

Antarctic Deep Freeze Oral History Project
Interview with Rudolf A. Honkala
conducted on August 4, 1999, by Dian O. Belanger

DOB: Today is the 4th of August, 1999. This is Dian Belanger and I'm speaking with Rudolf Honkala about his experiences in Antarctica at Wilkes Station and Palmer in Operation Deep Freeze.

Good morning, Rudi, and thank you for talking with me.

RH: Good morning.

DOB: Tell me briefly something about your background. I'm interested in where you grew up and where you went to school and what you decided to do with your life. In particular, I'm interested in anything from that that might suggest you'd end up in a place as exotic as Antarctica.

RH: Well, that's kind of a convoluted story, I guess. I grew up in New Hampshire, the little town of Salisbury, New Hampshire, and went to a one-room schoolhouse. I used to look at the maps which were a marvelous thing to me. One-room schoolhouse with eight grades in the same room, you'd have lots of time to cogitate, and the maps help you. You wonder what's in this country and what's in that country. As a matter of fact, as I recall there wasn't much of anything at the bottom of the world map at that time, being the late '20s, so we're going back a few years.

Anyway, I went to high school in Franklin, New Hampshire, and followed my two older brothers to the University of New Hampshire. I had kind of a difficult time. Pearl Harbor occurred in my freshman year, which wasn't very conducive to study. I can't really alibi. I wasn't the scholar that my brothers were, and I went into the service after my freshman year. All my buddies were in the service. There was no point in waiting to be drafted, so I enlisted.

My service time was kind of short lived. I was at Scott Field, Illinois, and I got rheumatic fever. I didn't even know what it was at that time, but it resulted in several months' stay in a hospital and my discharge.

I returned to the university and . . . put my education time on the cuff with them at the university. I explained to them that I had no money, but they said the Veterans Administration would take care of it. [The university figured that the VA would fund my education as soon as they determined the percent of disability.] By the time I had a physical at the Veterans hospital in White River Junction, Vermont, the following September, I did not have a disability that would qualify me for educational benefits.

So I tried to get back in the service, and they sent me a one-sentence reply that a history of rheumatic fever was disqualifying for at least five years.

So I went back to the university and explained to them that I had no money and I wanted to go to school, and they said, well, the GI bill was coming. It did, and I followed it closely, and in July of '44 I finally got GI benefits which were, needless to say, welcome. I was, in fact, the first to avail myself of the benefits of the GI bill.

Anyway, I had kind of a half-hearted approach to my education and graduated in '46.

DOB: With a degree in . . . ?

RH: With a degree in fine arts.

DOB: Amazing.

RH: Well, yes, I guess so. That's amazing.

DOB: I mean in connection with where you ultimately went.

RH: Yes.

DOB: Are you an artist?

RH: Am I an artist? Well, no, I wouldn't say that. I do allied crafts, I guess. I've done some things, but nothing of note.

Anyway, I had no idea what I wanted to do for a living then. But I did like to ski, and I had worked in the White Mountains for a couple of summers and decided that that was where I wanted to go, on short-term at least. I worked for the Cog Railway on Mt. Washington that summer following graduation. Spent quite a lot of time at the summit and visited with the people at the observatory—that was a weather observatory—and made inquiries as to job availabilities there and was hired that fall of '46 as an observer working primarily with icing observations. My interest that took me there was really skiing, and I did enjoy some fine skiing up there in spare time and got a good indoctrination in severe weather.

I don't know where you want to go from here.

DOB: Well, I'm curious to know how you found out about opportunities in Antarctica.

RH: Antarctica. Well, I had been an admirer of polar explorers. When I was a kid, we didn't have electricity at home when I was real young, and I used to walk up to the neighbor's, and I think it would've been '29 when Byrd first had his radio broadcast. I don't remember now whether that was '29 or '34, but I remember his early broadcasts from Antarctica. They rather fascinated me.

DOB: How did you find out about Operation Deep Freeze?

RH: I didn't know what Operation Deep Freeze was until I went to the Antarctic.

DOB: How did you find out about the International Geophysical Year, I should ask perhaps?

RH: Yes. The IGY was what I heard of first. I always understood the Deep Freeze operations as being support for the IGY.

DOB: That's correct.

RH: I guess it was the IGY that I heard of first. At that time I was in Montana, and Paul Dalrymple, I think, whom I had met on Mt. Washington, he spent a few months up there in the summertime. He worked at Blue Hill Observatory outside of Boston, and we had close contact with Blue Hill; we used to maintain daily radio schedules with them. And Paul was up on everything that was happening in the meteorological world, and he told me about the IGY. At that time I already had a couple of years up north on St. Lawrence Island up in the Bering Sea.

DOB: What did you do there?

RH: I worked for the Weather Bureau, and I wound up working for the Weather Bureau on Mt. Washington. I met my wife on Mt. Washington.

DOB: That's a long way to go to find someone.

RH: We were married in 1950. At that time, there were no women on the staff, of course, and no thought of having any women on the staff. There were no living quarters for women on the mountain. We worked for twenty days and had ten days off at that time, I think, so that wasn't compatible with any kind of a marriage existence.

So we had to figure out something else to do for a living, and fortunately at that time the Weather Bureau was recruiting man-and-wife teams to man . . . to man . . . that's not quite right. That's kind of a gender goof there. To be employed at isolated stations, they felt they could keep married couples at them longer, and they had openings at Bethel, Alaska, and Gambell, Alaska. My wife, being from Bethel, Maine, I thought she might be interested in doing something like that.

I called her up—one of the few times our phone system was functional on Mt. Washington—and I said, "How about it? Do you want to go to Bethel, Alaska

and work for the Weather Bureau?" And she said, "Yes. That would be all right." So we put in for it.

By the time our paperwork went through the mill, Bethel had been filled but they offered us Gambell, for which I am eternally grateful. Gambell was much more interesting. It's on St. Lawrence Island about 175 miles west-southwest of Nome, within sight of Siberia. The island was 100+ miles long and very irregular in shape. It's anywhere from 15 to 50 miles wide. Quite a substantial island. It had two Eskimo villages, Gambell and Savoonga, on the northwest end of the island.

We went there and—

DOB: When would that have been?

RH: January of '51. We were there something over a year—fourteen months. Barb flew into Nome, and our oldest son, Willy, was born in Nome, October of '51. And we felt we had to go to the mainland because we had very spasmodic transportation out of Gambell by air. The weather was often not conducive to air transport, and another factor that entered in with that, I believe at that time every family at Gambell had at least one case of TB, so we were a little bit concerned about our young son in that medical atmosphere. Ironically, he tests positive for TB to this day. I guess he was exposed to enough of it as an infant so that he has a positive reaction to TB tests.

We went from there to McGrath, Alaska, which is very different from Gambell—very little wind, it's interior of Alaska, 400 miles from the coast. It gets very cold very quickly, but when it's cold, it's dead calm ordinarily. But it does get to 65 below pretty easily.

DOB: So you've had plenty of cold-weather experience.

RH: Yes, a fair bit. At that point I had had four years on Mt. Washington and had experienced some severe weather there.

DOB: So you decided then . . . Paul Dalrymple was the one who got you interested in the IGY?

RH: Well, yes. Several things happened at the same time. I had decided that . . . I had somewhere along the line made the wild decision that I should go to law school.

DOB: I read that.

RH: I was at University of Montana Law School, and an opening came up for a chief observer at Mt. Washington Observatory. I applied for it at about the same time I had been in touch with Paul and he had been egging me to try for one of these spots with the IGY.

I was accepted for the observer in charge at Mt. Washington Observatory, and I accepted that and told them that I would continue there as long as I could, but I had this yen to go to the Antarctic, and if I got one of the openings there that I would have to leave at least for a year plus. They suggested this was fine. So I applied for the IGY thing and went to Mt. Washington and assumed my duties there.

That appeared to go quite well, and the IGY thing finally fell into place and there were several vacancies, several spots open, one at each of the . . . well, I don't know whether I want to call them lesser stations. I don't really want to do that.

DOB: How about later-established stations?

RH: No. The hierarchy of the Weather Bureau were at Little America [the Pole Station weather staff was all Weather Bureau, too] and then there was one Weather Bureau person at the other stations. The upper air and surface observations were handled by Navy personnel—Navy aerographers. And the Weather Bureau person was assigned to see that data was compiled and shipped back in the form that the Weather Bureau customarily used, and also to install and operate some solar radiation measuring equipment, and some other meteorological observations of interest, observations of optical phenomena and some snow crystal studies and some other measurements.

DOB: Did you get to choose which station you went to?

RH: Well, it didn't matter to me, really. I knew that it probably would be a lot of people shooting for the South Pole Station as kind of a status-type assignment, but it didn't matter to me. It really didn't matter to me.

DOB: Were you assigned then?

RH: Yes. We were assigned, and I was assigned to what at that time was to be known as the Knox Coast Station, which later was named Wilkes Station in honor of the late, great, early Antarctic explorer, Charles Wilkes.

Anyway, it was a happy choice and particularly so because of the staff we had at the station, not only civilians but Navy. We were a compatible group. I think one of the prime factors was the presence of Carl Eklund who was a veteran of a 1940-41 Byrd enterprise in the Antarctic. And Carl was outstanding.

DOB: In what ways?

RH: Well, all you have to do is read one of the books, one of Finn Ronne's books about the Antarctic or read the relatively recent book, *Innocents on the Ice*.

DOB: Yes. I have.

RH: You shudder when you think of what living with a chief scientist who was not compatible with the group, what misery that could be. Carl was experienced, and after he determined what abilities the individual had, he'd pretty much give you a free rein to do your job as you saw fit to do it, which in a place like that is a blessing.

Everybody shared in the duties; everybody did KP or the equivalent. I guess the only place where we had any kind of a cast system was we had two living quarters. I guess the enlisted men had a choice in this matter, and I think they were in part responsible for their living apart. We had twenty-seven men at Wilkes that first year. I don't remember the number of officers and enlisted, but the civilians were quartered officer status, for whatever reason. The civilians and the two Navy officers that we had, we lived in one barracks, if you will, and the Navy enlisted personnel lived in the other. They were identical living quarters, but everybody shared in keeping them clean.

DOB: In fact, Carl Eklund wrote in his report about how clean Wilkes Station was and how everybody had taken care of it. So you're confirming, and there would seem to be a pride in that.

RH: Oh yes.

DOB: He also said that "From the beginning, our men claimed Wilkes as the number one station in Antarctica." And he went on to say, "Well, even if it wasn't true, the fact that they thought so was important." Would you agree with that?

RH: Oh yes. Oh yes. And simply the fact that we felt that way caused some dissension in the ranks at other stations. We got rumblings that came back about this claim as the number one station in the Antarctic. I won't go into that any further.

I would point out that at the end of our year there, we had a noted visitor. Sir Hubert Wilkins came and visited us. And he had started off on kind of a world tour with Lowell Thomas, Peter Freuchen, Bernt Balchen . . . I forget who else was in this entourage, but it was an entourage of big names in polar exploration. And they had gone first . . . I think they flew to the North Pole; over it. And on

their way up there, they were in Alaska, at Anchorage, and Peter Freuchen, who I think had an artificial leg, or at least one bad leg, and he was carrying his own luggage upstairs in the hotel, and he succumbed to a heart attack and died. They lost one. But then they came down, flew down to the southern hemisphere and New Zealand and to McMurdo.

Sir Hubert was an advisor in the Quartermaster Corps working in Natick, Massachusetts, for the Army. He went to the Antarctic as an observer, and gave the Little America and McMurdo facilities very bad marks for general housekeeping and handling of their commodities and supplies. He thought both of the stations were an abysmal sight and a disgrace, and he got on the wrong side of the Navy for that. The services are not quick to forget something like that.

When they came around to Wilkes Station, they came with two icebreakers and a supply ship or ships—I think we had two ships came in with two icebreakers. As soon as they came, they were going to send one of the icebreakers to make a courtesy call to Mirnyy, to the Russian station Mirnyy, and the Navy, remembering Sir Hubert's remarks about housekeeping abilities made it a point not to ask Sir Hubert to go with them to Mirnyy. I mean like "You were a bad boy. We can't take you."

I had met Sir Hubert a couple of times at orientation sessions in Massachusetts. I went out to the icebreaker, the one that stayed with us, the one that Sir Hubert was on, and invited him to come ashore and spend some time ashore until the icebreaker came back from their courtesy call. He was very happy to do this, and we enjoyed several days of his presence there at Wilkes, and he appreciated the number one station in the Antarctic.

DOB: He found it better kept?

RH: Oh yes. He found it to his standards.

DOB: Let me back you up, and I'm just interested in your arriving in Antarctica. This would've been in late '56. And you had been in the Arctic, and now arriving in Antarctica, and I'd be interested in your observations on the differences or similarities. And what did you think of this place as you were approaching the polar continent?

RH: Well, I thought it was the most desolate place I'd ever seen. I said a person would lose his mind living here. At first appearances, it was . . . well, Wilkes Station is at the northern end of Vincennes Bay, and the area is pretty much . . . well, I would compare it with what the coast of Maine probably looked like during the Pleistocene when the continental ice was still at the coast and there were rocky promontories sticking out into the ocean, rocky islands poking up out of the

water here and there. At first glance, it appeared to be bare rock. Closer examination revealed lots of vegetation, several inches high in some instances—moss.

DOB: At Wilkes?

RH: Yes. Moss would be in some instances several inches thick. Moss and lichens. When I said vegetation, it would be confined to mosses. The only place there was anything other than moss and lichens is the peninsula area which has, I believe, what are considered true grasses. They don't grow more than two or three inches high, I think, at most.

Wilkes, at initial first glance, looked like a landscape from the moon. It was so sterile looking that you couldn't imagine anything living there. But after you got there and looked around and saw how much bird life there was there, particularly bird life would hit you first. Almost all of those rocky islands had birds of some type nesting there. Some types of snow petrels and other petrels and gulls, skuas, lots of penguin rookeries, and Weddell seal and crabeater seal in considerable numbers. We even found a small group of elephant seal in the area, which was of great interest to us.

We were able to see some of these areas because of the dog team that we spirited away from McMurdo Sound when we were there.

DOB: Tell me about the dogs.

RH: Well, they were marvelous dogs. I think at that time they were pretty expensive dogs, too, as I understand it. The Navy paid—this was 1956 prices—they paid \$2400 each for these dogs from Wonalancet kennels in New Hampshire.

This dog team that we found when we called at McMurdo Sound on our way down was tied up there at McMurdo there with a couple of sleds and all the harnesses and all the supplies that were necessary to maintain a dog team, and they were just sitting there. The late Admiral Byrd had insisted that a dog team go into the South Pole. Well, the South Pole is hundreds of miles from the nearest exposed land and close to 10,000 feet, maximum temperature, of course, if they're lucky it gets up to zero Fahrenheit. So it's not really a place that's conducive to going on extended dog trips. But they had this dog team slated to go to the South Pole. They took it to the South Pole.

DOB: Was this the team that had come back from the South Pole then?

RH: Yes. Cooler heads prevailed, and they decided that it was no place for a dog team. They kept one dog as a mascot and sent the dog team back to McMurdo.

I don't know whether they had any plans for it or not, but Carl Eklund, having gone on extensive traverses with dogs in his previous Antarctic experience, he and Finn Ronne, as a matter of fact. I don't know how Carl did it, but he and Finn Ronne traveled something like 1300 miles on a traverse out of East Base. So Carl was experienced with dogs. I'd had a little bit of experience with dogs with the Eskimos up on St. Lawrence Island, so we thought it would be great to have them at Wilkes, and they were. They turned out to be a great plus.

DOB: Did you really use them?

RH: If you asked if we used them, yes we did use them. We didn't accomplish any great scientific work with them or any great work that really couldn't have been done through some other means, but they were just a super R&R factor in our lives. We tried to involve all the personnel, and just about everyone was anxious to do something with the dogs. So we were very grateful for having the dogs there. They were a real plus factor in our existence there.

There were plenty of seal there, so we butchered a few seal to help with feeding them. It's pretty easy to take care of dogs down there if you've got plenty of seal meat. Seal meat stays frozen, and you just either take a chain saw and saw up the seal when it's frozen, or cut off chunks with an ax and throw a couple-pound chunk to a dog and he's happy. So they were another factor that I think made our station a little different.

DOB: Why did the United States want a station at Wilkes on the Knox Coast?

RH: I don't know what went into the choices. They tried to distribute them to get as representative coverage of the Antarctic area as possible. They were fairly well spread out. I think probably it would be maybe more apt to say why did they establish a Byrd Station when they already had Little America on the Ross Ice Shelf. I guess that Byrd was a little higher elevation and farther inland, giving broader coverage.

DOB: There was no station there when you got there though, was there?

RH: No, there wasn't. As a matter of fact, we didn't know whether we would really get established or not, it had gotten so late.

[End Side A, Tape 1]

[Begin Side B, Tape 1]

DOB: We were talking about nothing there at Wilkes.

RH: As we were on our way down, we were side-tracked a couple of times. We had to go and unload materials at Hallett Station. And while we were at Hallett Station, word came from McMurdo that we were to go to McMurdo and offload the tractor that had been assigned to the job at Wilkes Station, that we were to leave this tractor at McMurdo because they needed it worse than we did . . . supposedly.

So we were shuffled hither and yon, and time kept going by, and 1957 arrived and we had not even seen our proposed location. As a matter of fact, the location hadn't really been picked. We went around and I think I'd have to look in my journal, but I think we arrived at the coast at Vincennes Bay about, I think, somewhere around the 10th, 15th of January.

DOB: I have it that unloading operations began at Wilkes on February 1.

RH: That's probably about right because we arrived in the vicinity late in January. The high command put a Greenland cruiser over the side of the icebreaker. I forget who the Navy hierarchy was that went ashore with us. Captain Cadwalader was one, Captain Ketchum, Carl Eklund, myself, and Dick Cameron, a glaciologist, and Don Burnett, the fellow who was our naval support in-charge person. We all went ashore with the Greenland cruiser and looked at several sites, and we had to make a choice that day. We settled on the site that the station was built on, and it proved to be quite satisfactory. The Australians who took over the station after the IGY have since moved the station site a couple of miles, I think, from its original site.

DOB: But the station is still going.

RH: Oh yes. The station's still going. Still, I think, considered the number one station in the Antarctic.

DOB: It must've been quite a rush.

RH: It was a rush, and I think you're right. The offloading began about February 1, and if I remember, the ships left us February 16th.

DOB: That's correct.

RH: I think at that time the Seabees had come ashore. They did a hell of a job, really. They leveled areas and put down the metal beams that the buildings sat on and welded them up. I think they had seven buildings.

DOB: Did you have to help in the construction? Or offloading?

RH: We got out of the way during the construction, but then we were involved with the construction for several months afterwards. All of like two weeks that they had to do this, they couldn't do much else but put the basics up. They did as much wiring et cetera as they could, but there was lots of work to be done afterwards. Winter was coming on very quickly.

A lot of stuff got left outside and then buried in snow, and some casualties. We had a boat that they had brought down for use in the local waters and a tractor ran over it in the wintertime and crushed this because it hadn't been properly marked. It was difficult to get . . . we had tremendous piles of supplies outside that got buried in the snow. We tried to mark supplies as well as we could with flags and markers of various kinds.

It was also an interesting procedure opening supplies and seeing surprise packages that we got.

DOB: Were there surprises?

RH: The doctor opened one box and there was a case of breast pumps in it.

DOB: [Laughs] I read about that. Not ordered.

RH: Not ordered.

DOB: Well, I was struck by the fact that Wilkes Station was at one of the few places in Antarctica that's north of the Antarctic Circle, or just on it, I guess, and temperatures were pretty warm there.

RH: The temperatures were characteristic of a coastal station. There was generally some open water fairly close so that temperatures are moderated by this. If you get steady southerly movement of air from the south, from the continent, it would get cold. But not as . . . I didn't think that much different from St. Lawrence Island up in the Bering Sea, where in the wintertime there was always some open water offshore, open leads somewhere. The St. Lawrence Island low temperature during the year was something like 25 below zero and quite similar at Wilkes. Not much different. Although if you . . . we established a small station fifty-five miles inland.

DOB: Why? That wasn't in the original plan, was it?

RH: Well, it depends upon whose plan you're The glaciologists wanted to dig a deep pit, and they wanted to go in where there would be plenty of ice so they could go as deep as they were able to go and see what it looked like—the annual layers, etc. I was anxious to get some data to show what the temperatures and

weather conditions would look like a little bit farther inland and had some instrumentation that I could use. I had some latitude in doing these things.

The glaciologists, Dick Cameron, John Molholm, and Olav Loken, who is now in a very prominent position with the Canadians as relates to the Antarctic. Well, he's pretty much retired now but still pretty active. They have just established an Antarctic office, the Canadians have, as well as their Arctic work. But Olav, who is Norwegian, was with us as another glaciologist, and John Molholm, the three of them and Carl Eklund and I, we left one morning with three loaded Weasels and loaded sleds behind them. We drove in fifty-five miles to about, I think, 3300 feet. And we set up a four-section Jamesway hut and it would be sixteen by sixteen feet, and installed a stove and stovepipes and had supper on the table by, I think, ten o'clock. So we did pretty good. The glaciologists dug a deep pit there during the year.

DOB: How much time did *you* spend there?

RH: In the interior?

DOB: Yes.

RH: I guess I spent maybe all tolled a month there. I spent several weeks late in the year by myself because I wanted to continue the records that we had kept, and the glaciologists had finished their deep pit which was . . . let me see. That was quite an operation. That was six feet square or ten feet square? Six feet square, and it was at a ten degree angle off the vertical, and they went down I think 120 feet or something like that with their pit. And they core-drilled another 100+ feet below that, so they had, I guess, a thousand-year record of ice layers—seasonal layers. Toward the end of the year, they wanted to do some work at the coast, and I wanted to maintain the record of temperatures there at the inland station. We didn't have very many people, so I went in there and spent some time by myself.

DOB: And that was okay? That seems rather risky.

RH: Well, yes, I guess. But it went very well.

DOB: What time of year was that?

RH: Well, that was pushing the Antarctic summer. It was light most of the day—most of the time at that season.

DOB: How much of a winter night did you have at Wilkes?

RH: We had close to an hour-and-a-half, I guess an hour-and-a-half of sun . . . I guess an hour-and-a-half to two hours of sun.

DOB: Even in the winter?

RH: I guess it wasn't quite that long. Gee, I'd have to get my journals out. I guess we had two hours of usable light, at least. I'll put it that way. We had some sunshine. The sun would come up over the horizon and hang there, it seemed for quite some time, but perhaps it wasn't that long.

DOB: It would still be unusual in Antarctica.

RH: To have that much sunshine. Oh yes. Well sure, it would seem that way to those who had none.

DOB: Right. One of the things that seems very characteristic of Wilkes was storms, that winds would just come up . . . let's say instantaneously. Is that true, and what causes that in that particular place?

RH: Well, sometimes you could see the wind driving the snow south of us coming off the Vanderford Glacier into Vincennes Bay south of us and it would be calm. Those were katabatic winds—gravity-flow winds. Cold air acts much like water does—it flows downhill. And if there's a large depression extending to the coast from the interior, this cold air in the interior will seek that depression and flow, much as water does except faster. It flows very rapidly.

The same thing occurs as cold air falls in a thunderstorm. If you get great convection in the summertime from heat at the surface, that convection will cause this hot air to rise rapidly. It will essentially leave a hole underneath, and the cold air aloft will fall through this hole, and much wind damage that's caused during thunderstorms is the result of these tremendous down-drafts of cold air. The same thing happens on the surface in the Antarctic with these enormous katabatic or gravity winds.

DOB: Did you ever get caught in a storm like that?

RH: Oh, yes. Yes, we did a couple of times going into the interior, we'd get caught in winds.

DOB: How do you protect yourself?

RH: Traveling in a Weasel. You had adequate clothing on, and you'd just have to pull up and wait for the wind to stop. You wind up with zero visibility and it was just unwise to continue. You wait for the weather.

Surprisingly, we traveled at night quite a lot going into the interior. Once you established a route of travel, the Weasel tracks that you established would stay there and the snow would erode away around the Weasel tracks and you could follow the old trail quite well with the lights of the Weasel.

DOB: Easier than daytime.

RH: Easier than daytime frequently. We had occasional whiteout conditions. It was kind of a . . . the use of the term whiteout these days is kind of a sore point with me because when people experience poor visibility for whatever reason, they are quick to term it a whiteout, whereas a true whiteout has nothing to do with blowing snow or fog or any of these physical obstructions to vision.

A true whiteout occurs when you have an extensive snow surface, Arctic or Antarctic or on some big body of water that's frozen over, and you have a solid overcast above you. The light coming through the overcast reflects off the surface back to the underside of the overcast and bounces back and forth between the cloud deck and the surface until it establishes an equilibrium, and it destroys all the definition in the surface. You lose all of your shadows, and when you step you're not quite sure where the surface is. Even when you're so close that you can almost touch the surface, you can't determine exactly where it is.

DOB: That's got to be very disorienting.

RH: Yes. Very dangerous for an aircraft of course, and numerous Antarctic helicopter accidents have resulted from this. People fly into the ground because they can't determine exactly where it is. Even that doesn't occur that often. At Wilkes we frequently experienced that going into the interior if you stopped and got out and looked around, looked towards the coast, you could generally see the under-surface of the overcast along the coast because it would be darker, a water sky because of the open water. Even at thirty miles away, it would still show, whereas three-quarters of the horizon would be obliterated by this condition.

DOB: Tell me about your scientific work at Wilkes in the context of the International Geophysical Year, and I'm interested to know what you did and how that meshed with the worldwide effort.

RH: We were collecting the material that analytical meteorologists need to have before they can explain the world's weather machine. We operated on a twenty-four-hour clock so that our 0300Z upper air balloon was released at the same time as those at Timbuktu and Anchorage were released. The same applies to the time marks on records of incoming solar radiation and surface temperature. We made every effort to provide data that would fit the worldwide picture.

Theoretically, all these data were taken simultaneously with comparable methods and equipment.

DOB: And what was the purpose of all of that?

RH: Well, the purpose was whoever was doing the analysis afterwards that they were able to compare the incoming radiation at Ellsworth Station, let's say, with the incoming radiation at Wilkes Station and Hallett Station, Little America, Byrd Station, Pole Station.

DOB: Did you also compare data with other countries?

RH: Oh, not while we were there. I'm sure that other countries also . . . the World Meteorological Organization had a hand in suggesting measurements that should be made, and I'm sure that many other countries made these same measurements. That of course was the purpose of the IGY, to have a concerted effort to make similar measurements at various locations around the world at the same time. For example, our upper air observations were timed so that people around the world were releasing their balloons at the same time. We were on a twenty-four-hour clock and at 0400 Greenwich time, we released the balloons 0400 and 1600, so that people around the world would all be making their upper air observations at the same time.

DOB: What did you learn about the effect of Antarctica on the weather of the rest of the world, or were you looking for that at that time?

RH: Well, I'm certainly not the person to ask that question of. I don't know if you knew about the people at Weather Central who had availability of all of the records and had the meteorological know-how to analyze the tremendous amount of data that was coming in. I wouldn't have a clue. I imagine they came out with world maps that showed, for example, incoming solar radiation around the world at sea level, and then I presume they could make some judgments from that. I wouldn't even . . . I wouldn't feel comfortable making any kind of judgments as to what these showed.

DOB: What kinds of tools and equipment did you have to do the work that you did, and I'm thinking comparatively speaking with what you might have at your disposal today.

RH: Oh, I guess we had all the tools that anyone could ask for in a weather station, pretty much. I can't think of anything that we had at a stateside station or Alaskan station that we didn't have there. We had to make our own hydrogen, of course, for balloons. We didn't have cylinders of helium that you just had to open

up, unscrew the top, to get helium. We didn't have any problem with making hydrogen either.

DOB: How did you do it?

RH: The Weather Bureau designed and constructed a low-pressure generator, so called. It was shaped something like a furnace, and we'd put in a given amount of aluminum chips. They were refuse from companies that make things out of aluminum. There were aluminum punchings and scraps. We used . . . I forget the ratio between the amount of aluminum chips and . . . caustic soda. Aluminum chips and caustic soda, and we'd put this into this generator and then add a given amount of water, and the water and the caustic soda would react with the aluminum to produce hydrogen. The generator had a vent at the top hooked up to a hose, and we'd put the hose in the mouth of a large balloon and inflate it to where it lifted a given known weight off the floor.

We would tie off the balloon and attach our instrument to the balloon, and hopefully we could get it out of the door in the wind and release it and send the balloon up. We had an excellent record with balloon launches there at Wilkes, although we had periods when we couldn't release them at all because of high winds.

DOB: What did you learn when . . . what was in those balloons or attached to the balloons that was valuable?

RH: Well, the radiosonde was attached to the balloon, and there was a printed circuit in the instrument and there was a little metal pen linked to an aneroid barometer that rode over this printed circuit and moved as the atmospheric pressure changed. As the balloon went up, the pressure would go down and move this pen across this printed circuit, and would switch the radio signal that was sent out from the instrument to our recording instrument down below, from temperature to pressure. The pressure would tell us how high the instrument was, and we'd get the temperature reading. We also had a tracking device that tracked the balloon and gave us an automatic reading of azimuth angle and an elevation angle at every one-minute interval, and that would give us the distance away from the station and give us the wind speed and direction. So we got wind speed and direction and temperature up to 100,000 feet, if we were lucky.

DOB: And how long would you continue to receive this data from any one balloon?

RH: Until the balloon burst, which would be roughly 100,000 feet. We hoped it would go at least 100,000 feet. That would take approximately an hour, plus or minus.

DOB: But every time you sent up a balloon, you had to send . . . you could never recover the

RH: No. They were expendable. Once in a great while, I think we maybe found a couple of them near there just accidentally. But most of them were probably . . . because of an early burst, they didn't get too far away from the station. But most of them were long gone. They were just expendables. And hopefully, you see, this was going on around the world at the same time at all of the stations that were cooperating during the IGY.

DOB: I read that you did photomicrographing of snow crystals.

RH: Yes.

DOB: Tell me about that.

RH: Well, I didn't do as much as I would liked to have done. I had been interested in this at Mt. Washington. Dr. Vincent Schaefer of General Electric was one of our advisors up on Mt. Washington. He was the gentleman who first created man-made snowstorms, and he was very interested in snow crystal growth and development. He had a method of making replicas of snow crystals.

We had a polyvinyl resin in powder form that we dissolved in ethylene dichloride and kept at below freezing temperature somewhere where it was handy and outside of a building where it wouldn't get spilled or damaged. When snow crystals were falling that we wanted to sample, we'd pour a small amount of this solution onto a glass plate and hold it with rubber-covered pliers or something that would hold the glass plate but keep it out of your warm hands, and expose it to the snowfall. Snow crystals would fall on that liquid and it would surround and cover the crystals. It was very hydrophilic. The liquid liked the water-ice surface and would quickly surround this crystal and fill all its little nooks and crannies without melting it. This solution would evaporate very quickly, and in a few minutes time you could bring this inside in above freezing temperatures and put it under a microscope, and it would look exactly like the snow crystal did when it was real. It very much simplifies typing snow crystals.

Snow crystals change very markedly with changes in weather. The amount of available water vapor in the air and the temperature changes the character of snow crystals very quickly. You can actually . . . almost . . . someone who is a better synoptic meteorologist than I can examine snow crystals and tell you whether a cold front is approaching you or it's gone past you based on the type of snow crystals that are falling. So it's kind of an interesting aspect of meteorology.

DOB: Is it useful in a practical way? Are there easier ways to learn what you can learn?

RH: Sure there are today, because of all of this information being fed into computers, you see. You should be able to watch the progress of a cold front some other way. But I can't visualize a mountain man who has no electricity or computers being that interested in a cold front, so he learned how to track a cold front from the coast by snow crystals that were occurring. It's interesting in the total picture, anyway, to know that this happens.

DOB: Are they beautiful as we imagine snow crystals?

RH: Sure they are. Yes. And some of them are interesting in other ways. I've been interested in optical phenomena, which Much of our optical phenomena is caused by the way light is refracted by snow crystals, ice crystals, and halos and such caused by little crystals, frequently cirrus-type clouds, very small ice and snow crystals.

I found in the Antarctic that this doesn't have to occur high off the surface, that if you're outside when some of this optical phenomena is going on, you can look at your shirt or coat sleeve and see little tiny crystals, snow crystals hitting and collecting on your coat. And many of these are just minute little crystals, just a couple of microns in length perhaps, and I was able to collect some of those using the replica method. And these were crystals that were right at the surface level when optical phenomena was occurring, but I don't know exactly how high the optical phenomena was off the ground, but I guess it extended right to the surface. Anyway, they were kind of interesting things to do.

DOB: When your year was over, did you feel that you had met the goals that you went down there with in terms of meteorology?

RH: Well, yes and no. I guess pluses and minuses. I usually . . . well, you never know as much as you would like to know about a lot of these things, and I guess each time I've gone down, I've probably, hopefully, been better at my job each time I've gone down. I guess you can only carry that so far, too.

DOB: You were at Wilkes for a year, and then you came home for how long?

RH: I came home . . . well, I went down with the idea that I would come back to a Weather Bureau job, and I did. I went back to Washington, and they were trying to find an appropriate position for me. They offered . . . they had an opening at Syracuse, which I wasn't much interested in going to Syracuse.

[End Side B, Tape 1]

[Begin Side A, Tape 2]

RH: They offered me a spot at Nantucket, which would have been nice, but the cost of living in Nantucket was pretty high. Our family had increased by then. We had four children then, so I had to look at the pluses and minuses of these assignments, too.

I was in the personnel office one day and the fellow was on the telephone with somebody, and he looked up and said, "You wouldn't be interested in Missoula, Montana, would you?" And I said, "Sure," because we had been out there for a year plus when I was going to school. So we went to Missoula, Montana and worked at the weather station. All the usual duties—observations and forecasts on the local radio broadcasts. Kind of a comfortable existence, and about a year-and-a-half later, I guess it was, the central office of the Weather Bureau called me up and asked me if I would go back down to Wilkes Station with the Australians.

DOB: And you did.

RH: Well, I called home and said, "Barb, they asked me to go down," and she said, "Go ahead."

DOB: A remarkable woman.

RH: Yes. So I went down with the Australians. Ironically, I just got two phone calls from Australia last Saturday. My roommate and good friend lost his battle with Parkinson's and died. That was two roommates I lost. My roommate with the U.S. during the IGY, Dick Berkley, lost his fight with cancer about fifteen years ago, I guess now. I lost two Wilkes roommates.

DOB: How was the experience at Wilkes the second year with the Australians different from the first one? Were you the only American there?

RH: No. We had two other Weather Bureau people. Rich Penny, a biologist doing a penguin study, was down there. There were four of us Americans. Different?

[Interruption]

DOB: We were talking about your second year with the Australians.

RH: And how did it differ. Well golly, I don't know how it differed.

DOB: Maybe it didn't.

RH: I don't know as it differed really that much.

DOB: Was it about the same number of people?

RH: No, it was less. I had a mathematical progression downward. We had twenty-seven the first year, eighteen when I was with the Australians, and the third time I wintered at Palmer Station, there were only nine of us. So it figures that if I had wintered the fourth time, I would've been by myself.

DOB: [Laughs] Did Wilkes have air support the second time you were down there? That was not true of the first.

RH: No. It never had any air support.

DOB: So you were completely isolated once the winter started?

RH: Right. Now our ship took us in, and hopefully a year later a ship would come take us out. But that didn't always happen. It did at Wilkes, but the second time I went down, my friend, Floyd Johnson, who wintered at the Pole the first year, was finishing the year with the Argentines at Ellsworth Station. When I got down there with the Australians, I got on the ham rig and talked with him, and he was just finishing his year. And he said the Argentine icebreaker was seventy miles away, should be in the next day, hopefully, and they'd be out of there in a week. But that was as close as the icebreaker ever got. He had to stay there a second year.

It was worse for him in that a week later the meteorological shack caught fire, or somebody burned it, they're not sure which, and all the supplies went. So they really had very little to do the second year. The whole upper air program went by the boards.

DOB: That must've been a long year.

RH: Yes, I guess it was. They gave him a gold medal, the Commerce Department.

DOB: It was the least they could do.

RH: Floyd is now in Georgia, close to Georgia now. He was in Buckeye, Arizona, for many years. A nice fellow.

DOB: I haven't asked you much about what it was like just daily living at this polar station—how the people got along and what you did for fun.

RH: Well, we were all relatively busy.

DOB: Did time get long?

RH: We had as much work to do as we felt capable of doing. We were never short of things to do. I've always read a lot, so I could always occupy myself reading. We had movies every night, such as they were. They weren't always very great. As a matter of fact, some of them were downright rank—terrible.

DOB: Did you do a lot on ham radio?

RH: No, I didn't do very much with the ham radio. I talked with home . . . how often did I call home? Once a month?

___: No, not that often.

RH: It was nice to call home, but it was awful getting back into the routine after I'd called home. So I really didn't make an effort to call as often as I would have liked to. I didn't want to put myself through the misery of getting back into the routine after I'd called home.

DOB: And you realized how far away you are.

RH: Well, yes.

DOB: Tell me about Palmer Station. When were you there?

RH: I wish you wouldn't ask me when I was there. These years get mixed up.

DOB: Was it long after that?

RH: Sixty-six?

DOB: Was Palmer Station fairly new at that time?

RH: Well, they'd just started building the new station when I was at the old Palmer Station when I wintered over.

DOB: Why did we build a station there when we were abandoning other IGY stations and then to put up a new one near the peninsula?

RH: I suppose because it was desirable because it was accessible. You could get in and out of there I would say anytime of the year. An icebreaker could get in and out of there I would judge anytime of the year. I feel fortunate in many respects

in having gone in and out by ship just about all the time. Only once . . . they flew us out of McMurdo after wintering at Palmer Station, in all their infinite judgment, rather than take us back to Punta Arenas and fly us back home. They took us by ship a third of the way around the continent to McMurdo Sound and flew us to New Zealand where we waited for aircraft to fly back to the States, and two weeks later we flew back to the States.

I feel fortunate having gone in and out by ship because I don't think that most of these people who fly in and out of McMurdo have any conception of how difficult it is to reach the Antarctic coast, and most of the perimeter of the Antarctic is . . . most of the places there's extensive pack ice, and once you get to the coast, you're confronted with an ice face that comes down anywhere from 50 to 250 feet sheer ice face. So you can't even get ashore. I don't know what it would be—75 percent of the coast would be like that, I presume—an ice face glacier terminating at the shore.

People were so worried about economic development of the Antarctic as a source of minerals and that sort of thing. When you're confronted with this pack ice and the nature of the shore once you get to it, the likelihood of being able to take anything commercial in the line of minerals out of there, would prohibit even starting the operation.

DOB: So you're not very worried about that.

RH: No, I'm not. Some of these areas, though, are becoming quite heavily used as tourist areas.

DOB: And that's becoming a big issue now. What do you think of that?

RH: Well, again I can see the problem, but I'm not that concerned with it right now. The thing I regret is that the access to the Antarctic on cruise ships is limited to the people who have the funds to do this. Now I think Joe Dokes down the street ought to have a chance to see it. But at \$2,000-\$3,000 a whack, plus the cost of getting to southern South America or southern South Africa or New Zealand or Australia, well, it would cost a fellow \$5,000, I suppose, easily to even think about any kind of a limited cruise. But there are lots of people doing this, and fortunately up to this point, most of the people who do it are genuinely interested in what they're seeing and would probably bend over backwards to be environmentally judicious. How do we say this?

I was just reading the *Polar Times*, Port Lockroy down south of Palmer Station has become one of the leading stopping places for cruise ships. Two Antarctic summers ago, '97-98, or last year I guess it would be . . . '97-98? This is '98-99

now. Yes, last year I think fifty-eight ships called at Port Lockroy. Fifty-eight cruise ships.

DOB: Can the continent sustain that?

RH: Sixty-four hundred people.

DOB: Can the continent sustain that kind of encroachment?

RH: Again, it's . . . after you've gone in and out of these places by ship a number of times, you realize that there are only a few places like this where they *can* go in and out. They're not going to take cruise ships into the Weddell Sea area because the cruise ships are not built that strongly in the first place. They're not going to risk them in areas where there's heavy pack ice. So they can go in to the peninsula area most of the time in the Antarctic summer, at least.

Most of the year, if they're really careful and the ship is ice-reinforced at all, though even there at Port Lockroy you're talking about a penguin rookery and people tromping through the penguin rookery, and the person who was manager of this station at Port Lockroy, which is only open in the summertime, the British I believe operate it. It's not a scientific station, really. He said he had been down there four summers consecutively and he was not able to observe any disruption of the penguin rookery even with all these people. Apparently they staked out a route where they could walk, and in most of these areas they are pretty careful with where the tourists are allowed to go.

After I came back my last trip to the Antarctic—I summered at Palmer Station also with a little project of my own, glaciology—after I came back I corresponded with a couple of people, with Captain Cadwalader, who died fairly recently. He was a very good friend of ours.

The first time we went to the Antarctic during the IGY, he was a captain in the Navy and was very solicitous of our [inaudible] connected with our civilian problems. He was kind of a liaison between the Navy hierarchy and the civilians. He was disturbed because he had gone down as a lecturer with one of the cruise ships on his retirement, and the scientific staff at Palmer Station had been apparently downright surly with the tourists. He thought that didn't present too good a picture of Americans, and neither do I. I think it inexcusable. Certainly people at the station have their work to do, but they can take time. The world isn't going to stop turning if they take a little time to say hello to these people.

DOB: What do you think about science? Is that going to go on indefinitely, especially with all the different countries down there? I'm thinking in terms of the Antarctic Treaty.

RH: Oh yes, I think so. Yes, I don't know why not. I think the Antarctic Treaty is fine. I don't see that we have that much to gain by staking out any claims down there. I guess we have in our own way by our presence, but we haven't formally staked out any claims nor recognized anybody else's. I don't see much in the long picture of economic gains to be had there. There may be some rare mineral finds down there somewhere, but most of it is buried in so much ice and snow that finding them is scarcely feasible.

DOB: Probably don't need to worry.

RH: I don't. I don't think anybody's fortune is going to rest on whether we're able to wrest minerals out of the landscape down there.

DOB: Let me ask you just a couple of general questions. Was there someone that you met on the ice that you were particularly glad to have there, either out of respect or admiration or friendship?

RH: Carl Eklund would be the first guy to come to mind. He was outstanding.

DOB: By style? You've talked about him. He died very young.

RH: Yes, he did. He claimed he was going to be the oldest guy to get a Ph.D. from the University of Maryland. He did get his Ph.D. I guess he was fifty when he got his Ph.D. I think he was only fifty-eight when he died. I don't remember exactly, but he got his Ph.D. in ornithology. I used to help him when I had time when he needed help with his bird banding. He did a migratory study of the south polar skua. We used to go out and catch them in various ways and band them, and he got his Ph.D.

DOB: Before or after he was there with you?

RH: After. This migratory study of the south polar skua was his Ph.D. thesis, and he got his doctorate, he came back and took over the late Paul Siple's job as head of cold weather research in the Army. I think Carl was up in Philadelphia giving a lecture to some ornithological group. He walked off the stage and had a heart attack and died. A great guy.

DOB: Had you known him before you went there?

RH: No. No, I hadn't. Not by reputation or anything. I just met him in Washington before we went.

DOB: Were you ever truly scared?

RH: No. No.

___: Yes you were. Down in the crevasse.

DOB: She said, "Yes you were. Down in the crevasse." Is there a story here that you're not telling me?

RH: Oh. Well, yes, I guess I was a little bit. Yes.

DOB: What happened?

RH: Well, I was taking advantage of the presence of an icebreaker down there when we were getting ready to leave Palmer Station. I had been thinking about . . . I'd had a running argument with glaciologists over the years, and I said that there's a hell of a lot more ice being lost in the Antarctic in actual melt in the Antarctic summer than they recognized, and I wanted to try to measure it. I did make a stab at it there at Anvers Island, but preliminary to this, I had worked along the coast quite a bit and I'd seen many meltwater streams issuing forth from on top of the ice and under the ice. And I knew that a lot of meltwater streams went down in the crevasses or were present in crevasses and were running down to the shore.

So I wanted to look down in some crevasses, and when the icebreaker came down, I knew this one helicopter pilot and I said, "How good can you hover?" And he said, "Well, I can hover pretty good," and I said, "I want to look in some crevasses." He said, "I guess we can . . . you ask the captain. If it's all right with him, it's all right with me." So I confronted the captain of the icebreaker and I said that I wanted to do this. He said, "Well, if it's all right with the pilot, it's all right with me."

So we set up a time and I went aboard and we went up, and we just used one of these slings that's like a horse collar to sling on, and I went over the side and he lowered me down. I got down below the surface in this big crevasse, I suppose from here to the edge of the deck wide [30 or 40 feet], something like that, and I got down in there about thirty or forty feet and I started to turn on the winch line, first one way and then the other way. I started to get dizzy, and I thought, God, get me out of here.

DOB: How did you signal?

RH: I signaled, as I recall, with very vigorous pointing up to the copter. Funny I had the presence of mind to do that. I thought, how in the hell am I going to get out of this? I almost had the feeling that I wanted to put my hands up and drop out of it.

I gave him the signal up, and we went back to the drawing board and got one of these rescue seats that's kind of built like an anchor. It's a metal thing that's got three projections down at the bottom and a metal post that comes up, and the winch line attaches to this metal post. You sit on two of those projections with the post in front of you, and you can't fall out of that. We used that the next time, and it was very good.

It was a hell of an experience, but a scientific failure because a lot of snow bridges had fallen down, so you could never see the bottom of the crevasse. My vision was always blocked by snow bricks which collapsed in the—

DOB: What does it look like inside a crevasse?

RH: The most beautiful blue. I'm just sorry that I didn't have a camera with me. Just incredible blue. Never to be forgotten blue. Beautiful.

DOB: What are you the proudest of from your Antarctic work?

RH: Oh, I don't know. I guess probably I still have friends who were down there with me. That probably . . . I hope I did some work that was worthwhile, then I hope that I was helpful to the other people who were working down there as well. I think that's part of the program.

DOB: If you were an artist and you could paint on one canvas the essence of your Antarctic experience, what would you paint?

RH: [Pause] I'd have to give that some thought, I guess. [Pause] That's a tough question. I don't know what I'd paint.

DOB: Too many things to choose from?

RH: Well, I don't know. The essence of my Antarctic experience? I guess it would have to be a fair weather something, because I don't . . . it certainly wouldn't be global warming causing the inundation of coastal cities because the Antarctic ice had melted.

DOB: You don't believe that?

RH: I believe quite the opposite. I think if global warming does really affect polar temperatures, warms them any appreciable amount, we'd probably be faced with another ice age rather than having coastal cities inundated.

DOB: How so?

RH: Well, so much more moisture can be held in warmer air. You've probably heard of it being too cold to snow? It *can* be too cold to snow. When it gets to 40 below zero, there's so little water vapor present in the air that even if you're in clouds you won't have any ice collection on a wire that you expose. Whereas if it's 20 below, this wire would quickly collect a huge amount of ice, as in ice storms when wires get When it gets to 40 below, the water droplets are so minute, if there are indeed any, that they're . . . there's turbulence enough upwind of the wire that these little tiny water droplets would go around the wire. It would never impinge on the wire.

This is a benefit of my work with icing on Mt. Washington, but you learn these things. So if the temperature in the Arctic, let's say, rose 10 degrees, that would not be warm enough to melt that much more ice and snow, but it would be warm enough to cause a tremendous increase in the amount of snow that falls.

DOB: Interesting.

RH: The likelihood is that the ice ages were caused by such increases in temperature. I was just reading a book on the Arctic as to why the Norsemen abandoned Greenland. They had three thousand people living in Greenland at one time—several hundred farms and people raising sheep—but that was in the 1200s, 1300s, and temperatures there were six degrees warmer than they are now. I say "now" . . . this author, I don't know, I'd have to look up when he wrote this book. Anyway, the temperatures were substantially warmer than they are now. There isn't any indication that there's any kind of warming at that magnitude going on now, and I don't know why we should expect it.

DOB: Okay. Paul Siple wrote about the Antarctic by saying that the Antarctic wields a profound effect on character and personality. He says that almost nobody comes away the same as they were when they went there. Do you agree with that statement? And if so, were you changed by your experience?

RH: Well, I guess different experiences change people. He's probably right. And in the same breath, there are other experiences that change people, too.

Paul was a nice man. I enjoyed knowing him. I guess you have met Ruth.

DOB: Yes.

RH: She's a nice lady, too. I consider her one of our friends. I met Paul at Bethesda Naval Hospital. We were both there because they wanted to take additional looks at our hearts before I had already given up my job on Mt. Washington, and there I was depending on this final checkup of my heart as to whether I was going to make it to the Antarctic or not. I was sitting there

waiting to see this cardiologist, and Paul came in and he was waiting to see the cardiologist, too. He introduced himself. I knew immediately who he was. We got to talking and he wanted to know where I'd been. I said, "Well, I've spent five years on Mt. Washington and up on St. Lawrence Island," and he said, "Well, you should have no trouble in the Antarctic." He wanted to know what the worst combination with temperature and wind were that I saw on Mt. Washington. I couldn't remember precisely, but I said, "Well, I can remember once when it was gusting over a hundred miles an hour and we were 40 below." He had a little chart out on chill factor, because he was one of the people who originated this. And he said, "Jeez, that's way off my chart." But anyway, he was a nice man.

I get really put out with the weather people, particularly our own network station, NBC in New York. We got this New York channel and their weather coverage, by my standards, is terrible. Washington, D.C. has some really good weather people—several of them. But they run a map that shows chill factor temperatures, which I think is terrible because they don't explain to you that if you walk around the block to the lee side of the building, you don't have any chill factor. There's no chill factor. Or if you've got any clothes on, there's no chill factor. This is bare flesh that chill factor is related to. Terrible.

DOB: I have one question and that is, what haven't I asked you that you wished that I had, that I should know for my history project?

RH: Oh, I don't know. I just threw in that business about chill factor. I guess I hoped you would ask me about that. And this whiteout business also is a real irritant to me because they've kind of forgotten that is a specialized term and use it on just any occasion when the visibility isn't very good, which I guess is natural enough, but I have a hard time accepting it.

DOB: Anything else?

RH: No. I think we probably should've watched a little bit of that Wilkes Station footage.

DOB: Okay. Thank you so much for talking with me. I really enjoyed it. It was a very good experience this morning for me. Thanks so much.

RH: Okay.

[End of interview]