Corporation for Atmospheric Research, Boulder, Colorado] But my wife's parents were elderly and her father was not in good health. [When that last spring came *], and I liked Wisconsin, Professor Lettau walked in and says well we'd like to have you stay and be part of the faculty. [transcriber's note: Heinz H. Lettau (1909-2005) professor, University of Wisconsin-Madison, Department of Meteorology from 1958 to 1980] And so I agreed and started teaching [*] that fall. [*]

LU: What year was that?

DRJ: Well this would have been in, he walked in in the spring of '64. And I didn't finish officially until '65. But I had finished all my coursework the year before and was serving as sort of a supervisor of young graduate students myself under, with Lyle Horn who was my major professor. [transcriber's note: Lyle Horn (1924-1989), University of Wisconsin-Madison, Department of Meteorology professor from 1960-1989] In any event, I [finished my thesis by August of '64 before I started *] teaching in the university, [however *] they couldn't really award it [in 1964 *]. [I couldn't defend the thesis until *] the faculty came back after the summer vacation. [I *] quickly had my Ph.D. final [oral defense of the thesis in early September *] and passed it. And, so my degree is awarded in 1965 even though I started teaching as an assistant professor in [*] September '64.

0:56:21.1

TR: And could you tell NCAR UCAR, what does that stand for?

DRJ: National Center for Atmospheric Research; University Corporation for Atmospheric Research.

TR: OK.

0:56:32.3

DRJ: Along the way there's a fellow by the name of Sverre Petterssen who I'll probably talk about later anyway who had been quite a well known and a renowned meteorologist who had chaired [U MIT *] prior to World War II. [transcriber's note: Sverre Petterssen (1898-1974) Norwegian meteorology] When World War II came along because of his Scandinavian heritage with what's called the Norwegian school of meteorology. he left MIT [as the head of the meteorology department *] and went over to be part of the weather support activity in Europe to the British center there. So that's, he's over there and he actually became someone I became quite well acquainted with later on. But he, let's see I'm kind of drifting off here.

0:57:33.8

LU: UCAR, NCAR.

DRJ: OK, yeah. Well, he actually chaired [the academy *] committee that made recommendations [to the National Academy of Sciences *] to form this collaborative university endeavor in this country that lead to the formation of UCAR and NCAR. This was through the [National *] Academy [of Sciences *]. When [*] World War II was over he [became *] head of the department at the University of Chicago. [*] I really became acquainted with him in '69. By that time I had started to do some serious scientific work and went to the London Conference on the General Circulation and [presented a *] paper under the name [of Johnson and Dutton *] showing isentropic ways of looking at the general circulation and Petterssen apparently like it. [*] We ended up inviting him to come here during the summer. He had by this time retired from [the University of *] Chicago and had his summer home in Norway. He had an apartment in London because he had been tied up in World War II with all [the English meteorologists *]. He agreed to come here for summer. He had to come to this country one month out of the year. OK? And he had been going to New York, a school in [Albany *], New York so to speak. [*] In any event he liked when he [first *] came here for three days. Then through the support from NSF, we were able to bring him one month each year for the following three years. [transcriber's note: National Science Foundation] And he had strong ties with many people, particularly in Australia because some of the key scientists from Australia had gone to work at Chicago [on *] their joint endeavors. [A whole community was *] tied up between England and the Norwegian countries and particularly Sverre Petterssen. You had of course MIT but it developed its own endeavor. You had UCLA which had ties to the Norwegians because of J. Bjerknes was there. There were three Bjerknes. There was a grandfather, father and a son. And we're now talking about the grandson who was heading the department at UCLA, Jacob Bjerknes. [transcriber's note: Jacob Bjerknes (1897-1975), founded the UCLA Department of Meteorology] But Sverre Petterssen had been part of this school in Bergen, Norway which is where the Norwegian school really developed. He came here, liked it, NSF gave him support to

come here for one month for each of the following three years. [I knew *] him well. My wife would fix his noontime lunch, a small sandwich and what have you. And he would come out and visit and bring presents to the kids and etcetera. Well, I ended up being invited to his apartment in 1974 on a return trip from a meeting in actually Yugoslavia where we were talking about forming [*] ALPEX as part of the international program in meteorology, the Global Weather Experiment. [I visited him in London *] for three days and have correspondence with him. He liked what we were doing in terms of isentropic analysis [however *] unfortunately he passed away that following December. He had contacts with the Kennedys and after he finished his work in Chicago, they had appointed him to be a scientific attaché in Stockholm, Sweden so he had certain responsibilities on looking at what was going to happen in India, particularly, and China because at that time you know we were worried about famines in [countries with *] large populations. I just happened to ask him [*] how do you avoid those things? Well he says when things get serious enough human beings find a way to solve their problems. We had very nice relations and he's also paved the way for me to have some relationships with a [scientists *] by the name of Arndt Eliassen who is the top meteorologist out of Norway. [transcriber's note: Arndt Eliassen (1915-2000), Norwegian meteorologist, pioneer in use of numerical analysis]

1:03:02.7

LU: So when you mentioned Petterssen at the beginning, obviously there are many interactions with him. Your initial trip to UCAR, the NCAR summer school, was that arranged through him?

DRJ: No. [The NCAR summer school happened before my links with Petterssen. *]

LU: OK.

DRJ: See that would have been in 1963, '62. I don't think, Petterssen wasn't really tied up with UCAR NCAR at that time.

LU: OK. But that certainly had an impact on you as you spun up here at Wisconsin in your teaching role?

DRJ: You mean being at NCAR UCAR? Yeah.

LU: Yeah, you going out there for that summer.

DRJ: Yes, well. [*] I had worked on primarily radiometric measurements of infrared radiation which was a device that was actually placed on balloons as they rise so you could measure the upward and downward infrared radiation, get their difference and eventually find a way to compute the atmospheric cooling and heating from, or heating, it was nighttime measurements of infrared cooling. And really that's what I worked on through my Ph.D. and even in the first years you might say. But I did eventually get into dealing with ways in which we can look at the atmospheric circulation, [directly in *] isentropic coordinates. And that's a story in its own which I'd like to relate to you a little bit.

1:04:49.9

TR: I think it's a good time to relate it. So go ahead.

1:04:54.6

DRJ: OK. Well, when I came to the University of [Wisconsin *] while I was a student, a graduate student of Reid Bryson, my real contact and work here was with Lyle Horn.

LU: So when you went to the University of Wisconsin.

DRJ: Wisconsin, sorry. Yeah, right. Anyways, Reid was [the *] chairman of the department and he was active in trying to get an organization called the [Center for Climatic Research *] here. And eventually, in those days actually the department, because the university was growing, had [an arrangement *] if you could get support for faculty half time salary from research funds, they would put up the other half and you could hire new faculty. So the department exploded from essentially three, four faculty into ten, eleven, twelve, thirteen [and even twenty *] within that eight to ten year period. The key faculty here at that time were Verner Suomi, Heinz Lettau and Reid Bryson and a new one named Robert Ragotzkie who had been a pilot in World War II. He was Reid's student and so he brought on lake work, a lot of research on the Great Lakes. [*] But the [important item *] is that Lyle Horn who is probably one of the most loved faculty members at this university from the students here at that time, because he took such an interest in students. He had been in World War II in the South Pacific and came back in very poor health. He recovered and he got his Ph.D. I was very fortunate to be his graduate student, his first graduate student, and he helped me of course in many ways in getting through my master's and Ph.D. work. I told Louis here [transcriber's note: Louis Uccellini] this story. I said that when I wrote my master's degree I'd been in the Air Force, accustomed to military writing because I had even served as detachment commander. [There's *] a formality and stiffness that's not the same as doing academic writing. So Lyle worked me through that problem with my master's. When I wrote my Ph.D. I only had one suggestion for a change in it so, I figured he was the key to that. I then worked as his project director because he was busy in teaching and involved in the Institute for Environment Studies work. [As I started *] teaching, he had other graduate students and [knew *] John Dutton who is a quite well known person in meteorology at Penn State, Dean, now retired. [*] We still work together, talk to each other at least. But John had just finished with doing a Ph.D. and he had worked on a version of available potential energy based on entropy. [transcriber's note: Dutton, John. The relation between atmospheric entropy change and available potential energy. University of Wisconsin-Madison. Ph.D. thesis. 1962.] It turned out the strategy was not right and his Ph.D. thesis had been approved though and [was *] actually being published. They pointed out some errors that were wrong with it. We had this nice ideas and the graduate student of Lyle's was there at a board and we drew some diagrams and then we [diagramed the atmospheric circulation *] in terms of effects of atmospheric heating on mass [isentropic *] circulation, essentially at planetary and secondary scales.

1:08:53.4

LU: So Dutton was a Ph.D. student from Bryson.

DRJ: Yeah, you're right, you're right.

LU: For Bryson. And you were a master's student of Bryson but switched, but got more associated with Horn. And became a Ph.D. student

DRJ: Oh, I would agree. A master's with Lyle, too, you know. [laughs]

LU: But officially you came under Bryon.

DRJ: Officially. Right.

LU: You came under Bryson and then you became a Ph.D. student under Horn

DRJ: Right.

LU: while Dutton remained being a Ph.D. student under Bryson.

DRJ: Right.

LU: But you guys hooked up as graduate students.

1:09:25.4

DRJ: Yeah. Well, Lyle did not have his Ph.D. when I was doing my master's. He finished his Ph.D. [later and became a faculty member at the University of Wisconsin *]

LU: I see. OK. But you and John Dutton hooked up as graduate students

DRJ: We did ...

LU: Or as you were finishing up.

DRJ: OK. The diagrams [on the board were done by several of us including Al Carasso *] who came from Australia, [worked with *] myself and Lyle, etcetera. [transcriber's note. Carasso, Alfred S. Certain aspects of energy transformations in the Northern Hemisphere. M.S. thesis, 1964] We figured out how to do this on the [black *] board. And then Al Carasso went on to get his Ph.D. in mathematics here at the University of Wisconsin. Very, very sharp guy. Anyways then knowing John, John had now been called in to the Air Force. Alright? And so he was a first lieutenant serving in ETAC Center in Washington, DC. [transcriber's note: Environmental Technical Applications Center] And he arranged for me [to continue my *] active reserve [duty as *] two week tours in Washington, DC at the ETAC Center. I even wrote some scientific reports for them at the time. [transcriber's note: Johnson, Donald R. and Thompson, Gray. Random error variance and covariance estimates from simultaneous radar (FPS-16)

measurements. USAF Environmental Technical Applications Center Technical Note 72-7. 1972.] And while we were there John being quite adept at mathematics wrote out all the equations that we needed. I had something to do with that but he [is the one who deserves the credit *]. We would continue the following [two or three *] years while he was there. [We *] actually published [a study *] in Advances in Geophysics in volume [twelve *]. [transcriber's note: Dutton, John A. and Johnson, Donald R. The theory of available potential energy and a variational approach to atmospheric energetics. Advances in Geophysics, v.12, pp333-436, 1967.]

1:11:22.5

LU: 1967? I think it was from.

DRJ: I think that's right.

LU: So that's the Johnson and Dutton paper on the available potential energy.

DRJ: No, I don't think that's

LU: Is that the one. In Geophysics?

DRJ: No. That's ok.

TR: We can.

DRJ: It's Advances in Geophysics.

LU: Advances in Geophysics. Wasn't that the

DRJ: I thought it was supposed to be here, but it isn't.

TR: We were given these. We can always.

DRJ: No. Well, OK. It's in my list of publications.

TR: Yep.

DRJ: So, in any event that got published and

TR: Can I, while you're

DRJ: OK, go ahead.

TR: So, this was your graduate work and Dutton's graduate work? And you worked together on it? Or

1:12:14.0

DRJ: No. My graduate work had to do with working with using Suomi's radiometer sonde data to look at the generation of available energy by infrared radiation. So there is that connection on what we call the generation of available energy which is really best done in isentropic coordinates. So there is a connection here but

TR: So an connection but it's different, somewhat different.

DJR: The basic mathematics lie in doing the governing equations in entropy coordinates. And Dutton derived the mass continuity equation in a nice way in isentropic coordinates and that's set the way for this initial Advances in Geophysics work. And that, let's see, here is a book. I think it's in here.

LU: So, yeah. So there's a, I'm sorry, it was a Dutton and Johnson

DRJ: Right.

LU: 1967.

DRJ: That's it. Dutton and Johnson. Right.

LU: So it's the theory of available potential energy in a variational approach in atmospheric energetics. Now the reason I remember this so well is because I had to read this in his class. You know, ten years later.

TR: Right. I, Don, we're about an hour and fifteen minutes in terms of how long we've been recording here.

DR: OK.

TR: I think, I want to ask you if there are things from this time period and what I'm talking about is your graduate work before you became the assistant professor in '64. Anything else on your mind that you want to make sure, not that we won't be meeting again three more times, but

DRJ: Well. The, well, the breakthrough in some ways happened on the board so to speak [laughs] in diagramatic form.

LU: With Lyle Horn's involvement.

DRJ: Lyle Horn there at the time.

1:14:17.5

TR: And can we just say something for the record. We're talking about you guys actually writing on a chalk board. I mean this is 1962/3 when equations can be done, but you were sitting, standing in front of a large chalk board, I'm guessing, with chalk and eraser and just sort of working this stuff out.

DRJ: That's right.

TR: Is that correct?

DRJ: That's right.

1:14.36.8

LU: That's the way professor Johnson operated even as I came on as a student in the early '70s. You know, you got the treatment in front of the board. And sometimes he'd be going on and he'd go right off the board. So it wasn't just on the board. [laughter in background] It could be on the metal side. It could be on the wall.

TR: Mm hm.

DRJ: Well, they portrayed me as a person that would write with one hand and erase with the other [laughter in background]

LU: I never saw the eraser. I just saw him writing. [laughter in background]

1:15:08.6

TR: Well if you two don't mind, let's wrap this up for today. And we'll get back and we'll get to the mid '60s. And we'll also get Louis', start to get Louis' voice in this a little bit more as he becomes a student of yours. So I want to thank you both for your time today. I appreciate it.

DRJ: OK.

LU: Thank you.

1:15:24.1

End of audio.

Transcriber's note. Bracketed text marked with * are edits made by DRJ, July 2014 and January 2015 and April 2015.