

**Dale R. Reed**

**6 May 2002**

**Brian Shoemaker**

**Interviewer**

**(Begin Tape 1 – Side A)**

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*BS: This is an oral interview with Mr. Dale Reed, conducted as part of the Polar Oral History Project of the American Polar Society and the Byrd Polar Research Center of the Ohio State University on a grant from the National Science Foundation. The interview was taken at Mr. Reed's home in Seattle, Washington, by Brian Shoemaker on the 6<sup>th</sup> of May, 2002.*

*Well, Dale, this is your interview. We're interested in you as a person and the experience and work you did in the Antarctic. It's best to do this in a chronological sense, but you can still jump around if you forget stuff. So, let me ask the basic question, where did you start out and how did you eventually wind up going to Antarctica? What was your background that got you there?*

DR: My mom was Danish, and my father was an Illinois farm boy. He taught history and math and had various small businesses. And they had three sons. I'm the oldest and then there was Dean and Vernon. Dean died in '86, but Vernon is presently living in Florida. When I was seven years old, we moved to El Monte, California, Salt Lake City, Pomona, back to Denver, then to

Wheatridge where I graduated from high school. So, I think I got my urge to travel and see from Dad and my biking background from Denmark.

**BS:** *You were a vagabond, sounds like. What did your Dad do that moved him around so much?*

DR: He didn't *have* to move. He just kept moving. His reason for moving, he told us, was to look for good schools for his boys because he got really disgusted with the school system. That's why he quit teaching. He actually married one of his students. My Mom was the prettiest student in his high school class at West High School.

Dad wanted to be an engineer. He couldn't because they couldn't afford engineering school, so I, being his oldest son, became the engineer. I got my Bachelor's in EE from Boulder, University of Colorado, in 1957, and I got a Master's in 1965.

**BS:** *Let me ask a question. Boulder has developed into one of the premiere polar research centers in the United States, if you like. Was there any indication of that when you were there?*

DR: Not that I know of. I was in the Engineering School and it was pretty separate in those days. I assume Behrendt was in the Geology Department.

**BS:** *He was a geologist with USGS and he moved up there after he retired. But, he was down in Denver at USGS. They have several different institutes up there devoted to polar research today. So, I asked you that question because I wondered when all of this kind of got started.*

DR: Well, my junior year – summertime between my junior and senior year in college – I came out here to Seattle to work for Boeing, and they had me on a drawing table. And it was a large bull pen. When I graduated from the university, there was no way I wanted to come back here and work in a big aerospace bull pen. So, I was really happy to hear . . . see, NBS was right there in Boulder, too. And some of the guys were working out at the NBS and they spread the word throughout the university, the engineering department, that they were looking for people.

**BS:** *So, NBS was there then.*

DR: National Bureau of Standards, National Institute of . . . something else. It's got other names now.

**BS:** *Did you know Stephen Barnes?*

DR: Yes. Oh, yes. I saw him just a couple of years ago. He was into HAM radio.

**BS:** *I interviewed him. He's in his 80s. Very healthy.*

(50)

DR: Well, yeah. I was surprised he's that old. When I saw him a couple of years ago, he didn't look like he was almost 80.

**BS:** *Did you know Allen Shapley there?*

DR: I know the name.

**BS:** *He wound up being the deputy for IGY. He was with the National Bureau of Standards, and he moved out there and he got the Center funded there.*

DR: It was all sort of a hotbed of . . .

**BS:** *So, you did have some people who had the focus of polar stuff at the National Bureau of Standards.*

DR: Yeah. And I'd always had . . . in electrical engineering, I wasn't interested so much in circuits and building stuff. I did those things, too, as a kid. But, it was more the electromagnetics and that's, of course, the kind of stuff they were doing in the Antarctic. So, it was kind of a natural fit.

I ought to give a little bit of history maybe first, before we get into details of the Antarctic. After I got my degrees and two trips to the Antarctic, I continued working at NBS for a year. And at the very end, I'll mention that I worked on the *USS Eltanin* Antarctic research

vessel and so on. But, Katy and I got married. There's a stone house right in the mouth of Boulder Canyon that I owned and that's where we got married - # 1, Canyon Park, in 1962. And then NBS sent me to Tern Island in the french Frigate *Shoals*, and I told them I'd done my field work and they said, "No, you hadn't," so I quit, went back to school and got my Master's and eventually Katy and I came here. And I worked 30 years at Boeing – first in Aerospace and then Commercial Airplanes.

In Aerospace, I worked on satellite antennas, AWACs, and helped protect the nukes against the Nuclear EMP threat. I was test director of various sites. We had tests in South Dakota, Missouri, Montana where we used big helicopters. The Army flew them around carrying simulators.

**BS:** *These were contract operations through Boeing for the government?*

DR: That's right. Then I toured LORAN sites in Yap Island, Iwo Jima, Marcus Island and then did testing in China Lake, and Mississippi, and so on. Then, I applied the modeling code that we developed to analyze the nuclear EMP in aerospace systems – I call it a sword to a plowshare – to protect the commercial airplanes against induced lightning. And I was responsible for protecting the 777 against lightning threats. So, this is all electromagnetics.

And so this is what I did in the Antarctic and one of the reasons Boeing hired me to come out here. They knew I had done these things. Because we buried antennas, right? The Minuteman sites were buried antennas, which is what Irene Peden did in the Antarctic. The data that they gathered I used in various . . . well, just to analyze the electromagnetic pulse threat on the buried missiles, you had to use the same equations, you know.

**BS:** *When you go after basic research, you never know how its going to be used.*

DR: Exactly.

**BS:** *A lot of people are critical of it, but some of those basic things, all of a sudden, hey, we can do something with this.*

DR: But you're wondering why I'd want to go, it's just that I've always been interested in that field – the electromagnetic field.

**BS:** *So, you were interested in the science.*

DR: Now, my first year in the Antarctic was . . . well, I graduated in '57, in engineering and then trained at the National Bureau of Standards. All I had to do was bicycle another mile and a half to get to the NBA in Boulder, to train to go to the Antarctic.

**BS:** *What did you do to train?*

(100)

DR: Well, we had an ionosphere station that looked very much like the one we had in the Antarctic. It had a machine there and it had a large antenna – 90 ft. tall – triangular shaped antenna.

**BS:** *What kind of station was this?*

DR: You send energy up to the ionosphere. It's a rawinsonde, I think that's what it's called.

**BS:** *Yes.*

DR: And it reflects and it comes back down and you get a photographic recording of the height and the densities, the critical frequencies – we had to scale all this by hand. So, we had to train so we could tell where the e-layers and the absorbing layers and all of that. And, of course, this was the IGY, so these measurements were being made all over the world and then could be correlated. This was before satellites, see, so this and the VLF that I'll talk about – very low frequency – are all ways of understanding the outer ionosphere regions of our atmosphere.

**BS:** *So, your training was with exactly the same equipment that you would be using in the Antarctic, eventually. At this point, that you were planning to use in Antarctica.*

**DR:** My first station was at Ellsworth, and actually I did this ionospheric work at both stations. At Ellsworth and then later at Byrd Station. I was in Deepfreeze III, but the people in Deepfreeze II, set up the station and Skidmore and I don't remember the other guy's name, had a very difficult time setting it up because they didn't have any wiring schematics and there was a big kind of a goof off. But, once we got there, it was working pretty good, which was kind of the plan because we spent a whole year during IGY gathering, as far as I know, good data.

**BS:** *Let me back you up a little bit, back to Boulder here. You're working there at Boulder by yourself on this stuff, or with others who were going to go down there to other stations?*

**DR:** There was about a dozen of us. There was the guy at Wilkes, South Pole, Little America – Jim Sherwin, I could probably name them all. But, there was about a dozen of us training for Deepfreeze III.

**BS:** *If you could name some of them, it would be handy for me because I network to get hold of these guys, or are they on this paper?*

**DR:** No, they're not.

**BS:** *Do you know who was at Wilkes?*

**DR:** Allison . . . Bill Allison and Don Evans. I think they were at Wilkes. There were two of us at each site. Sherwin was at Little America – Jim Sherwin.

**BS:** *South Pole?*

**DR:** Oliver Cromwell Morris III. I think they only had one fellow there and I'm going to mention him later because he was on a traverse. And at my station, there was me and Louie Semprebon. Now we're talking about Ellsworth. There was another Jim. What other stations do

we need here? May have been another one at Little America. I can't think of his name right now – from Brown University.

**BS:** *That's a start for me.*

DR: Byrd Station, there was me and . . . now we're talking about Deepfreeze IV, and I don't think they called it Deepfreeze V. I think they called it something else.

**BS:** *Deepfreeze, '60- '61.*

DR: At Byrd, there was Freddie Iverson – a Dane and I ran that. He did barely speak . . . there were a lot of funny stories, but we won't have time today to hear about that.

**BS:** *And that was in '60 what?*

DR: Well, that would have been '60. Most of it would be '60. It would be '59-'60, '61.

**BS:** *OK, so basically what you're telling me is that you had the same research with the rawinsonde type work going on at all the stations during IGY.*

DR: Yes.

**BS:** *Was the work coordinated?*

DR: Oh yeah, but you know in those days, you couldn't coordinate like you can now because it was all using the ionosphere. You could see the sun spots. I used to take sun shots. You'd see them coming around and I'd tell them, "Hey, you'd better get the traffic out because we're going to be down for a while here." Of course, the ionosondes are a big pain for the radio guys because – well, you were down there – every fifteen minutes, and then on the hour. Then there was a special day when you'd have them every 5 minutes.

**BS:** *When I was Commander at McMurdo, I'd send a plane load of people north to Christchurch, and as soon as they went over the horizon, we didn't have a line of sight and we didn't have any communication. And I didn't know if they made it safely or not for two weeks.*

*And it was really uncomfortable for me. That's a big long stretch of ocean. You didn't know whether to call rescue in Christchurch. Nobody talked to us. But, anyway . . . that's when they got the first satellite receptors. URC123 Air Force and we used the Less-9 satellite, the President's satellite. We got a channel on his satellite.*

DR: C-123, I saw it on the web yesterday because I was going to mention it here, later, after the Antarctic . . . well, I did some tests for NBS – I already mentioned it – on Tern Island. It was the Johnson Island test and we flew in and out of there – it was C-123s. They were terribly noisy!

**BS:** *It was better than what we had! We had coms for 6 hours a day, it was a Figure 8 at 150 degrees west over the Pacific. It was a Less-9 satellite, environmental labs in Cambridge satellite. But, it was the President's satellite. Anyway, let's back you up again. I want to get you from Boulder to Antarctica and find out something about your route and what you did. First of all, was there any other training before you left home? Survival training?*

DR: Oh, yeah. We went back to Washington, D.C. where we met Crary.

**BS:** *Did you go to the Skyline Conference?*

DR: Yeah, and there was a real funny guy. English guy, he's written books. I can't remember his name.

**BS:** *Charles Swizzenbank. "Alien in Antarctica," was his first book.*

DR: The main thing of interest was that that was the first time we met some of those people we were going to winter-over with. This was not Admiral Byrd. This was the US Govt picking people from here, there, and the next thing and throwing them all into a pot to winter-over for a year. And there were some pretty weird . . . well, I guess we were all pretty weird. That's an interesting part of the whole trip.

**BS:** *You met some historic guys there, didn't you? Swizzenbank . . .*

DR: Certainly him. Everybody remembered Swizzenbank.

BS: *Well, he went back to 1948. Everybody remembered him.*

DR: And then another training . . . I was about a week at Berkeley, because in the Antarctic, I also ran a cosmic ray station for Brode at Berkeley. There's a lot about him on the web still.

BS: *Is he still doing that?*

DR: I saw the station operating there and then they tore it apart and shipped it down. And when I got back down there, I built it in a Jamesway hut and we'll probably talk about that.

BS: *Now, who was the principal investigator on this?*

DR: Dr. Robert B. Brode. University of California at Berkeley. Cosmic rays.

BS: *And that was at Ellsworth and you operated that . . .*

DR: Well, I built it. I'll probably come to that in just a minute. We don't want to get too much out of order. My training was mainly in Washington, DC, California and at Boulder. Of course, one of the reasons I had always assumed I was chosen was because I was a skier and a mountain hiker.

Now, as to how we got down there, we left Norfolk on the 27<sup>th</sup> of November, 1957, on the *Wyandot*, to Dakar, French West Africa. And as we went across the Atlantic Ocean, I operated a Precision Depth Recorder for Columbia University Lamont Laboratories and as far as I know, that was the first time. I think we were mapping that mid-Atlantic range one of the first times. At least, everybody seemed to be really interested. I was up in the bridge. It was dark up there, red lights and it was so exciting. Here I was a 22-year-old kid, hardly ever been anywhere. And you'd send a ping out and it wasn't working right. So, you couldn't tell which 600 meters, or fathoms I guess it was, on. It was changing fast. You could see those mountains going like this

and so you had to count – 1000, 2000, 3000 until you'd hear the reflection, then you could write it down on the chart.

**BS:** *You did this by hand.*

DR: Oh yeah. Well, I can remember other people would do it for me because I couldn't do it 24 hours a day.

**BS:** *What did you go to Dakar for?*

DR: This was on the way to the Antarctic, to go to Dakar, French West Africa for a couple of days, and that's where we met the *Westwind*. And then we went across the Equator. And that was an interesting experience to me, too, because, like I said, I was just a kid and I had a pretty idealistic view of human nature and we'd been teaching courses – our scientific leader was teaching whatever – the IGY – and I was teaching the sliderule to the Navy guys about the ionosphere and all that, and we were all a happy family.

And then we started to go across the Equator. Then they beat the tar out of us! I mean, Brennan, who was grey-haired already, couldn't sit for a week. He was bleeding and it was just a little thing for me. I had to shave my hair and they cut all my goatee off. They said I was impersonating a goat, and all of that. That was no big deal, but I didn't realize how vicious these friendly Navy guys. . . well, it wasn't just the Navy, it was human nature, and I learned a lot about that crossing the Equator.

**BS:** *They do it on commercial ships. They do it . . .*

DR: I don't think so. I don't think they beat people on a commercial ship. . .

**BS:** I don't mean cruise ships.

DR: No.

**BS:** *The old commercial ships. That's all pretty much gone away, but we had initiations on the cruise ships. We dunked everybody in a tub of ice water and they came out of there, man . . . But, they all had to get that certificate.*

DR: Crawling through that tube of garbage and grease. I don't know if they'd do that. It was hard to get all that washed off. They had black soot in there.

**BS:** *We didn't do that.*

DR: You'd see people taking a shower afterwards, their rear ends were just bleeding and it was hurting.

**BS:** *They finally had some lawsuits and you had to agree to go through. And they had somebody carefully watching us. It's calmed down.*

DR: Well, you wanted to hear about the good ol' days. So, then we got to Cape Town, on the 22<sup>nd</sup> of September, and I hiked up to Table Mountain. I was a hiker, and I was going to come down that tramway or cable car, but it was too windy. So, I had to hike down and I met a couple of schoolteachers there from Rhodesia, and John Pirrit, who was our glaciologist that I had taken a liking to. The four of us were together and I'd invited them all to Christmas dinner. We had Christmas dinner and then they had a little Hillman-Minx station wagon and they took us out to the beach and I can remember the moonlight, and it was just a wonderful experience.

Then, we went through the screaming 60s and the serious 50s or whatever it was called. And the icebreaker . . . we couldn't go on deck because the landing craft were breaking loose. But, you could look out the port hole and you could see the icebreaker disappear, the waves were so big, that was something else. Then it calmed down and I remember standing on the bow of the *Wyandot* with Commander Schlossbach.

**BS:** *Ike Schlossbach. So, you knew Ike Schlossbach.*

DR: Oh, man! I was a kid and he was retired Navy and he even had his old seal skin parka . . . stiff, and he was genuine. As I remember, he only had one eye.

**BS:** *I've never met him, but I've heard lots of stories about him. Everybody thought he was a character.*

DR: And it was grey. Water was grey, it was calm. The sky was grey. And you could barely see the horizon. And he said, "You watch that horizon." He was so excited. He said, "We're going to see that ice blink. We're going to see that ice in the sky. We're going to see the water light color coming up." And sure enough, we saw it and oh man, that was something else.

**BS:** *Ike was on the second Byrd expedition, third Byrd expedition, Ronne expedition.*

DR: So, we steamed into Halley Bay, and the Emperor Penguins were there and they got a landing craft off and a bunch of us went on shore and I got photographs. The film all turned green on me. I had thousands of beautiful slides – Kodachrome – that are still good. But there, you know, the English are tough. They go for two years at a time and they were anxious to talk. They came down there on a Ferguson tractor pulling a sled, to take us up to the base. Of course, they got stuck and here I was, a greenhorn, so I was helping, pushing it out, but for some reason I'd taken my gloves off and of man, did I cut my thumb on a fender. You know they had big floppy fenders. And I was a kid, I was trying to make a good impression as an intrepid explorer, and there I was bleeding and I was embarrassed. So, I stuck my hand back in my glove and when we got to the site – here I was, meeting my ionosphere compatriot and he was showing me the data and we were . . . and I was shaking hands with everybody with my gloves on because I was afraid they would make a big deal over it.

Well, anyway, then the captain of the *Wyandot* wanted us all back on and we were not behaving very well. He sent this helicopter after us and you were mentioning before, riding in a helicopter. How exciting that was! I was one passenger in this helicopter, tilted just like that coming off the Ice, over the penguin rookery, off the ice shelf. The ship is out there in the icebergs and oh man, really exciting. And landing. And then I got it all sewed up and about fainted when they took my glove off.

**BS:** *So, you flew back in the helicopter.*

DR: So, we got back to the ship and I don't think we had any trouble getting into Ellsworth. I don't remember any big deal. We tied up at Ellsworth Station and at Ellsworth, they had the ionosphere recorder, we did the cosmic rays, and I had to wait for a Jamesway to be built to put the cosmic ray station in. It was heavy – lots of lead and lots of paraffin and I had mezon telescopes – two of them. And then a big neutron pile. All that took lead. And I had to build it just right. And when I first turned it on, I don't think we had heat in there yet. You know, these electrolytic capacitors and paper and I turned the switch on and I thought, boy, this is really going to be exciting, and it was because all the capacitors were frozen solid and they exploded! And they started to shoot paper all over. Fortunately, I had some extras. Anyway, now I laugh, but the data wasn't all that great on the telescopes because I noticed later, when I turned on a light in the building, you could hear the cosmic rays coming through. They'd be clicking and then the counter would be clicking – two, four, eight – and then one day, I turned the light off and there wasn't so many cosmic rays. What had happened was that the tubes, the black glass tubes, had lost their black coating coming across the Equator, I guess. So, I wrapped them in tape and did the best I could. But, that data wasn't all that great.

**BS:** *That was for Robert Brode, huh?*

DR: Yeah.

**BS:** *Did you hear the name Martin Pomerantz?*

DR: No. I guess I could mention now, the VLF measurements that I did later at Byrd . . . that was done by Semprebon at Ellsworth for Morgan, and Helliwell was at Byrd. And I think I just noticed that Morgan just died. These were very exciting people, especially for engineering types. They're thinking all the time. And Morgan had actually heard the whistlers the first time, I think, on the telephone. It opened a whole new area of ways of probing the ionosphere in those outer regions before we had satellites.

The other half of the Jamesway that was built for the cosmic ray research was a church. And I eventually moved out to sleep next to my cosmic ray stuff because of some personal problems we were having on the main base. And so on Sunday mornings, they would walk by me and I'd wake, but there was a curtain there. But, they were listening to my cosmic rays coming in and I could hear the tinkling of the bells of the Catholic priest. It was kind of weird.

**BS:** *So, you got off the ship there, and you relieved someone?*

DR: Finn Ronne and his crew. He even mentioned me because there was something wrong and he was complaining that I was complaining about his precious base. He didn't put my name in his book, but I knew who he was talking about. So, we replaced Skidmore. He was the ionosphere guy before me.

**BS:** *So here you are, you're replacing these guys. How did the camp look when you first got off? What was your impression?*

DR: We were about a mile away from the shore on a floating ice shelf. I mean it's gone now. It's gone. In fact, I was looking on the web last night and you can see the satellite pictures and so on. I think it was 700 ft thick and it's floating on a couple thousand feet of water. So, it's uphill

and not much . . . there was a little interesting stuff down by the shore, but then it gets flat. And then you go down inside. See, this was the summertime, so there was a lot of light in the passageways. There was melting ice and you had to be careful walking between the buildings. You kind of learn to walk being balanced all the time. The ice would melt and you had to keep chipping it away. And there's all burlap between the buildings. The snow would melt through and it was hard to clean that off.

But, I guess one thing you notice that's kind of a shock is the lack of privacy. You're taking a crap and so on and you're talking to the guy next to you. And one reason I mention that is you get used to it, but when the Argentines came in to take over the base – essentially we gave the base to the Argentines - that's the first thing they did was to start building up dividers between the crappers and we thought it was so funny. But, one thing you notice when you go into the base was how it stinks to high heaven. Of course, the guys that left there, their olfactory organs were gone. They didn't smell a thing. I remember at Byrd, that was a thing for the new guys that would fly in. Ellsworth, you just went in by ship and they left and then you were isolated – completely different situation. But, it did stink down there.

I don't remember any first impressions. Everything was all new. It was very comfortable where we had all our equipment. The Seabees did a wonderful job. I really admire those people.

**BS:** *What was your breakdown of the camp – how many scientists and how many Navy?*

**DR:** That's a big difference in the situation there. See, I had experience in two different situations there. At Ellsworth, we had 40 people and you had your black shoes, and you had your Seabees and you had your airdales. We had a helicopter and we had two Otters, a gooney bird out there.

**BS:** *You had an Otter?*

**DR:** We had two Otters. But, we about 20 guys there that didn't have anything to do all winter. So, that was a little bit . . . We didn't have any of that at Byrd. We only had 20 people at Byrd and everybody had work to do. So, these were fly boys and they were mechanics and whatever.

**BS:** *And they didn't fly in the winter, so they didn't have much to do, right?*

**DR:** But, that was part of the issue, and the main reason I mention it is that everybody knows they had trouble the year before with Ronne, and he would have had the same situation. He would have had about 20 guys that didn't have enough – or hardly any – work to do and you can imagine. I expect now, they can watch videos and TV. But, we were pretty well isolated. If you're not a reader, all you are is a bull-shitter. Of course, we had HAM radio – KC4 Uncle-Sugar-Whiskey. And all of us, whether we were HAM operators or not, took our turns, especially electrical engineers like me. We spent a lot of time on that HAM radio, and there were wonderful HAMs back here. Jules?

**BS:** *Yeah, he's mentioned a lot. He did it for years.*

**DR:** And talking to my parents and in Arizona, there was a blind HAM operator there. Steve Barnes, I know, patched me in to my folks.

**BS:** *You go to Steve's house now and he's got a room about this big and it's nothing but radio equipment. And he lives up on this hill up behind Boulder with a rise as you look to the West. He owns the top of that hill. Always has. He bought it way before IGY. And his antennas are in the middle of a residential neighborhood, fancy places . . .*

**DR:** Probably against the rules.

**BS:** *For everybody but him because he was there. They can't outlaw him, so he's still there and owns more land than anybody there.*

*So, I understand what you were saying. You leave a flying detachment down for the winter and there's not much for the maintenance personnel to do. And the pilots, if they're not flying. I flew during the winter at McMurdo, but not much. We had plenty of work, plenty to do.*

DR: Well, at McMurdo, you could actually fly most of your mechanics out during the winter and then fly them back in in the spring. But, we couldn't at Ellsworth. Same thing at Byrd.

**BS:** *In my day, a small helo unit stayed over to check out the GTAs for the planes that were flying in, because, in those days, they came in almost out of fuel and if the weather was bad, you'd better have a good GTA radar, up and certified. And for me, it was kind of crazy because I flew a hop in in June for an experiment and I had \_\_\_\_\_ checking out the radars flying, and when they came out literally they had a full moon and it was right down the ski-way. They had these barrels out there with oil burning in them. They didn't have to light them off. You could see them like daylight. And, of course, I took off and was flying around when they came in and landed, and I came in behind them. Anyway, I was the guy that said we don't need to winter over anybody here. You really can't do any functional flying for the scientists. You can't take them out to the mountains in the dark and that type of thing. Plus, there was no rust cap for me. I was the only guy. And I did it. I flew over to fly over to the dry valleys. I could land at Marble Point, but I didn't go in to the valleys.*

**(End of Tape 1 – Side 1)**

**(Begin Tape 1 – Side 2)**

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**BS:** *I didn't mean to interrupt you on that.*

DR: The whole year of experiences there – the kind of thing I remember is their calling me “Digger,” because I kept having to dig out the antenna wires because the snow would load them

down. The ionosphere antenna was 100 ft. long, and it would get buried 6 ft. real easy. And it would get loaded down and break, even though they were copper covered steel wires. And also I dug out the Otter airplanes. They didn't protect them very well in the winter and that was difficult digging because you would have to break the ice loose, but you had this delicate aluminum skin. But, I dug a lot of that out, and the wings and so on. So, in the spring they gave me nice flights out and I got to sit in the cockpit in the co-pilots's seat. And I remember once we flew out on the coast to where Belgrano base was and we hit a white-out. I suppose you've been in plenty of those. Or maybe you stopped flying before you got into one, because that was something else. And we landed, fortunately. We had a smart pilot and we walked up to the base and passed their dogs and this Argentine base, and went down inside and were there a couple of days and they were so gracious. They had a big pile of booze in the middle of the floor. They'd been burned out. A lot of their facilities – they'd had a fire. They gave us their beds and I got to talk to the ionosphere guy as well as we could – two different languages, of course. And we had quite an experience there. We eventually flew back, and the only reason I was on the airplane was because they were trying to reward me for digging.

Another thing I remember doing at Ellsworth, I sewed some bedsheets together and then would walk upwind – into the wind – and our skis were flat and had ropes on them, and we'd come flying back – you had to be careful that you walked up wind because it would blow you back into the base.

**BS:** *Did you put a framework to hold on?*

**DR:** No, I understood some of the guys used parachutes. That would have been a ride. But, I just used two sheets and some ropes on there. Nothing very fancy.

**BS:** *Really moved out, huh?*

DR: Well, another thing we did, now that I think about it. The Seabees cut a weasel up and made it into a hotrod. Painted it baby blue. And they put long ropes behind it and the crevasse detector didn't work very well, so we had those aluminum dishes and we tied them on a long rope. And I remember we had a little black guy. I had one ride with him. We had one black fella on the base that we wintered over with.. So, they'd get this weasel going like hell and then they'd whip you, really sharp. Here were the two of us, trying to hold on in there and it's rough, you know, with the sastrugi. We'd go whop, and they could flip you off any time they wanted.

**BS:** *Did you have any control?*

DR: No, you didn't have any control. You were sitting in this dish with a rope on it. The guy in the weasel had control.

**BS:** *One of the geophysical dishes that told you where crevasses were. They didn't work at all. Anywhere in the Antarctic, they didn't work. You see all the photos. They look the greatest, but nobody . . . I'll tell you what. The guy, he was a CM-1. He was the only mechanic . . . well, he had the Cats, the generators and everything else. And they have to go out to these outlying stations. So, he gets a D-4 Cat and he kicks the windows out on the bottom, on the back, and he puts a rope on the clutches, and he sent it ahead about 50 ft. And that was his crevasse detector. And he left one of them out there in a crevasse. He said if he had been riding it, he would have gone in with it. It was like 100 ft. down in the crevasse.*

(50)

DR: Well, they lost a D8, out of Ellsworth on one of those traverses that Behrendt was on, probably. And I remember going out there and I think I skied out to see it. I used to do a lot of skiing.

**BS:** *Well, you had the grand chasm.*

DR: Yeah, well by coincidence, I just found out on the web last night, and the Cat was down there not real deep, but it was quite a problem getting it out. So, they did get it out. Oh, I remember him saying, “Boy, that Cat went down and I skittered out of there just like a rat going up a rope.” It busted the cab a little bit. As I remember, a tip of the blade was still sticking out. It wasn’t 100 ft deep.

**BS:** *You guys had to get it out, huh? Behrendt’s group?*

DR: Well, the people supporting Behrendt. The Seabees. They were tough. So, we did skiing, and I taught a sliderule course.

**BS:** *You taught a sliderule course.*

DR: Yeah. And also, something different. There were some strains and stresses I’ve already alluded to. So, as far as I know, I was the only civilian that did my turn cleaning heads and doing fire watch and I made a big deal on the bulletin board about being the best cosmic ray station in the whole world and I made a big deal of it and if you wintered over, it’s delicate. Some of the other civilians would be jealous that I was . . . but, I thought the guys in the Navy, the support, were appreciative that I did some of the dirty work.

**BS:** *And they’d do anything for you that you wanted, right?*

DR: Oh, yeah. I’m going to point out something.

**BS:** *We all did KP. Admirals, captains and what have you, once a month will go down and do the KP. Serve the chow and sailors would go along with it - “Gimme me some more,” and “Did you fix this crap?”*

DR: They do stuff like that down there.

**BS:** *On every Navy ship.*

DR: Oh, I never heard of that.

**BS:** *The lead guys do. I did it. Admiral Tyree, when he went to South Pole, one of the guys I interviewed said he couldn't believe that as soon as we were done with dinner, he went in and cleaned the dishes. It's a tradition. The men are sensitive to it. They do this grunt work all the time and they kind of go numb, but then they hear somebody say, "We appreciate what you're doing."*

**DR:** This was a coincidence. One of the guys in my sliderule course, when he was doing his fire watch. He actually did a good job. He came out and looked at my Jamesway because it was kind of out and away, and he saved my life because I had heaters on each end and the wind had died down and I had them turned down low, and they were throwing up smoke. And I was asleep in there.

**BS:** *He got you out.*

**DR:** So, during the winter, just kind of a personal thing, the glaciologist, Bob Goodwin, who I eventually visited in Alaska, was a little squirt and he was trying to gain weight. He wanted to be big and muscular. So, I lifted weights with him and eating all that meat, I got up to about 225, and man, I was pretty near as strong as my oldest son is now. But, that food, we should mention that boy I sure love my vegetables now, and my fresh fruit more than I did before. They did the best they could.

(100)

**BS:** *Are you a vegetarian?*

**DR:** No, why are you?

**BS:** *Yeah.*

**DR:** I've tried it a few times.

**BS:** *I gradually got into it. My wife is a Seventh Day Adventist and they're vegetarians and they've got longer life spans and no cancer.*

DR: I know you're looking good and I know you feel good.

**BS:** *It's only pretty recent for me. We still eat fish. I take skim milk. I really did it to cut the fats out – saturated fats. My wife was cooking two meals and she had for years and that was better than hamburgers and stuff. We were very careful. I weighed, even when I didn't eat right and drank too much beer, it didn't vary much. When I wintered over, I lifted weights. I could press 250. I was 29 years old. I took it up again.*

DR: Four months of darkness and Aurora Australis was beautiful. It was mostly greenish yellow – 5577 angstroms.

**BS:** *You saw green?*

DR: Yeah, mostly in the Antarctic. That's my experience. Greenish-yellow. I saw a lot more in Byrd. But, I do remember one very bright red nitrogen 9300 angstroms – aurora there. You've got a photograph of it.

When you were talking about drinking, this was kind of a coincidence. I never drank and I wouldn't drink with them. There was lots of booze down there. But, I told them I'd drink with them on New Years. So, they got me so drunk and I was so sick and I can remember going out of the Jamesway - I had cut in the ice for steps to go up out of the Jamesway, and those were covered with soot and I just went and threw up time after time. I don't even like the smell of that any more. It cured me. I'll drink a little wine with Katy once in a while.

**BS:** *I don't even do a glass of wine any more. I don't do much. So, was it mid-winter party when you did that?*

DR: Yeah, either that or New Years or something. I forget exactly when it was.

No, mid-winter would be June.

**BS:** *21<sup>st</sup>.*

DR: Well, it could be actually. Yeah, of course. No, it wasn't dark. Because I remember going up those steps. It wasn't mid-winter.

One thing nobody else would have the experience of is that I have a famous brother, Dean Reed. If you do a search on the web, you'll find a lot. And I spent a lot of time answering a lot of questions about him. He's dead now, but I could hear him on the radio. I could hear him singing in South America.

**BS:** *You're brother was a singer?*

DR: Yeah. Dean Reed. There's lots of books about him and I think Tom Hanks is going to make a movie about him. And I could hear him in the Antarctic. He was kind of a Frank Sinatra in South America for a while. And he'd get in trouble with the CIA and all kinds of side things that we're not supposed to be talking about here, I guess.

(150)

So, a lot of skiing and hiking along the edge of the barrier. I wasn't supposed to. I wasn't supposed to leave the base, but I'm sure glad I did because it was beautiful along there. There was penguins and eventually, in the summer, the guys would go down and go fishing. And we had dogs. Of course, the dogs would kill the penguins. I don't suppose the guys would like to hear about that.

**BS:** *Did you drive dogsleds?*

DR: No. We had them as pets. The Argentines had given them to us – Tina and Tony. A couple of dogs.

OK, when we turned over the base – I think the name of the icebreaker that came in was the *General Belgrano*, but I can't find anything on the web. Well, I might have. It wasn't called an icebreaker, but it was something like that. *Belgrano* was sunk during the Falkland war.

**BS:** *Yeah, that was a battleship.*

DR: Was it a battleship? I think it said cruiser. Whatever. But, the icebreaker that came in was a windclass icebreaker that I understood that the Germans had owned and then the Argentines. Anyway, they brought in our replacements. They did a quicker job of getting in in the spring than our own *Edisto* did. The *Edisto* was coming to pick us up, supposedly. So, they came in and I turned over my cosmic ray station to a fellow that spoke Spanish. So, we'd all been practicing our Spanish because we knew this was coming up. And then a lot of guys got on that icebreaker and left. On the Argentine icebreaker, whatever the name of it was.

**BS:** *The military guys did?*

(200)

DR: Everybody, except for we called ourselves "the faithful twelve." We were going to wait for the *Edisto* and we'd winter over again if it didn't come. They were out there battling their way to us and I was the only civilian. And I had a helluva of a time convincing Lieutenant Tidd, he was our commander, fine fellow. So we moved out in the Jamesway house. Some of us did. They had a whole extra emergency base at Ellsworth – a Jamesway house. And so, I can remember eating C-rations and it was a little different environment for a few weeks. But, I'm kind of fuzzy on that now.

**BS:** *They renamed it right away – Belgrano.*

DR: Oh, they named the base?

**BS:** *Argentines did.*

DR: See, there's more than one Belgrano. There's 1 and 2, and so on. And I think that was the name of the base we had. That's why I'm kind of confused. The base that we actually visited out there when we got in the white out, I think they called that Belgrano and that may be Belgrano 1. And then they may have called Ellsworth Belgrano 2, or something. But, it's all gone now.

**BS:** *Who had the better facilities? Us or them?*

DR: Oh, they had been burned. They were still there, but they were all in one big buried building. They didn't have any caterpillars or anything there, so they didn't have any snow team.

**BS:** *This is after IGY had ended, right?*

DR: We were there the last two-thirds of IGY at Ellsworth. I don't remember the cut-off.

**BS:** *December 31<sup>st</sup>, 1958.*

DR: So, this was in February or March of '59. So, this would get close enough so that Tidd cranked the horse up and we flew out and that's where we were up high and you could see the *Edisto*. It was way down and he eventually landed on the flight deck with that big helicopter. You had to walk underneath the helicopter and the door was on the stern side and you had to crawl underneath the helicopter and everybody was really interested. We were pretty scruffy and all that.

**BS:** *How come you didn't want to go out on the Argentine icebreaker?*

DR: I don't know, just . . .

**BS:** *Wanted to stay longer?*

DR: No, I didn't want to stay longer. It seemed like the thing to do, Brian.

**BS:** *When was the first landfall you made?*

DR: So, the *Edisto* eventually got to the base. Obviously we weren't all in the helicopter. We just flew out there and visited. Then we flew back, and the *Edisto* finally got through the ice and

the “faithful twelve” got on board. And then we spent about a month in the ice. We went over near Halley Bay, but there was another base over there. I don’t know if it was a french base or what, where there was a Norwegian ship, having trouble or stuck or something. And the *Edisto* towed it or I don’t remember. But, it was beautiful. The thing I remember to tell people is that it was the summertime. There was the sea ice and it’s getting later in the season now and not only all the different shades of blues and the big icebergs and all that, but the pinks and the oranges of the sun low on the horizon. And it was calm.

So, that was over and we took off up to Buenos Aires, Argentina. And eventually, I remember seeing my first jet commercial airplane on the field. And then we flew to Brazil and overnight in Trinidad with steel bands and the rum punches and all that. Drunken sailors. Poor guys got rolled. We were picking them up going back to the airplane and they were out in the grass, all dirty. You know their whites weren’t white any more.

**BS:** *Take their money?*

**DR:** Oh, yeah. It was so sad.

**BS:** *They must have had a ball in Buenos Aires. I’ve never seen so many beautiful women as in Buenos Aires. The last seven years when we’ve gone through there, my wife and I, and gee, they are beautiful, beautiful women. And what’s interesting is that the Americans are grossly overweight. Down there, they’re not.*

**DR:** No, but they eat a lot of beef.

**BS:** *But, they eat a lot of lean food and they don’t eat big portions. You go to the restaurants. It’s like being in Paris. Marvelous restaurants. You can get anything you want. But, they certainly are more akin to keeping healthy it looks like to me.*

DR: You know. I'm confused now, but I think Schlossbach was on the *Edisto*, coming down. Because . . . when we were back in Argentina, I'm almost positive he and I went into a store where we were going to buy leather jackets. And he and I had been practicing our Spanish. I, for the cosmic ray turnover, and he was that kind of a guy. So, we went in this store and he started talking to this good-looking salesgirl in Spanish and she answered him in English. And he hesitated just a second. He wasn't going to speak English to her. He kept peaking in Spanish, I thought it was so funny.

**BS:** *I'd run into that down there. They want to practice their English. And you want to practice your Spanish. You have a hard time. My wife's from Holland and I go over there and the first time I went, I studied Dutch for 6 months. She's got 7 brothers and sisters. She's one of 8, and her parents, aunts and uncles. They all speak English. They want to practice their English. The whole country speaks English. And I'm trying to practice my Dutch and their English is a lot better than my Dutch. And they want to practice. But, they won't let you speak Dutch. Germans are different. If you don't know German, they're not going to bother with you. I shouldn't say that, but a lot of them speak English.*

(300)

DR: I went back to Boulder and thought I was going to be a geophysicist. And so I started geology at the University of Colorado – Master's. But, I didn't last very long. And I'd already bought a little red MG in Jacksonville, Florida, so I drove that to Fairbanks Alaska and visited Bob Goodwin out there. And then I shipped it home. I mean I went out to the University of Alaska working on the aurora or something up there. Had all my stuff in my car. Wasn't much room, obviously, in that little red MG. But, I shipped it home and the tires were all wore out.

You know it's 1500 miles of gravel. And I returned to Boulder and signed up for a second trip to the Ice. Signed up for another year in the Antarctic.

**BS:** *What year was this now?*

**DR:** This is 1959. Byrd Station, this next time.

**BS:** *What time of the year did you sign up?*

**DR:** Well, it would have been in the summertime because I drove up to Alaska and was there 3 or 4 weeks. So, I had just come back and I think I signed up right away. Byrd Station was going to be ionosphere and radio noise and VLF – very low frequency.

**BS:** *When you're talking VLF, what do you mean by that?*

**DR:** Well, that was Whistler's West, from Robert Helliwell at Stanford. And the best way to start on that subject is to say that in the Northern Hemisphere, there could be a lightning flash that, if you were in the Northern Hemisphere, you would hear a crack on the radio because there's lots of frequencies. Just noise. But, that energy would travel out along a line of magnetic force to the ionosphere and back down to the, well, in this case, Byrd Station in the Antarctic, and the energy would be dispersed. The frequencies would kind of be spread out and so instead of hearing a crack in the Antarctic.

(350)

Actually, there may be a ground wave or sometimes you might hear a crack, but a whistler you wouldn't. You'd hear \_\_\_\_\_. There's a lot of those on the internet. You can listen to them. And so those were whistlers and sometimes you'd hear – I think I counted up to twelve and they get longer and longer, of course. Because they've gone back and forth like this.

**BS:** *As they bounce, they get longer.*

DR: They get dispersed. Supposedly the prime reason for doing that at that time was to probe the ionosphere because we didn't have satellites. As I remember, it was at Byrd that we heard about Sputnik. I think we heard about that on the radio.

**BS:** *Actually, it came along at the tail end of IGY. The Russians put it up for IGY, as a part of IGY. James Van Allen detected it when he was on the Glacier in '58. Sputnik I.*

DR: That was when we were at Ellsworth.

**BS:** *They planned it for IGY and announced it at the meeting in Paris. Nobody believed them.*

DR: So, there was other things when you were listening. We recorded for two minutes, every hour. This was a regular tape deck. We had an antenna on the surface. But, these are audio, they're all around us here. We just can't hear them because of the power lines. But, it's quieter down there. People would think I was crazy. At Byrd Station, I would work by myself away from the base and I'd come in and tell everybody what I was hearing and they'd think I was nuts. You know, it was the aurora zone so there was an aurora every night. I was out every day going to my base – my rabbit hole, I called it. I'm a Winnie the Pooh fan, so all this VLF stuff and radio gear was away from the main base.

**BS:** *Now, the radio noise is opposed to whistlers or . . . ?*

DR: Radio noise is a narrow frequency – one is sort of a broad frequency. VLF is . . . lots of frequencies at a much lower frequencies, the ones that can get to the ionosphere and so on and then I don't even know if they know what causes them. A lot of that is coming from outer space, I think. But radio noise is, I think it's eight different specific frequencies – 10 megahertz and 5 megahertz, 2-1/2. I think it went down to about 1/2 a megahertz and that was recorded on and off, continuously.

**BS:** *Who did the frequency studies?*

(400)

DR: Oh, international groups. Radio noise at Boulder had stations. It was kind of like the ionosphere group. They'd been doing this for a long time and they just applied it, just built a lot more machines when the IGY came along. The radio noise data was definitely contaminated by the Byrd Station noise. We were not, in general, measuring atmospheric noise which is what we were supposed to be measuring. Things like radio noise and ionosphere data is actually used, in those days, by airplanes flying long distances. They've got the HF probes out on the wing tips and the vertical fins and in those days, everybody was using the ionosphere and how small a signal you could work with would depend on the atmospheric radio noise or the actual noise at the site and in our case, in the Antarctic, the radio noise was so small. Radio noise is caused by lightning, mostly. And we were a long way from lightning. So, it was so small, it was difficult to measure down there. And besides the bases were noisy and we had a long power line going out. We were a third of a mile away from the main base. And there was one funny story. I guess the data that the guy before me had taken back with him to the States, I heard a story that he had taken that data and he had seen a regular peak in noise at 4:00 AM and 4:00 PM and he built up some kind of model with the moon and Saturn and it was the rawinsonde, setting off the weather balloon. So, that was kind of funny.

I could see what it was and I started telling him to watch out for that. But, somehow they didn't catch that the first year. That's one of the reasons you've got to have a person there on their toes rather than a robot, to be sensitive to what else was going on. You go back inside and you're talking to the weather guys and they say, "Well, we've got this 4 o'clock weather balloon

. . . ““Oh, well that’s interesting!” You go back and look at the data again and you think, ‘Oh my goodness, that’s what that is.’ It’s a thyratron in the big tower above the site.

**BS:** *You didn’t have the long wire then did you? Irene Peden’s stuff?*

DR: No, that’s a whole other thing. She went down - I don’t know. I assumed she was paid for like by the Minuteman program or something because they buried antennas in the Minuteman site.

(450)

And both – I know guys here at Boeing that actually went down for part of her project, but certainly associated with . . .

**BS:** *She was in charge of this project for 5 years before she could go down because the Navy didn’t want any women down there. Not because they didn’t want to have them in Antarctica. They would have let them in Antarctica, but they didn’t want to have them on ships. They were under tremendous pressure, so they couldn’t relent anywhere.*

DR: Well, Byrd Station, she didn’t have to be on a ship.

**BS:** *Well, that was the whole point. NSF put their foot down and said, you know there are a lot of qualified women.*

DR: I forgot to mention it – getting to Byrd Station, we went to Traverse Air Force Base where I remember we got on a MATS DC6 and I was looking out there and you know it’s a long flight to Hawaii and you’re flying backwards and looking out the windows and I can remember the co-pilot having to almost carry the pilot on board he was so drunk to get on that flight. I guess the co-pilot must have flown it. It was pretty casual. And we got down to Honolulu and then to Christchurch and two or three days in Christchurch. It was beautiful. A lot of stuff we did there. And then we got on a Connie and we got all dressed up in our Antarctic gear so we could survive

a crash, right? And so we got up over Christchurch and somebody looked out the right window and there was oil pouring out one of those engines. So, we turned around and we left a couple days later and we finally made it.

**BS:** *Twelve hour flight, huh?*

**DR:** Yeah, that was probably another 12.

**BS:** *It's twelve. I've done it.*

**DR:** That second year, on the way down, I took my own candy-striped shovel. I taped up the handle. I'm not very organized, but I got tired of having to look for a shovel the first year, so when Freddie and I, the Dane who didn't speak much English, and I took our buses out to Traverse Air Force Base, and no matter where we went we had all this gear with us and the bus drivers got pretty upset. And I always had my candy-striped shovel with me, so that was something I don't suppose anybody else did. Took their own shovel with them.

(500)

So, in the Byrd Station, there were four men out of the 20 who had wintered over before. Which made it a lot easier to get along. We knew the tricks. One of the tricks was that anybody from the Navy knows, but some of the sand crabs especially, civilians had to learn, was you do a lot of talk. If somethings bugging you, if somebody's got floppy boots on that flop, flop, down the mess hall, and flop, flop, flop back out, and it's just bugging you, you start to make a joke about it. You just can't keep it in because it just gets bigger and bigger until you explode and you wake up in the morning and somebody's had a pool cue wrapped around his neck or something – he's got black eyes.

And so, I had a chief Davis. He'd wintered with Ronne and here we were both Ellsworth guys. Walter Davis wintered with Ronne at Ellsworth the year before I was at Ellsworth and then

we both, by coincidence, wintered over at Byrd Station together. And three of the others had wintered – I think our carpenter. I think he wintered at the Pole. So, we had four out of 20 who had wintered over.

**BS:** *You and three Seabees, huh?*

**DR:** Probably. Anyway, that helped out a lot. There were still some problems. You've got serious problems like the cook, he just loved his cowboy music so he had the whole site wired with speakers and copper wire and of course, another fellow, an aurora guy, didn't like cowboy music, so he was cutting wires. He lived in my house in Boulder.

(550)

**BS:** *Tell me how you got dropped off in McMurdo. That's the first time you'd been to McMurdo, right?*

**DR:** Yeah.

**BS:** *What did you do, spend the night there?*

**DR:** Two or three days. I remember walking down to Scott's hut and one thing I remember about McMurdo was – this was my second time on the Ice and so I went for a walk to Observation Point and up along the ice slopes of Erebus and I couldn't keep warm. And I had all my gear on, but I was cold. It was summertime, and the fur hood and all my cold winter clothes and I think it was a universal experience. I think a lot of people will recognize this. I couldn't keep warm. But, after 15 months at Byrd and living in tents and so on, when I got back to McMurdo to fly out, I was out there just about in my shirt sleeves, helping them do work outside and you had to protect your ears. You had to wear gloves and you had to keep things moving, but it wasn't that cold in the middle of your back. You became acclimated and it wasn't your blood thickening. I'm not sure, but it's just psychological.

**BS:** *Norwegians did some experiments to show how little you could live with and how much you become acclimitized to it.*

DR: Well, you've got a lot more experience than I do, but it's not so much your body changing as your mind, I think. You just start ignoring it.

**BS:** *There are things you can do, too. I was out once when it was 43 below and my fingers were gone and my toes were gone. You know Kenny Twobeck, he was the chief Eskimo. He saw I was starting to get hypothermic and he says, "Try some of the seal oil. I know you don't like it." But, he gave me some good stuff. He would drink the rancid stuff, too. So, I drank this good stuff and it literally felt like I was pouring it into my fingers and toes. Seal oil.*

DR: You drank some of it? You got it down without throwing up?

**BS:** *Yeah. It's part of their diet.*

DR: Like drinking olive oil or something? Right?

**BS:** *The first time I went out I tried it and didn't like it. I drank it because we were out on an ice flow with five Eskimos and we ran out of food and had to eat their food. They always brought extra if our planes got held up. We were camping in tents. I was running the radio. That's why I was out there. So, I didn't like that, but this was another time when we were out working and Kenny's there and he had this flask and I drank it from then on.*

**(End of Tape 1 – Side B)**

**(Begin Tape 2 – Side A)**

(000)

**BS:** *This is Tape 2 of the Dale Reed interview and the date is the 6<sup>th</sup> of May, 2002.*

DR: As I get older, my hands are getting useless and it doesn't have to be very cold out. I'm 67 now. I don't remember that when I was young. You're talking about temperatures, I tell people

that I cleaned the ice off of the radio noise shack away from the antenna when it was 60 or 70 below zero – clear, no wind and beautiful out. I would chop a big block and use a sled to pull it away. I'm sure I had gloves on, but it wasn't that big a deal. But, at 40 below and 40 knots, you just can't do anything. I had to walk in those conditions to get out to my rabbit hole. But, you just sort of survived. You put your fur hood up and you obviously can't see because the snow is blowing, except you have a lifeline to follow.

**BS:** *When you went to Byrd, did you fly in the Herc?*

DR: When we flew in to Byrd, I don't remember being in a big airplane. I assume, can a Gooney Bird make it up there?

**BS:** *Yes.*

DR: Well, that's probably what we flew, because I flew a lot of them there. So, as long as we're mentioning airplanes, as I remember, it was Byrd where we saw our first C-130 land and what a wonderful thing that was – what a huge change that made in the Antarctic because the 141s or whatever they were, had been dropping stuff by parachute and busting 50% of our electronics.

**BS:** *It was just a drogue chute to pull it out of the 124s.*

DR: The C-130s were just wonderful airplanes. It was kind of uncomfortable unpacking them because they'd keep the engines running because they were using diesel fuel. They'd burn that thick oily stuff that would come spitting out of the engines while you're pulling stuff out of the cargo bay.

**BS:** *Well, C-130 made so many more things possible. We could put big temporary camps out and you didn't need things like Byrd because you could fill the whole camp real fast at the start of summer, leave those guys out there all summer, particularly geologists that did a lot of work. We had a camp for four years in the Ellsworth Mountains. We just manned it in the summer and*

*then when we were done, we took it all down. That's when they came, about 1960 and they've been around ever since.*

*So, you went out in the DC-3. OK. Here you are at Byrd Station.*

DR: You go down in there and, it was being crushed by the weight of the snow. And they were holding it up with . . . they had made pillars out of 55 gal. oil drums – welded them together one on top of the other. And it was a year or two older than Ellsworth was. And this is 80 degrees south, so it was different. There's no birds and there was more aurora. It's higher altitude. And there's no melting out in the summertime. In fact, they were building a new one at Byrd because I remember that second summer. I heard, I never saw it, but I think they were building a new Byrd not very far away and using Peter's snow milling machines to dig trenches to bury it . . . See, the problem was if you put anything on top of the ice, it causes drift right away and there's always some knothed who's going to leave his tractor parked too close to the base and it collects drift. Pretty soon, you've got a hump in the Antarctic continent and it just builds up and builds up.

**BS:** *Byrd Station was on a hump?*

DR: It was by the time we got there. They were buried deep.

(50)

**BS:** *You're the second person that pointed that out. It's not the snowfall that covers it up. It's the blowing snow.*

DR: Well, obviously the new Pole Station is built on poles. In fact, that's what I told them to do for the radio noise gear. Our data wasn't much good. I said build it far away from the base, and put it up on poles. That's kind of like what they're doing in the South Pole.

**BS:** *They did it on the DIE sites in Greenland in 1950. You know why they buried them?*

*Because Byrd buried his in Little America. Well, he didn't mean to. It just snowed over.*

DR: The original one wasn't buried.

**BS:** *I understand, but the Byrd Stations were all up and they got buried and everybody thought, well, if we bury them, the snow will just blow over the top. Trouble is, people kept leaving stuff – you put an antenna up.*

DR: Yeah, of course we had the aurora towers and all that, but some of these guys, they were really ambitious Seabees and they said, “Well, that's really hard crawling down the ladder and all that, so we'll build a nice little hut out of plywood.”

**BS:** *The concept possibly could have worked if they'd just kept it flat and the snow might have blown over it. I saw an experiment with a pole that was that big around. Put up a 30 ft. pole near Pole Station to see what would happen to it. It was two miles out. And sure enough, the wind blew this way and this way and this way, and there was a hump.*

DR: I don't have any interesting stories about Byrd. It's kind of a blur. In fact, that's one of the things I might mention to people, that one of the things about the Antarctic and these bases is to get through it as fast as possible. And one way of doing that is to make every day the same.

Some of the guys never learned that. They'd stay awake for three days then they'd go to sleep for a day. And it just drug and drug out. It was awful.

**BS:** *What you're saying is to have a routine and keep to it.*

DR: Yeah, so that's kind of what I did. It was especially easy at Byrd for me to do that because the nature of the VLF, for example, I had to change the tapes 7 days a week. I had to go out there and tend to my data. I had to scale the data.

**BS:** *This was down in the rabbit hole, right?*

DR: Yeah.

BS: *So, what was down there?*

DR: It was about 8' x 5' and it had the radio noise gear, a big piece of \_\_\_\_\_  
4' x 4', and it had some tape recorders. And then the spare parts and all that. And you had to  
crawl through quite a tunnel – 15' long sloping tunnel to get into it. You had to lift this heavy  
hatch and then get down inside to keep the wind from blowing the hatch off until you could get it  
down. And then you crawled down this tunnel. And it was lit in there and it was warm. Nice  
place to work.

BS: *Was it a box?*

DR: Oh yeah, like a refrigerator only the cold was outside.

BS: *Did you have a heater in there?*

DR: Well, the problem wasn't the heat. We had all this electronics using tubes. The problem  
was getting the heat out so that it didn't melt the snow around the antenna. You had to get the  
heat out with vents and so on. Because the antenna was sticking out the top and you calibrate the  
antenna as best you can. So, you didn't want any wet snow around it. So, you've got to get the  
snow out. Actually, it had been buried some, too, and the next year Keith had this bright idea  
about building up the plywood above the top – the stuff I worked on after he left. And it worked  
pretty good. That was one of the things I was doing, cleaning that.

BS: *So, it was automated? Where did you get the power? Did you have a power line?*

(100)

DR: Long power line. That's where a lot of the noise was coming from. 1/3<sup>rd</sup> of a mile of power  
line.

BS: *Buried the power line?*

DR: Well, it was probably put on top to begin with.

**BS:** *And what type work went on in there?*

DR: We were measuring the noise level and DBS above KTB, or whatever it was, of eight different narrow bands – frequencies – on a regular basis.

**BS:** *So, that was the radio part.*

DR: Wasn't anything you could hear. It was all RF as contrasted with the variable frequency stuff I was measuring two feet away, which was connected to another antenna – a small triangular antenna that was actually audio frequencies but, of course, it was an RF signal – electromagnetic – and I'd scale a whole day, 2 minutes an hour – about an hours worth of data I'd scale and give me some data that I could send by code to Helliwell. I don't remember how often.

**BS:** *Did you meet Helliwell?*

DR: Oh yes. Well, I was telling you, I went to Berkeley to train with Brode, but I went to Stanford to train with Bob Helliwell. Yes, he was a really fine fellow. And I had a lot more to do with them. I'll tell you in a minute.

Well, actually it's probably about time because I don't remember many really interesting things that happened in Byrd.

**BS:** *Did you do KP duty there too?*

DR: I don't think it was as important. I don't remember it, so I don't think so. Because things were so peaceful, you didn't have to make an extra effort to do anything.

**BS:** *Everybody got along?*

DR: Everybody had their own jobs to do and that was somebody's job, so it wasn't a big deal.

**BS:** *Did they call you an Iggy then?*

DR: Well, just sand crabs. Maybe Iggy, I don't know.

**BS:** *There were Iggys during IGY. And then USARPs after IGY. That's what the sailors called the scientists. A scientist would tell you he's a USARP. I was a USARP.*

DR: I kind of got an anti-science thing. I'm an engineer. I'm proud to be one. I just love my engineering and the home schoolers are all into science and tease them about that.

**BS:** *They're all into biology. That's what they think of in the Antarctic. The IGY, they weren't interested in biology at all. It's really changed down there.*

DR: During the nighttime, it was actually Keith Marks again who wrote me and said, "Hey, do you want to go on a traverse next summer?" And I said, "Great." So, I had to learn how to take sun shots. And Morse Code. In those days, what was battery operated, you couldn't talk on it for very far. And so, the sun shots was so they would fly us out somewhere and then they would set us down out in the middle of nowhere and they had to find us again. We had to tell them our location. So, we had a theodolite and I had my Bowditch and I had put me a light on my upper bunk to practice and everything. Of course, I tried to take it outside and practice on a star and of course, it froze up just like that.

(150)

So, what we did . . . it was a Goony Bird ski-equipped with JATO bottles. We'd overload it with tents and stuff and Neil Brice came down. Dr. Neil Brice was an Aussie, a Stanford PhD, and I and then Oliver Cromwell Morris came over from Pole. And there was three of us for the first site. We were going to determine the geomagnetic correlations with the very low frequency. So, we put up this antenna and then hooked up our tape recorder It was pretty simple.

**BS:** *They picked you up at Byrd and flew you somewhere?*

DR: Yeah. Three different sites along a geomagnetic line.

BS: *This wasn't a traverse with a tracked vehicle.*

DR: No.

BS: *Now, you camped there?*

DR: Yes, in little tents and big tents. And slept on the ground in big down sleeping bags.

Actually, Oliver pooped out early. That was too much for him. And Neil and I did the other two sites. He's dead. I understand he died in an airplane crash quite a while ago. And I keep searching for Morris on the web and I can't find him.

BS: *Tell me the work that you were doing. You were making magnetic correlation with . . .*

DR: What we had was we set this antenna up and then a little pink tent. I tell people that the tape recorder was put in the tent on top of a box and we kept it warm with a primus stove that you had to keep putting gas in in a steel can that would reflect the heat for the tape recorder. And you had to watch that burner because inside that pink tent flames were green. They didn't look hot. So, my wool sweater got a hole in it because I set myself on fire once. It didn't look dangerous. But we recorded the whistlers and same old, same old.

BS: *So you coordinated the whistlers with the geomagnetic information.*

DR: Well, yeah. We were actually just gathering data. Hopefully, the guys at Stanford could actually do the science.

BS: *So, you had to get the geomagnetic data while you were there, right?*

DR: Well, we knew where we were, but they told us about where they wanted us to be so we'd be along a magnetic line of force.

BS: *So, you had that already.*

DR: Yes. So, what we'd do . . . we'd load our gear up and fly – kind of overload it. I'm sure you know about Gooney Birds with JATO bottles.

**BS:** *I know. I flew them. Gus Shinn fired 13 JATO bottles to get off of South Pole.*

(200)

DR: They'd want to kick us out really fast. And we had tubes, you know. They wanted to use transistors. This is the time transistors were coming on board. So, there were amplifiers right out the antenna and so the transistors would have been really nice because then we could have just used little batteries. Well, Stanford hadn't tested those suckers in a cold room and so they were all unbiased. Once you got out there at 20 below zero, they'd just buzz. So we had to use tube amplifiers. That means we had a lot of holes in our clothes when we got home with lead acid batteries around. We had a little putt-putt to charge the batteries.

**BS:** *Probably got lead in your system.*

DR: That's probably why I'm so healthy. I'm not environmentalist inclined. So, we had to take sun shots. And so I get out there and I don't know if you've done that – probably flying, you do some of that. And you have your tables and you have your chronometer – a big wooden box, and you have a stopwatch and I'm self-taught. And I was doing great at two sites. And this was important data because the pilots, supposedly, didn't know where we were. You know you fly out and around the crevasses and then they'd find a place where they'd set us down and then they'd fly back home. And then he'd want to fly directly out to where we were. I mean the pressure was on me to give him a good location.

So, you do about five points and they're all supposed to be close together. Well, they were in a line. The last site they were in a line and they were not close together. And you talk

about being scared. I hadn't been scared many times, and I didn't know where I was. I lost a day. The sun was up 24 hours a day and all this flying around. I lost a day. I figured it out on my own.

**BS:** *After you got back, huh?*

DR: No, no, no. I figured it out while I was still down there. One of the places was a beautiful place. I got really nice photos. It was close to mountains and they weren't mapped. It's now Mt. Murphy. If can go to the internet you can find Mt. Murphy and it will show that Dale Reed located it. It was more than me, but I helped locate that mountain. So, that was kind of neat.

**BS:** *This was all in the summer after you went to Byrd.*

DR: It was a 15 month trip.

**BS:** *After the winter, OK. We're you relieved of the responsibilities back at Byrd?*

DR: Yes.

**BS:** *So, you were relieved so you could turn your back on it*

DR: I was relieved so I could go on a second trip. So, I think that's the traverse. And when I left the Antarctic for McMurdo, I calculated I had spent 10% of my life in the Antarctic.

**BS:** *Up to that time.*

DR: Yeah.

**BS:** *What was your total time there?*

DR: 13 months the first time and 15 months the second time. Or something like that.

(250)

**BS:** *So, you're leaving Byrd. Did you take a Herc back to McMurdo?*

DR: Probably did. Then we were back at McMurdo a couple of days, out in the sun. Actually, I was out in the sun in long underwear I liked to wear. I wasn't cold.

**BS:** *Then you flew back to . . . ?*

DR: I don't remember how we got back.

**BS:** *How did you close out when you got home? Did you have to de-brief?*

DR: I don't remember stopping by and talking to anybody. Probably talked to them on the phone.

**BS:** *So, basically you were done. You didn't write reports or anything.*

DR: Well, I did. I wrote suggestions on how they could improve the radio noise measurements. How they should move the base. I think they took my suggestions when they built the new Byrd Station. But, I continued working at the Bureau afterwards.

(300)

Cottony got a contract for this *Eltanin* – a research vessel that had antennas all over it. And I modeled those. I had 125<sup>th</sup> scale models. I had a big loop antenna up on the forward deck and a whole bunch of radio noise antennas. I don't remember. The ship was being fitted out as a scientific ship.

**BS:** *Did you go aboard the ship?*

DR: No, well I might have. We went back east.

**BS:** *So that ended your polar career, huh?*

DR: Yeah, working on the *Eltanin*. That was the last contact. And then eventually the Bureau sent me out to. Well, I got married, then the Bureau sent me to Tern Island and then I quit the Bureau and went back to school.

**BS:** *Tell me. How did the Antarctic affect your later life. You've certain kept a lot of your momentos. What did it do to you?*

DR: Well, one of the big influences was I learned as I mentioned – you learn to not . . . it must have helped Katy and I in our marriage because we talk things out. And I'm not a natural – I

suppose that's hard to believe right now, but I'm not a big talker, as a general rule. Especially before I went to the Antarctic. But, I learned to chew the fat and tell jokes and at least be a good listener. Some of those guys were champions.

(350)

**BS:** *You feel it helped your marriage.*

DR: Oh, yeah.

**BS:** *You're the first guy to say that.*

DR: Oh, yeah. There's no doubt. Katy and I have been married 40 years and we're both very independent and we have very different ideas. But, we've got two fine boys so I guess that's the goal. And I'm enjoying my retirement.

**BS:** *I'm closer to my wife now that I'm retired and we can spend some time together.*

DR: It was rough the first eight months.

**BS:** *That's the thing. You get up and you have something to do. Well, I'm glad. That's a nice thing to say that it sure helped your marriage.*

DR: And the second thing the Antarctic was a good deal, the first year I came back, I spent all my money on sports cars and so forth. The second year, knowing my character by that time, I bought half a house and then I had to make payments and that made me go to work. And it made me save my money. So then I had a grubstake which a lot of people don't have. So that was a good thing for me. You don't spend any money down there except for Colorado taxes. Then having the advantage of having some adventures before I got married. Katy did the same thing, so we kind of got that out of our systems.

**BS:** *So the Antarctic modified your character.*

DR: Very definitely.

**BS:** *That's good. Why don't we end it on that?*

DR: OK.

(400)

**(End of Interview)**