

Antarctic Deep Freeze Oral History Project
Interview with Richard A. Bowers, CDR, CEC USN (Ret.)
conducted on October 11, 1998, by Dian O. Belanger

DOB: Today is October 11, 1998. This is Dian Belanger. I'm speaking with Richard Bowers about his experiences in Deep Freeze I.

Good morning, Dick.

RB: Good morning, Dian.

DOB: Let's begin by just telling me something about your background: where you grew up, where you went to school, what you decided to do with your life, and see if there are any pointers that would suggest that you might end up in a place like Antarctica.

RB: My background is in engineering. I was able to get a scholarship to Yale out of high school in Pennsylvania.

DOB: Where did you go to school in Pennsylvania?

RB: I went to a high school in Harrisburg, Pennsylvania. And I had a brother who is very smart, and they thought some of it rubbed off on me.

Anyway, after Yale I went to work in New York City and was soon caught up in possibly being drafted because of the Korean War, and was told that if I didn't want to be drafted, I'd better enlist. So I enlisted in the Navy and got a commission—went to Officer Candidate School in order to get a commission in the Civil Engineer Corps.

At Yale I specialized in engineering—

DOB: What kind of engineering?

RB: Structural engineering, actually, civil engineering mostly, a cross between many other disciplines, and I also have a master's degree in structural engineering.

In the Navy, after Officer Candidate School and the Civil Engineer Corps Officer School, I was assigned to NAS Quonset Point, Rhode Island, and happened to be at Quonset Point when the AllNav was circulated looking for volunteers to go to Deep Freeze.

My superior at Quonset Point was a marvelous captain who thought I might be interested, so he contacted me and asked me if I was interested, talked to my wife and me, and made arrangements to have Commander Whitney visit us in Quonset Point.

Quonset Point was located immediately next to Davisville, Rhode Island, that happens to be the Seabee base from which the Antarctic operations were going to be supported. Perhaps it was being at the right place at the right time with the right curiosity, and

within a week after talking with Commander Whitney, I received my orders to Davisville.

DOB: Who is Commander Whitney?

RB: He was the prospective commanding officer of the new Seabee battalion going to Antarctica. The battalion going to Antarctica was completely new—a special battalion organized from scratch. People were pulled in from all over the world depending on their qualifications and their availability; in my case it was availability.

DOB: What made you decide to want to go? You had a family by then.

RB: I had two young children, and my wife and I discussed it at length before agreeing. It was something new, something different. We had, of course, read about the exploits of Admiral Byrd and we were both oriented towards the outdoors—my wife comes from a sailing family. We thought it was a chance of a lifetime and it proved to be very challenging.

DOB: What did you know about the Antarctic continent before you went there?

RB: Very little other than what I had read in books, and of course perhaps that was the charm of it. We didn't know much. I knew the Navy had done considerable work in Pt. Barrow, Alaska. At the Civil Engineer Corps Officer School, they talked about some of the cold-weather engineering. I was aware vaguely that the Navy was interested in cold weather, and it sounded like a good chance to get involved.

DOB: Were you planning on a Navy career at that time?

RB: Not at all, no. I was planning to serve my time and then get back into civilian life.

DOB: But it didn't work out that way.

RB: The Navy is a marvelous institution, and the longer I was in it the more I liked it. They gave me a better job everywhere I went. Finally I went to the regular Navy.

DOB: So you went to Davisville.

RB: Yes. Very quickly. I just went next door.

DOB: And this was in

RB: March of 1955.

DOB: And what happened there?

RB: It was a madhouse. Looking back on it now, the planning for the Deep Freeze program was done in a real hurry. And the organization of the Seabee battalion in the spring of 1955 for deployment with all equipment and material in the fall of 1955 was a real short fuse.

We had about six months to learn what we were supposed to know about where we were going, to order all the equipment and material to get there, and to put it on the right ships. We were going to two different locations so we had to split our battalion in two: one going to Little America and one going to the McMurdo Sound area. It was a hectic time. Really, really hectic.

DOB: Who decided what to bring and how much to bring and where it should go?

RB: There were a lot of fingers in the soup: scientists, military, government agencies. The planning started to gel in late 1954 in Washington, D.C., by Admiral Dufek's staff, Task Force 43. They had an office in the Old Post Office building in Washington where Admiral Dufek had established his headquarters.

The office was under-sized and it was full of people. Admiral Byrd had representatives there since he was the overall leader of the expedition. Admiral Dufek had his staff there. He had a supply officer, he had a meteorologist, he had operations officers dealing with operations of the ships and aircraft.

The supply officer for Task Force 43 at that point in time was Lieutenant Commander Kent, as I remember his name. He coordinated all procurement. A lot of the procurement was done by the supply people in Davisville, Rhode Island, and the VX-6 supply people in Patuxent River, Maryland, probably got very much involved with it. It was a real problem to get everything ordered. There were a lot of agencies involved with the planning and procurement. For instance, the Bureau of Yards and Docks drew up the schematics for the various bases. And based on those schematic drawings, they ordered the buildings to be built. The buildings were designed and pre-fabricated by Clements, an outfit in Connecticut.

They also ordered the heavy equipment based on cold-weather specifications that had been developed over the years by the Army in Greenland and by the Navy at Pt. Barrow.

DOB: So they understood cold weather but they just didn't know anything about the topography of where they were going.

RB: I think so, but I think they had a pretty good idea. We had all the records of earlier expeditions which we read feverishly trying to make sure we knew as much as we could about the Little America area and the McMurdo area, our initial areas of operation.

But the planning had been done in such a hurry. The communities that put the base selection sites together required negotiations with other scientific and political representatives of the nations planning to participate in the International Geophysical Year in the Antarctic. There were nine nations involved with plans to build over fifty stations throughout the continent. The decisions on some of the actual locations of bases weren't made until very late in the cycle.

DOB: You have spoken a lot about the hurry. Why was there such a hurry? Why a deadline on the other end?

RB: The construction season in the Antarctic is very short. The ships can't get in until sometime in late November or December, and they have to leave sometime in February or March in order to be able to pass safely through the ice surrounding the continent before it freezes too thick. It varies depending on sea ice conditions and the ships involved. But we knew we had to get our equipment down to the two base sites and get the ships offloaded and the essential buildings built before the ships had to leave.

DOB: Why not wait another year, give yourself more time?

RB: The International Geophysical Year was scheduled to start in early 1957, and if you back off that, we had only two construction summers to complete our four stations. Three stations would be built for U.S. scientists by other crews the second summer.

Our plan was to build two stations the first year, at McMurdo and Little America, and then, using those two bases as steppingstones, we were to go to build two satellite stations—they called them satellite stations then. They were actually inland stations—one at the South Pole and one in Marie Byrd Land, which is about six hundred miles inland and east of Little America, the second year. Our four stations had to be completed before the IGY started in early 1957, as did the three stations built by the DF2 crews.

DOB: Why didn't they just move IGY a little farther ahead? Was there a particular reason why that was the timing?

RB: This is the date that was decided by the international community to meet their scientific objectives for the International Geophysical Year. I don't know everything that went into that decision, but that was the date chosen. It had something to do with the anniversaries of past IGY years.

DOB: So you ended up with a great rush.

RB: Everybody did. The air squadron, VX-6, was being put together in a hurry down at Patuxent River, Maryland. Our battalion was put together in a hurry at Davisville.

DOB: That was the MCB?

RB: Mobile Construction Battalion (Special). And the ships were gathered from all sorts of places.

DOB: How many ships?

RB: There were a total of nine ships in Deep Freeze I, including several yard oilers. They were loaded in different ports, too. Most of them were loaded in Davisville where we had large piers and offloading and loading facilities, but some of them were loaded in Philadelphia and Boston. It was a problem coordinating the arrival of the material and getting it onto the proper ships going to the proper locations in a very short period of time.

DOB: What ship did you go on?

RB: I went down on the *Edisto*, departed Boston in late October 1955. She was an icebreaker scheduled to take our advance party into McMurdo Sound. We had divided our battalion into two sections. I was in the McMurdo section, and the other section went to Little America. I had been assigned to the advanced party to McMurdo because I was responsible for construction of that station, and later of the South Pole station.

DOB: How was it that you were the construction person—that's a very important job.

RB: Commander Whitney was responsible for organizing the battalion—he was the commanding officer—and he chose to go to Little America because Little America was to be the lead station of all the stations that were being built. It was the main station during early Byrd expeditions, and it was going to be the main station during IGY operations.

He took with him many of the key battalion officers including the supply officer and equipment officers. McMurdo was to be an air facility. Almost all aviators assigned to the battalion ended up there. I was the designated Civil Engineer Corps officer assigned to the air facility and, because it was the springboard to the Pole, for the station there.

DOB: Okay. So you're on the ship and it takes several weeks to get to McMurdo?

RB: Let me explain a little bit about the materials situation and the situation at Davisville as far as training and materials.

As the people arrived, and a lot of them didn't arrive until late spring or early summer of '55, they had to be included in our battalion organization. We had to decide where they were going to go, what they were going to do. A lot of them needed special training.

We had people responsible for ground control approach equipment who were sent off to companies who were providing GCA equipment. We sent people to the Detroit arsenal to test at very low temperatures the buildings that were being built by the Clements company. We sent people to the Marine Corps to be trained in petroleum offloading equipment that the Marine Corps specialized in and which we were going to use for transferring aviation gas, diesel oil, gasoline, and other petroleum products ship to shore.

We had people all over the country: even while we were being organized, they were being shipped off for special training unique to their ratings. At one point in time, 75 percent of our people were off for special training while the balance remained in Davisville receiving equipment, checking it out, and tagging it properly, winterizing it, preparing it for shipment.

We tried to take every piece of equipment that arrived in Davisville and test it before we put it on a ship to make sure it was functioning properly. We didn't have enough time to check some items and that caught up with us later.

For instance, the electrical generators that were sent to us had faulty control systems, and we were never able to parallel them properly at McMurdo. I think they had the same problem at Little America.

But the supply crews did a herculean job in getting everything ordered and getting it in. People were working around the clock getting it aboard the proper ships before departure dates.

The ships had to leave in late October and November to get to the Antarctic to meet the operating schedules. The advance parties went on the *Glacier*, another icebreaker, and the *Edisto*. The other ships left a little later.

DOB: When did you get there?

RB: Both ships were routed to McMurdo Sound via the Panama Canal and New Zealand. The *Glacier* arrived first 18 December 1955 in order to stake out landing areas on the sea ice for the aircraft flying into McMurdo from New Zealand. That's another story. The *Edisto* arrived on the twentieth of December.

Along with the introduction of the two advanced parties, one to Little America and one to McMurdo, VX-6 was scheduled to fly aircraft from New Zealand to McMurdo to conduct aerial mapping of the continent. This was a high priority on the task force's plan.

When the *Glacier* arrived in McMurdo, a group of Seabees got off the ship and marked out several runways on clear, snow-free, one-year-old sea ice for the planes to use when they arrived from New Zealand. Soon after the *Edisto* arrived, the *Glacier* left for Little America.

We started to offload the *Edisto* immediately. We had all the equipment for our advance camp, and the advance party was supposed to do two things: we were supposed to support the aircraft arriving from New Zealand, and we were supposed to lay out the permanent facility at Hut Point. We hadn't even offloaded our icebreaker to get our advance camp material to Hut Point when the airplanes arrived. We were able to provide little support to the aircraft. The airplanes had to be supported almost entirely by the ships that happened to be there. Initially an icebreaker was usually present. Cargo ships and oilers arrived later.

We found the sea ice extended much farther north than we thought it would. We thought that we would have a reasonable distance, maybe five, ten, fifteen miles, to offload ships to transport this material to Hut Point. When we got there, the sea ice edge was over forty nautical miles from Hut Point. It was deteriorating rapidly, and there were a lot of cracks, leads in the ice, but it presented a serious obstacle to our offloading plans.

So it was a very stressful time because planes were trying to make flights, we were trying to offload ships, and in the middle of this—about two weeks after we arrived, we had one plane crash and we had a driver [Williams] go through the ice with a D-8 and drown. It was not a very nice situation.

DOB: That must create a—

RB: It created a very bad situation. The offloading stopped at that point, on 6 January 1957. And we had to have an accident review board set up.

At the same time this was all happening at McMurdo, they were also offloading at Little America, so the *Glacier* and *Edisto* were back and forth. And the ships often had to depart to set up stations along the flight route from Christchurch, New Zealand, for the safety of the aviators in case they lost a plane or a plane had to go down.

During the first weeks, the Seabees were often without ships for support or to offload. The aircraft were also finding it difficult to get support. The aircraft had to taxi out next to the ships to get fuel as there was no other source of fuel.

DOB: But you just said that the ice was not very good and deteriorating.

RB: Well, it was, and within a few weeks after we got there, the ice was really shaky. I'm talking about new sea ice. You have to differentiate between new sea ice and old sea ice. [The ice at shipside was new ice. It extended about thirty nautical miles to the south where it joined old ice. From that point, old ice extended south to Hut Point and beyond to the Ross Ice Shelf. New sea ice was formed the preceding winter season. The old sea ice was frozen more than one winter earlier and had not broken off and gone north to melt.]

The entire complex of sea ice is being pushed northward by the Ross Ice Shelf. It is also subject to tidal action, wind, and waves. And because it is being forced and moved, cracks or leads develop which stand open or refreeze. The new sea ice is much less stable than the old sea ice which is thicker than new, stronger and much less hazardous to operate on. Leads in the ice are really dangerous.

DOB: Can you tell by looking at it?

RB: Yes, pretty much so. The new sea ice is much softer, weaker, has a higher salt content. Over time as the sea ice freezes, the salt leaches down through it and finally out the bottom. The old sea ice is much clearer, it's bluer, you can melt it and drink it, especially the top surface.

Anyway, I'm really digressing. I'm sorry. But there are a lot of different odds and ends that tie into it.

We had our advance camp tents and cooking facility set up at Hut Point for only a few weeks when the accident with the D-8—Williams—happened. At that point in time the deputy task force commander, Captain Ketchum, made the decision that we would not do any more offloading because of the safety conditions and that we would look very seriously at building the McMurdo facility at Cape Evans, farther north and much closer to the edge of the sea ice than Hut Point.

So I was sent to [Cape Evans] with a crew to run a survey to see how we could lay out the facilities at Cape Evans. Cape Evans is much smaller, and it would have been a highly undesirable base site from the standpoint of what we were trying to do, but we did go there.

A short time later while we were at Cape Evans, the USS *Glacier*, our largest and most powerful icebreaker, came back to McMurdo from Little America and started to break ice. Because of its superior icebreaking abilities, she was able to clear a channel through the new ice to a point about eight miles from Hut Point where the old sea ice began. That was our salvation. Without the *Glacier*, we would not have been able to offload the ships in time to meet our deadlines.

DOB: So did that mean that you could put the camp where you had originally planned?

RB: That's exactly what it meant. We immediately packed our gear and moved back to Hut Point to get to work there.

At that point in time, offloading the ships became the highest priority. The mapping flights of the aircraft had been completed and the crews were getting ready to fly back to New Zealand.

It was around mid-January when the planes went back, and our ships were offloaded as quickly as we could, twenty-four hours a day.

DOB: So you weren't doing building at that point. You were living in tents so that you could get the stuff just brought ashore.

RB: Absolutely. We had a temporary tent camp set up. We didn't have enough material or manpower available to really do any building, and we couldn't make the decision to build until the offloading problem was solved.

Once the *Glacier* solved the ice problem, offloading really became a priority, and twenty-four hours a day tractor trains ran back and forth to the edge of the old sea ice, about eight miles to the north, and there they would be met by icebreakers. Icebreakers were used to convey material from the edge of the ice many miles to the north, to the eight-mile point where they were offloaded onto the ice and we picked it up there.

The channel that the *Glacier* broke was too narrow and dangerous for the thin-skinned cargo ships to use, so all material had to be handled twice. Ship crews took it off the cargo ships, they put it on one of the icebreakers, the icebreaker ran down the channel, offloaded it at the old sea ice, and we picked it up and brought it into McMurdo.

DOB: I assume you weren't planning to do that extra step which must have cost you more time.

RB: It took extra handling and time, but it worked. We didn't have precise schedules because there were too many unknowns, but it would have been much nicer to be able to take it right from the ship and put it into our storage area.

The supply people did a magnificent job keeping track of it. As it arrived, they set up their supply dumps and we filled them. We had loaded the material in such a way that we had hoped that the first off would be the first to be able to use. You know, the buildings and foundation materials. And a lot of it came off that way, but some of it didn't, of course.

DOB: Okay. Let me just back up a little bit. So you're arriving by ship. Tell me what it was like approaching this unknown continent. I want to know what it looked like and if you were surprised by anything, and what it felt like and smelled like and sounded like.

RB: The trip from New Zealand to the McMurdo Sound area is a really fantastic journey. You start by going through an ocean area unbroken by land masses around the entire world. Storms and winds through there are so strong—I don't know the correct terms anymore but they call them the roaring forties and the shrieking sixties, whatever—and the water is really rough. The breakers pitched and rolled uncomfortably.

Then as you get farther south, you come across occasional icebergs. Then you hit a belt of sea ice that surrounds the entire continent, ice formed during the preceding winter, populated by seals and penguins and a lot of birds. And your ship has to pass through this sea ice. It's not really thick in most cases so icebreakers have no problem going through it. Sometimes you have to have the icebreakers precede the normal surface ships into those areas. Our icebreakers went through it without any problem. And you're up on deck and you're taking pictures of penguins and seals and birds. It's quite nice especially in calm, sunny weather. The ice dampens the wave action, sailing is smooth.

Then on the other side of that belt of ice you'll reach open water, and that can be rough or smooth depending on the local conditions.

About that time you'll start seeing mountains in the distance. One of the first seen is Mt. Erebus which is the highest in that area. There are a lot of ranges to the west that you'll also see toward Cape Adare. The mountains are gorgeous. If the weather is sunny—and of course the sun is shining twenty-four hours a day—views are magnificent, and there's tremendous bird life, wildlife, an occasional whale.

And then, depending on your longitude, you come either into McMurdo Sound or if you go further east you come to the Ross Ice Shelf, that huge barrier that extends high above the water and below the water hundreds of feet for several hundred miles to the east, from Ross Island to the Little America area.

It was our first trip and everything was new and it was very fascinating.

DOB: Was anything there when you got there?

RB: The *Glacier* had been there before we arrived, but had departed for Little America an hour or so earlier. There were people waiting at the ice edge. They knew we were coming, of course, but they were glad to see us.
I'm going to take a break here.

[Pause in recording]

DOB: I want to ask you a little bit about where all this starts, and I'm thinking about the fact that the overall mission and orders that you were working under were generated by military and political figures in Washington, or at least far away from Antarctica. I'd like you to talk about how good their plans and decisions were and how you coped with all of this or adjusted in the field.

RB: I think under the circumstances the plans that they were able to come up with were fantastically good. They had so many unknowns early in the game, and plans had to be very flexible.

But when you think about it, most of the expeditions that ever went to the Antarctic built only one base or station. They manned it, they did what they had to do, and then they abandoned it and came home—maybe went back the next year or so. We were planning a total of seven stations over two years, four the first year and three the second year, plus auxiliary facilities. We had a much broader, more comprehensive construction mission.

[Interruption]

RB: I don't think there was anything comparable in Antarctic history and maybe not in North Polar history to the construction program that we were undertaking. And then that construction program was also coupled with the aerial mapping program during the first phase. Mapping was extremely important, evidently politically.

I think the American participation in the IGY in the Antarctic was very important. Obviously. We were given a high priority. The defense department was given a role to support it, and did it through the Navy. And planning went very well, I think, considering the circumstances. I give them very high marks. At the time I thought it was very confused, but in such a short period of time so much was accomplished, it was just amazing.

DOB: Did you have the authority to adjust as you needed in the field?

RB: In most cases, we were able to do just about whatever the customer wanted. At McMurdo, we laid out the facility according to topography and operational needs. We ended up with a fully functional air facility that proved to meet all mission requirements. It didn't have a scientific role at that time. But at the Pole station, later on, the scientists had more of a say. I took the position that if the scientists wanted something, we'd do our damndest to get it for them as long as we had the material to do it. Dr. Siple was the scientist we had to satisfy.

We had to make some adjustments to the initial schematic layout, depending on the conditions we found, of course. We were given schematics which were generally well conceived, and we knew which buildings we had to build. [At McMurdo, many changes had to be made because of topography. We put them where they served their best purpose. Antennae had to be moved because of potential interference by mountain peaks, air support buildings had to have good access to the ice runway. Many temporary buildings were actually located on the ice during runway construction and air operations.]

At McMurdo, the main thrust was to get as many buildings built before the ships left because we had augmented our offloading and construction crews with ship personnel. We had crews from the ships company helping us, and they were very important.

So while we might have two hundred fifty to three hundred people working with us while the ships were there, that went down to a total crew of ninety-three during the winter-over period. We had 75 or 80 percent of the buildings completed and functional by the

time the last ship left on 9 March 1956. We were able to complete the rest of the facilities during the winter night.

DOB: The military is a very hierarchical society, and I'd be interested in how formal lines of authority in discipline and that sort of thing play out in a place like Antarctica.

RB: McMurdo was no problem. We had all military except the Disney photographer, Elmo Jones, and the one scientific representative, Howie Wessbecher. [We had a well-defined chain of command, separate berthing facilities for officers, chief petty officers and enlisted, but one large dining area where all hands mingled freely, both during meals and during social activities, movies, etc. There was a healthy mutual respect among all parties for the most part. The OIC did have to impose discipline, but I didn't have much to do with this facet of camp life.]

DOB: Members of the press?

RB: The press were around only while the ships were present. They berthed aboard ship. We had no press in camp during the winter night. The press were the responsibility of the task force. Most of them were fairly easy to get along with. Some of them were intrusive, but we learned to avoid them or deal with them politely.

They had to come ashore on the tractor train or by helicopter. For the most part, they arrived by helicopter and they'd get off and walk around and ask questions and take pictures, then leave by helicopter. They didn't sleep in our tents or anything like that. We were kind of isolated from the press for the most part. [I personally had to deal with them at press briefings scheduled by the task force PIO (Public Information Officer) before leaving for the Pole and when I returned to McMurdo from the Pole, as Pole Station operations generated a lot of interest. But as a lieutenant, I was pretty well isolated, rarely talked to press without other senior interested parties being present.]

DOB: How about military authority in the sense of saluting and all of that kind of stuff?

RB: No, none of that. Military appearance was very low on our list of priorities. If you look at our pictures of our Pole Station crew, our twenty-four people—I don't have it with me, but—you'll see that they wore whatever was comfortable and warm! Almost all of them had beards. They were respectful in most cases. Military discipline really was not a problem. I respected the crews in almost all cases, and most of them seemed to respect me. Military customs like saluting or standing up for the OIC were observed rarely, e.g., when the admiral was in camp.

We had one psychological problem that became a problem for our doctor and our base Officer in Charge to take care of. We had a cook who wasn't very stable after the ships left and had to be confined.

I never had any discipline problems at my level. The discipline problems, if any, were held by Commander Canham as the Officer in Charge.

DOB: Things ran fairly smoothly?

RB: I think so, amazingly smoothly.

DOB: The military is no longer a presence in Antarctica in the way that it supported operations when you were there. What difference do you think that's going to make?

RB: Lack of Navy will not have any long-term difference. Over the years, NSF has developed its own support capabilities, with the exception of C-130 assets, and the ANG (Air National Guard) will take care of this. I think it's probably right. I think it's correct. The main reason the military was assigned the job initially is because there was no one else who could have done it logistically. There was no contractor in the country that had the assets—manpower, airplanes, equipment, the ships—to take on the job, especially upon so short a notice.

[End Side A, Tape 1]

[Begin Side B, Tape 1]

RB: We had the ships, we had the aircraft—obviously they were dispersed, but they were able to be gathered in a relatively short period of time—and people that had basic skills, which, with very little additional training, were able to accommodate the cold weather.

We were there for the logistics, to provide the support, we were there to build the railroad, so to speak. Once the facilities were built, then as the scientists took over I think that it's only rightly so that the Navy should be phased out, when its assets are being stretched so thin throughout the world for other purposes.

DOB: But now civilian support is provided.

RB: Yes. I see no reason for Navy to stay there. NSF has arranged for necessary support elsewhere.

Navy support given to the scientific community after IGY were basically things like cooks, radiomen, storekeepers, utility men, mechanics, people to run their generators, electricians, and that sort of thing, and the very important air support by VXE-6. There must have been some surface ship support too, but I'm not aware of how much.

At each station they had someone designated as military leader. There was potential for problems, obviously, and we know that some occurred, but those functions could and

should have been taken over probably even earlier by the civilians. You know, they weren't things that were necessary done by the Navy.

DOB: Why do you think there was a military leader at each station?

RB: Because they wanted to maintain a military chain of command. If you're going to have Navy people there, they must be subject to military law, I think, that's important.

DOB: So if there was a difficulty with someone who was a civilian, then the civilian leader, the scientific leader, would be in charge?

RB: Sure. And he'd send him home if he wanted to do it. I think it was very important. There were problems, I'm sure, between some of the personalities because you get a lot of people in a small space over a prolonged period, you're going to have personality problems. I'm aware of a few of them. I think all in all that the system for forty years worked pretty well.

DOB: Altogether, how much time did you spend on the ice?

RB: I spent from December '55 until February of '57, so that would be about fifteen months.

DOB: So you spent your wintering over at McMurdo.

RB: McMurdo.

DOB: In '56?

RB: In '56, right.

DOB: What did you do all winter?

RB: We were busy, unlike a lot of the people that go down there now when the facilities are established and everything is pretty well in order.

As I told you, we didn't have the base completed at McMurdo when the last ship left, and that was sometime in early March. So we had between that time and October, when the summer season would start again and the planes would arrive and the ships would start to think about coming in, to finish the base and get everything ready for the summer activities, including Pole Station operations.

We still had quite a few buildings to finish. We had to finish the interiors of some of the shells that we had up. We had enough work to keep our people busy all winter. The basic camp was pretty well under control by mid-winter. [We then had several major tasks remaining: getting crews and material ready for Pole Station operations, preparing

an ice runway for wheeled airplanes critical for material delivery to the Pole, and setting up temporary facilities for the influx of large numbers of summer support personnel.]

I had the responsibility for planning for the Pole Station construction, and I had done a lot of consulting with Dr. Siple before he left the ice. He and I spent quite a bit of time together. I knew he had some definite ideas about Pole Station. We had a good meeting of the minds on changes he wanted to be made.

So as soon as I could get my schedule in order, I went to my boss, Dave Canham, and I told him what I wanted in the line of people to take with me to the Pole, in terms of rates and ratings and individuals. [We learned to know individuals well during McMurdo operations. All men selected would come from the winter-over crew. He understood the importance of Pole Station, agreed to the entire list while knowing the absence of some of those selected would hamper his operations at McMurdo. His response was generous to say the least.]

Then I went to the individuals and we talked about it, and found out whether they wanted to participate, and in most every case they did. There were a few of them who decided they didn't want to go. The surveyor didn't want to go. He had difficulty with it. He didn't really specify exactly why, and I had been counting on him to do the navigation. There were one or two others. One of the electricians that I had asked to go thought he would prefer not to.

There was an element of risk in that first operation because no one had ever done it before. People weren't concerned too much about the cold, but they were concerned about transport to and from because we would have to depend entirely on aircraft, and no plane had ever landed at the Pole before. And we really weren't sure that if the plane landed there, they were going to get off.

It was a novel situation, and I had no problem at all if a person said he didn't want to go, that was all there was.

Ultimately we had twenty-four people lined up including myself. I had set it up so that I had all the different trades represented—electricians, plumbers, drivers, mechanics, etc.—and in each one of those trades I put a person responsible to start gathering all the tools and equipment they would need to do their job and to coordinate with the supply department the preparation of the material to be airlifted into the Pole.

Then also we had to get together with the IGY representative, Howie Wessbecher, for all the scientific equipment that had to be lifted into the Pole to make sure that the stuff that couldn't be airdropped was packaged separately.

Everything was prioritized. The guys did a magnificent job. They got the lists of material together, they prioritized it, we put it on index cards in the order we wanted it

dropped so that as they dropped it we could take it off the drop zone and unpack it and install it and put it up with a minimum of handling.

DOB: So that each person, the electrician would choose what wire and—

RB: Well, yes, they would get all the materials together that they needed to do each of their jobs. I couldn't have done it. They had gone through it for one whole year, and I had absolute confidence in them. It's probably the only time in my lifetime that I dealt with a group that I knew so well and they knew me well. And it worked real well. The supply chief in McMurdo, Chief Hess, was just outstanding. He and our different crews worked together. They had all the material laid out in their supply area, they had it color-coded, marked, numbered so that as it came out of the airplane, we knew exactly what was coming and where we should put it.

It didn't work out that way, actually, because a lot of things streamed in and were damaged and we had to radio McMurdo: "Okay, card number such-and-such, this was damaged beyond repair," so Chief Hess could send in replacements.

From the standpoint of supply, once we got to the Pole, it was a piece of cake. As far as the construction crew there, there was nothing we could do about it. We either got it or we didn't get it, and when we got it, it was easy. But our planning worked well. All essential material was ultimately received, and the station was completed well ahead of schedule. It was a straightforward construction project.

The real problem was with the pilots who had to fly the material to us using a runway that was rapidly deteriorating in McMurdo. As the summer progressed, it became worse and worse and worse. They decided to fly, and rightly so, whenever they could. Twenty-four hours a day, whenever the flying conditions were right, they'd fly. And they'd bring the planes back, they'd load them immediately, and if the flying condition were favorable, they'd make another trip.

We worked our schedule at the Pole based on their flight schedules. If we knew there was a plane in the air, we were up to receive it, drag airdropped material off the drop zone, and while we were up we'd build something. And then when we got real tired, we'd go to sleep. Then when the next plane came, we'd get up, and that's the way we worked it.

And it worked out real well because sometimes, if planes couldn't fly, we'd get maybe twelve, twenty-four hours straight construction, and then the next time we'd maybe go a day or two where we would do nothing but handle material. But that way, the planes were in the air when they could be, and Chief Hess, as soon as they came back, he would see to it that they were loaded for the next trip. It just worked out beautifully.

What happened is, we were able to get all essential material delivered before the runway became completely unusable and the C-124s, the heavy aircraft, had to go back to New Zealand. They actually had to leave McMurdo because they couldn't fly off the runway anymore, it became so bad.

DOB: These were wheeled aircraft?

RB: These were wheeled aircraft, and that was a big problem. If we had had the ski aircraft (C-130s) like they have now, it would have been much easier at McMurdo and at the Pole.

This brings us back to your question: we started talking about McMurdo and what we did during the winter night. What we also did during the winter time was build the darn runway, the ice runway, which was a herculean task. We had only one operable D-8 tractor. The rest of them had been completely worn out so that they couldn't be used anymore—but we had one good one, and with that tractor and several small tractors, our crew built the entire runway, six thousand feet long, two hundred feet wide with adjacent parking aprons and taxiways. By building it, I mean, they removed the surface snow which was maybe three to four feet thick in most places.

DOB: Three feet thick?

RB: Oh, at least. They just moved the snow. It was unbelievable. Originally we had talked about compacting the snow cover for the runway. Taking that snow and compacting it and running the wheeled aircraft off that surface, as had been done in the Arctic under very controlled circumstances, with the right climate, the right temperatures and everything. But for our situation, we had to rely on the bare ice, and they still do to this day. [The C-124s we depended on did not have skis. And the prolonged heavy usage by these aircraft demanded an ice runway. So this is what we had to provide. The ice was thick enough, but we had to remove the snow overburden. The cleared ice surface was rough but usable.]

Snow-compacted runways are used for ski-equipped aircraft because that levels it and makes it more uniform in density. As far as I know, to this day they cannot be used for heavy wheeled aircraft for continuous operations in less than optimum weather conditions.

The military services were building snow-compacted runways in Pt. Barrow at the time, they were doing it at the Navy Research Lab, and they were doing them in Greenland trying to develop the technique. But it's limited when you get warm weather and severe usage, oil spills and things on the runways, they damage very quickly. [Exposed ice runways are also damaged easily and difficult to maintain. You get a gasoline spill on the ice, and the runway deteriorates quickly, is soon unusable. This proved to be a

problem at McMurdo, but fortunately, essential work had been finished before the planes had to leave. They came back when the temperatures dropped and repairs made.]

DOB: Tell me about stream-ins. What does that mean and what were the consequences of all of that?

RB: The Air Force did a magnificent job in getting stuff to us, and what I'm saying in no way reflects on that. Their performance was just unbelievable.

First of all, we didn't know how windy it was going to be at the Pole. Everybody thought it was going to be fairly windy. They'd look down and they'd see the sastrugi and they said, "Oh my God, that's lots of wind."

So in order to prevent the material dropped by parachute from being dragged along the ground by the wind when it hits the ground, they developed a quick-disconnect device installed between the chute and the pallet with its load. When the pallet hit the ground, the device was designed to explode and separate the chute from the pallet. It was designed to protect us so we didn't have to chase things for miles to catch up with material.

I don't know whether that device had been checked out thoroughly, but when they used it with us, it happened that quite a few of the drops—the pallets, as they left the airplane with the chute streaming out behind, they would explode in the air separating the package from the parachute before it opened. And in some cases after the chute opened, it would explode and the stuff would drop in. A lot of it was salvageable. A lot of lumber, for instance. Some lumber was delivered free fall without chutes at low altitude on purpose, to save chutes. If a bunch of oil dropped in, depending on the altitude, some of the oil drums would be usable.

The faulty disconnect slowed us down at first because we'd have to dig the streamed material out of the snow—sometimes five or six feet in depth—drag it to camp, find out what was damaged, then radio back and say that pallet such-and-such and the number, give Chief Hess the description and he'd have to go out and dig it up and send us a replacement. And he did that. He did a marvelous job. That's why we gave him a medal the other day. And that's what I mean by stream-ins.

The Air Force wanted to investigate this problem further so they parachuted an AF sergeant by the name of Dick Patten in to us. He confirmed what we were telling them, and the AF stopped using the device. He stayed with us to serve as a ground patroller for subsequent drops. He also helped with construction, didn't return to McMurdo until late December.

After that, occasionally we'd have an airdrop when it would be real windy on the ground. Fortunately that was not very often. So we would have to get in our Weasel and we'd

chase it and cut the chute loose and drag it back. And if it was real heavy, we'd have to send our tractor out to drag it back.

DOB: You mentioned that Dr. Siple wanted changes made to the plans for the Pole station.

RB: Very minor, and all were provided when material was available. First of all, he made an excellent suggestion. He said, "I don't know what they told you about this, but you should have the roofs of all the buildings at the same level." If you have a tall building like a powerhouse extended above the level of the adjacent buildings, it will catch the snow and the snow would drift behind them, would eventually drift up and cover the tops of the roofs.

Well, we hadn't really given that that much thought because at McMurdo everything was built on permafrost. Roof levels varied throughout the station. We didn't have a big snow buildup at McMurdo. At the Pole, of course, snow buildup was a real problem.

So at the Pole we constructed every building with the same roof level, and then we connected them by tunnels which were level with the top of the roofs of the building. The only thing that stuck up above the snow, above the roof line which was uniform for the whole camp, were the two towers—one for tracking the weather balloons and the other for their aurora equipment—and the smokestacks from the heaters and generators. That was a good suggestion we readily incorporated in our construction.

DOB: What was the construction problem?

RB: They weren't problems. They were suggestions which we readily agreed to. He wanted an emergency camp set up off to the side, which made a lot of sense. He wanted it available in case they had a major fire. He wanted to put basic survival equipment and rations in it, a place where they could escape to during the middle of the winter night when you couldn't get to them, and they could exist. So we used portions of our construction camp made out of Jamesways. We took one of them down at about I don't know how many hundred yards from the camp and set that up upwind from the camp. That was one. The emergency camp was completed by the wintering-over Pole Station party after our construction crew returned to McMurdo, using materials from our construction camp.

Then he wanted to take the remaining Jamesways and incorporate them with his permanent buildings, which we did, and they finished. That was just a good use of material.

There were minor things that he suggested based on his experience which, hey, we weren't going to argue with him. He'd been in Antarctica seven times, and he knew more than we did.

DOB: What's a Jamesway?

RB: A Jamesway is a pre-fabricated building, comes in square boxes that can be shipped very easily, and each box when separated is used to make the flooring of the Jamesway. And the stuff you take out of the box consists of ribs, arch-type ribs, and an insulated canvas cover that stretches over the ribs. It looks like a Quonset hut.

DOB: Is there any insulation in it?

RB: Yes. There's insulation in the material that is stretched over the ribs. I think it is in the flooring also. They're very comfortable and durable. They're easily assembled and disassembled, provide a great deal of flexibility.

DOB: Warm enough?

RB: Oh yes. So warm, in fact, that Jack Tuck preferred to sleep in his tent rather than move into the first Jamesway erected at the Pole for the construction crew.

DOB: Windows?

RB: There were a few. It seems to me there's a pane in each door. You'll see pictures of them all over. I understand they are a Korean War type—and they're still using them. They're relatively inexpensive and they're just great for temporary buildings.

Dr. Siple used every piece that he could get out of our construction camp to incorporate into his permanent facility to give his people more room, and they used them right through the middle of the winter night, a hundred below zero at the coldest. They were covered with a thick layer of snow, more insulation.

DOB: Dr. Siple lamented in writing in more than one place that—first of all he said he had enormous respect and admiration for the construction people, how ingenious the Seabees were and how well they improvised and how productive. But then he'd say, "Oh, the waste was just incredible." And he'd go around and pick up stuff and put it in piles. Comment on his approach and yours.

RB: They weren't really different. As we took stuff out of the box, oftentimes we didn't pick up the boxes to the level of orderliness that he expected, and he'd follow around behind us, when he had time—and that wasn't often, he kept himself very busy—and he'd pick up things. He had his own little salvage piles that he'd put these things on.

One of the things he saved completely were parachutes, and we had a lot of parachutes. As I remember it, we sent some of them back because they were quite expensive, and at one point in time they were reporting from McMurdo that they didn't have enough of them.

But anyway, at the end there were a lot of parachutes left over, and he took those. We had pulled them into an area off to the side and let them lay there, and he'd take these chutes and he used them inside his buildings to serve as privacy curtains and also wherever he needed any kind of material. I think he probably also used them for a form of insulation, like an additional layer of air space. He wouldn't waste anything and rightly so.

When we left the Pole, we left all of our clothes, everything we owned there except what we wore out—sleeping bags, survival gear, you name it. We depended on the survival gear of the aircraft to take care of us in case it went down. I think he remarks about this in the book. He used my sleeping bag for something or other.

He was not overly fastidious. He was just a person who didn't want to waste anything, and he put whatever he could to good use. I think that any prudent person in the Antarctic would do that.

[Another provision Dr. Siple insisted on was to designate the portion of the station upwind from its center as out of bounds for all but most essential purposes—such as gathering snow for the snow melter. This restriction was observed religiously by our crew. We had had the same restrictions at McMurdo where snow is much more scarce.]

DOB: It seems to me that it takes a lot of audacity to think that you can build a community in a place as remote and hostile and cold as the South Pole. What made you think you could do it?

RB: I don't know that—it's probably stupidity in many respects, or just not knowing a lot of things. We were very inexperienced. This is probably something Dave Baker told you, too. He didn't say that?

DOB: I didn't ask him.

RB: Okay. Anyway, but we were talking about this earlier, and he and I both agreed that when we arrived down there, we didn't have much in the line of background to do what we were doing. But I think when you put highly motivated people together who have basic skills, that you can do a lot of things that you wouldn't ordinarily be able to do. You take a lot of steps forward and a lot of steps backward, but ultimately you get to where you're going.

Anyway, the Pole—I don't think many of us worried much about the audacity.

DOB: Did you ever doubt that you could do it?

RB: Not really. I didn't doubt that we could do it if we got there, and that was the big question—getting there.

DOB: Did you have doubts about that?

RB: Until Gus Shinn landed at the Pole and took off again, I had doubts. But once he did that, then I felt that solved the big key problem.

It's really interesting. Even though other planes, P2Vs, landed subsequently, all of the crew wanted to go back in the R4Ds because they had so much confidence in the R4Ds and their pilots.

DOB: What if the plane couldn't take off when Dufek landed?

RB: As Dave Baker probably told you, we had our survival plans set up so that we could walk out from the Pole if we had had to. Scott and his people manhauled sleds all over the polar plateau, and we figured that's what we would have to do.

We set our crews up in four-man teams, each team with two sleds that we had modified with runners—these were standard plastic sleds that the Navy provided us. We put skis under them to reduce the drag and made up harnesses. Each crew had enough food to last for I think ten days or two weeks and a tent, sleeping bags, and basic survival gear including Primus stoves.

The idea was that if we had to walk out, we would walk back toward the Beardmore Glacier to a place where an airplane could land, and if we needed more food, we could have it dropped to us. We had radios so that we could communicate, portable radios. They weren't always reliable, but they'd work out in emergencies.

And that was the scheme. We would walk out. Fortunately, we didn't have to do that. [Admiral Dufek and his party would have had to have some help had he not been able to take off after that first landing. Temperatures were very low and while he probably had survival gear, I doubt that it would have allowed his group to move about. Ultimately, his group would have been saved, but our work at the Pole would have been delayed.]

We actually took dogs along. We had nine dogs and we used dogs in going from the point where Gus Shinn dropped our advance party off to the Pole itself—it was about eight miles—and they worked out because when we first got there, we were a little affected by altitude and we got tired very easily. Our Weasel was damaged when it was dropped to us, so we couldn't use it to get to the Pole, where airdrops had already begun.

DOB: Tell me about that. That's very high up.

RB: It's about ten thousand feet, something like that, ninety-three hundred feet. We only had one person out of the twenty-four who had any real long-term effects of the altitude, and I was really surprised. Woody, our corpsman, had some problems with the altitude, but he managed to do his job, helping with all sorts of jobs when he wasn't dealing with medical problems, which were few and far between.

DOB: Were you prepared for the increased fatigue or getting tired faster?

RB: Dave Baker talked about it sometimes, that it might be a problem. It only affected me once, and that's when I was breaking trail for the dog team going from the eight-mile point into the Pole itself. The dogs weren't the best trained in the world. They did their best, but they never were used heavily and hadn't had lengthy training.

The best way to keep them on course was to have a man out front breaking trail for them. Then the dogs would follow that person and that's the way we'd work it. Somebody would go out front. If we had had them longer and used them more often, then I think the lead dog would have been more effective.

DOB: How much authority did you have? Were you *it* at the Pole? My question really is, if you screwed up, who would have your hide or bail you out?

RB: I was designated the Officer in Charge of construction at the Pole. As such, I reported back to Dave Canham and to Admiral Dufek. Admiral Dufek would have been the one who would have had my hide I'm sure. But he was very supportive also. We worked very closely with him before we left. [He called for frequent briefings at McMurdo to assure every party involved knew what was planned and was able/prepared to do his part. Briefings were attended by a wide range of people—AF generals, squadron commanders, Admiral Dufek's staff, press.]

Strict military authority—I think if I had had any problem with any of the individuals, the only real solution I would have had to deal with it was to ship him out. Send the person back to McMurdo and deal with it back there because in an advanced/isolated place like that, you don't have the time or inclination to deal with that sort of thing.

DOB: And didn't need to.

RB: I had absolute confidence in the people we took because I knew them so well. If we had started from scratch twelve months earlier to do it, it might have been different. I think the way it worked out, it couldn't have worked out better.

DOB: I guess I now have to go back to McMurdo a little bit because my question is, the effect of the winter night on what you could do and what you did do.

RB: I break that down into a couple of conditions. With us, because we were so busy the entire winter night, the night had the effect that it really didn't affect our productivity or morale very much. Once we decided we had to build the runway—we had to get it ready by the middle of October when the first planes were due to come in—and we knew we only had one tractor, we went on a round-the-clock schedule for the people working on the runway and supporting personnel. We had to have drivers out there pushing snow all the time, and they couldn't work by themselves. They had to have mechanics and support people. The runway was located over a mile from camp. Workers didn't want to have to return to camp during their shift, and sometimes couldn't if the weather was really bad.

We had a wanigan, a heated building on a sled, parked at the runway where they could go in and get warm and cook and have food while they were there. They could sleep there in storm conditions.

The only people that appeared to be affected by the continuing darkness were the people who weren't busy, perhaps, that weren't working all the time. You'd find them in the mess hall.

They'd go to the mess hall and they'd play cards, have a bull session or something like that, and they said they had the "big eye," which is insomnia. They couldn't sleep. And that was a good place for them to go because the cooks would be working there at night. They'd be baking bread and they'd be doing things that they had to do when they weren't feeding people. Anyone could get a cup of coffee, bowl of soup, a piece of bread, jelly bread or whatever.

So from that standpoint, that sort of acted as a cushion for us, having a place for them to go and be with people and talk about things.

DOB: How dark was it at McMurdo?

RB: If the weather was bad and there was cloud cover, it was dark as the devil. But McMurdo was a real windy place. The wind was the thing that caused the problems. I would say wind would be more of a problem than darkness.

DOB: Does it get completely dark at McMurdo?

RB: Oh yes, if there's no moon out. Sometimes you have some moonlight and that's very nice, especially with reflections from snow cover.

DOB: How light is it?

RB: You can walk around without any problems. We were out with a dogsled at night without any problems. I think Dave told you our trip we made to Cape Evans when we camped overnight. We didn't have any problem with that.

There were some times there's twilight, you know, on the horizon when the sun sits far enough below the horizon. Generally it pretty well circles around and when it comes up, it comes up—at the Pole it does that. At McMurdo you have a night and day for a short period of the year. It's either all light and then it's night and day for a few months and then it's all dark.

DOB: How much artificial light did you use outside?

RB: We used a lot. At the runways we had lights on our tractors and we had an exterior light on our wanigan. Flood lights. If we were doing a prolonged job outside, we'd try to have a portable light and generator with us. I can't remember that we had things called street lights, but I'm sure that we had lights on the path between our buildings and the powerhouse of some sort so you could get back and forth.

In camp it was generally safe to walk around by yourself. We had a buddy system rule whenever we left the camp. We never let anybody go out of camp unless he was accompanied by another person.

DOB: I'd like to hear you tell me the story that Dave Baker told me about the night at Cape Evans. What was the purpose of that and what happened?

RB: As I told you, we tried to keep ourselves physically in shape and one way to do it was to go out and chase dogs. We also wanted to make sure we had all of our survival equipment in shape when we went to the Pole. Dave Baker ran a training camp which he used to train Pole crews in survival matters. They'd go off in teams with their gear, spend a night under difficult conditions. Dave and I, with Dick Prescott, went to Cape Evans with a dog team with the same objectives: we checked ourselves and our equipment. It was a nice trip. It's a break. It's sort of getting away from the job and sort of like going off to New York for the weekend.

[Laughter]

RB: Really. That's exactly what it was. It was just a chance to get away from your routine and get off, and Cape Evans was not too far away. We got there in a matter of a few hours and put up the camp, cooked a meal, and then the storm hit. That was a problem, and it kept us tied down for quite a long time. I don't remember how long.

But we had a system set up with McMurdo that at a certain prescribed time each day we would send up a flare (Very pistol) to tell them we were either red or green—I think that's what it was (red or white?)—that we were okay. If we weren't okay or if we hadn't sent the signal, they could send somebody out in a Weasel to get us. Fortunately, we were able to return as soon as the storm wound down.

Pretty safety conscious. I think you had to be because as they said last night at our dinner, the Antarctic can be very unforgiving. If you make a mistake it's very easy to get hurt.

DOB: Talk about Scott's hut there.

RB: Yes, we went into Scott's hut. I had done it earlier when we were there in December. We didn't disturb anything. It was kind of just interesting to see it. And since we were there, the New Zealand people have really made Scott's hut an historical shrine, created all sorts of restrictions, and rightly so. They did the same with Shackleton's huts at Cape Royds. I also visited Shackleton's hut several times. Both are fabulous to visit as their interiors have changed little since abandoned so many years ago.

DOB: What about the effect of having daylight all the time? How does that affect what you do and how you do it, how you live?

RB: I think that I'd rather have daylight all the time than darkness all the time, particularly when it's real cold. The darkness when it's real cold and windy, it gets to you in a hurry unless you really have a mission.

DOB: Is it really colder or does it just feel that way?

RB: It seems to be. When you have to get up in the middle of the night in the darkness to work outside, you have to have a good motivation.

We found basically that if the temperature was above thirty-five degrees below, we could work pretty effectively in almost any conditions. But if it was less than that, particularly when the wind was blowing, we were just spinning our wheels. We'd do so much, but by the time we got it done, it would become undone.

And darkness, it's a problem but—I think the people who aren't busy and don't have motivation, darkness would affect them much more. It's just so hard to get up—you know what it's like when you have to get up to go do something in the middle of the night outside your house, to go on a trip or something. It takes a little more to get yourself moving.

DOB: How about the daylight? What are the problems or the glories of working in the daylight?

RB: When you do want to go to sleep, of course you have to find a place where you can put a shade over a window or something to keep the light out and that's what we did.

DOB: Did you find that your biological clock worked a little differently?

RB: I don't think we had time enough to worry about it. Lots of times we worked twenty-four, thirty-six hours in a row and the daylight wouldn't make any difference. But the thing is that our crews—and this was happening in Little America as well as at McMurdo—were so busy the whole time we were there, that people didn't really have the time to worry too much about all these things. People who weren't fully busy, perhaps a corpsman who had to be awake and available but wasn't fully occupied, had problems. But we did have scheduled time off, and made the best of these times with movies, church services, choir practice, or shows written and directed by our chaplain.

DOB: So you wouldn't put in an eight-hour day. You would just keep going?

RB: Well, most of the time we tried to have a structured schedule so that people knew what was expected of them, when they were supposed to work, but there were times, and many times, where the scheduling was thrown out the window. At the Pole, as I was saying, where it was light all the time, we worked and when we got tired and there were no drops scheduled, we went to bed.

Charlie Bevilacqua I'm sure will tell you about that. I never had to worry about it. They knew what they had to do. The schedule was laid out and what had to be done, and it would just get done. I never worried whether they were working or not because I knew they were either working or sleeping.

DOB: That's a nice feeling isn't it?

RB: Yes.

DOB: Tell me about teamwork. I'm assuming teamwork must be very important. How do you establish that?

RB: This whole operation is the most amazing example of teamwork that I've ever run into. The planning from the task force was basically setting up the structure of the team. The cooperation from the Air Force, the cooperation from VX-6, ship drivers was exceptional. It's unbelievable. I have a hunch that a lot of that was because it was unique, it was the first time.

DOB: Did you consciously work at the idea of building a team as opposed to a group of individuals?

RB: You have to think in terms of "we" rather than "I" in almost everything you do, particularly in those situations. In setting up the teams for the Pole, they were structured primarily from the survival aspect as far as equipment. And they were set up as teams realizing that four men dragging the sled out would have a much better chance of survival than one man. But I think that most of the highly motivated people there just thought in

those terms anyway. Cooperation was never much of a problem. In a sense, it spoiled me because when I got to later duty stations I found that wasn't always the case.

[End Side B, Tape 1]

[Begin Side A, Tape 2]

RB: There, where everybody was so highly motivated, teamwork was easy. But when you get into normal military duty at a military installation doing normal things, most of which are very mundane, then teamwork is harder to achieve.

In Vietnam, for instance, which was not normal with the combat situation, I was called down because I let my men wear beards if they wanted to wear one. They had a chance to grow one when they got there and if they shaved it off, then they weren't allowed to have it the second time. You know, if they want it, they want it. I felt this minor concession helped morale, productivity, promoted teamwork. I was very proud of the work they did under difficult circumstances, and know they appreciated this bit of freedom of expression. Anyway, and I got a lot of problems with that. My military superiors thought that was the worst thing in the world, if it wasn't military.

And all I could think of when I was being berated for this was if they'd ever seen my South Pole crew, where they all had their own outfits—some of them wore Scottish berets and other people were wearing plaid coats. The completely military uniform wasn't even a consideration. If they were comfortable in what they were wearing and they didn't get frostbite, that's what they wore.

I don't know whether I answered your question—

DOB: Yes you did.

RB: I was spoiled by the Antarctic because so many of the people were so great, that my expectations later were squashed.

DOB: I'd like to have you talk in the same line. I have a list of a number of people and I'd like you to tell me your impression of this person and why you thought so. We'll start with Paul Siple, unless you want to take a break first.

RB: No, I'm fine. I thought he was a magnificent individual, and I still communicate with his wife, although not frequently. I still hold her, them, in high regard as good friends.

As a scientist, I can't comment on him, but I know that as soon as he got to the Pole he started digging test pits and making temperature observations, and he was just marvelous to work with. He was not demanding, but if he wanted something he'd say what do you think, I think we should do it this way and he'd say why and we'd work it out.

We bunked together in both late '55 and early '56 and then again at the Pole, the whole time I was there, about forty days I guess. He wanted to come into the Pole much sooner, but I had asked the admiral to wait until I had the construction camp up so we'd have a place for him to stay. He wasn't a young man. He was quite energetic and in good health obviously.

He would have liked to have had some other things in the original camp that we weren't able to provide. We didn't have the necessary materials. Things that he wanted were just overlooked when the initial planning was done. But I gather that he got through the winter night in good shape. Nobody was hurt or lost.

Everybody speaks highly of the camp at the time and it was never done before, so it was one of those things that—I was real pleased to be able to be associated with him. He treated me very fairly, and I tried to treat him fairly.

He's the one that made the recommendation to name a mountain after me. The Navy didn't do it, he did it.

DOB: Where's your mountain?

RB: I'd have to get the map out. It's in one of these remote spots that no one will ever visit probably.

DOB: Have you seen it? Did you photograph it?

RB: No, I've just seen the aerial photograph of it. It's called Bowers Corner. They named it Bowers Corner because the name Bowers had already been taken by one of the men who went to the Pole with Scott, Birdy Bowers, had a mountain named after him and I think a glacier, too.

A lot of the people who went with us had things named after them, and I think in almost all cases not because of Navy recommendations, but because of input by the scientific community.

DOB: Okay. Tell me about Jack Tuck.

RB: Jack—a marvelous individual. Very quiet, introspective, smart, highly motivated, and very easy to work with.

DOB: He was the military leader at the Pole?

RB: When I left, I turned the camp over to Jack and Dr. Siple. Jack was a perfect match for Dr. Siple. When Dr. Siple asked Jack whether or not he would like to stay on, and Jack

responded yes, I thought Dr. Siple was going to go through the roof with ecstasy. I think inherently Paul had been concerned that the military leader assigned might be incompatible. And I think probably Admiral Dufek was very happy, too.

DOB: Why were they a good pair?

RB: Temperamentally they were similar. They were both kind of quiet and they both had nice senses of humor. They were just compatible. They got along well, they communicated, they talked a lot, and they fought a lot, too. Jack liked dogs, he liked the way the old explorers did things, and I think he admired Dr. Siple very much, too. It just worked out well.

DOB: Was Jack younger?

RB: Jack was younger, yes. I don't know when he graduated from Dartmouth, I don't know when it was, but he was younger than I. And I got along well with Jack, too. But he wasn't the kind of person that—he never was really exuberant about things. He didn't let his feelings show. If you asked him a question, he'd answer you politely and everything, but he just And I think the crew liked him very much, too.

DOB: How about George Dufek?

RB: I think the world of him. I think he was a sailor's sailor. Some people say he drank too much. I thought he was a good family man, hard-working officer.

When I went to New Zealand in '95, the people at New Zealand absolutely raved about him because he moved his wife down there to live while he was on the ice, put his kids in school there. He was part of the country.

He had a terribly hard job. He was constantly put in no-win situations between Admiral Byrd and his staff and the job he had to do with the Navy. He was very supportive of me, and I know he was supportive of Vic Young at Little America. He told us what he wanted done, he expected it to be done, and he'd let people know if he didn't like what they were doing.

I think he had a tendency, like a lot of Antarctic-type people do, if they have a person they trust and depend on, sometimes they give them more credit than they're due. He had a few old-timers on his staff that I felt didn't do him justice, represent him well.

And I think he has not received the credit for his job that he deserves. He was given a terribly hard job, the biggest job ever done down there, most prolonged, more extended job over the entire continent, and I think it turned out well. He had many good people working for him. The good ones were real good, the supply officer particularly.

DOB: Who would that be?

RB: His name was Kent, Don Kent. He was only a lieutenant commander, but he was just sharp. And then he had another supply officer back in Davisville by the name of Jack Lynch, and he was very good also.

DOB: You talked about his being in a no-win situation. Can you give me an example?

RB: Well, for example, if a scientist asked him for something and he wasn't able to provide it, like Dr. Siple wanted the extra building, he was put in the position where he either diverted a plane and took a building away from someone else and gave it to Dr. Siple, or he delivered food to Byrd Station or a building to Byrd Station that they needed. And sometimes people don't like being told no, and he had to say no a lot of times.

Admiral Byrd was demanding. He wanted to fly over the Pole, and Admiral Dufek accommodated him. I had heard that there was criticism of Dufek because he didn't provide the right type of airplane to fly over the Pole; that it didn't have the proper oxygen system. But I just saw a picture just the other day of Dufek, Admiral Byrd, and Gordon Ebby, Commander Ebby, the VX-6 pilot who flew them over the Pole, and there was an oxygen system right next to him. I talked to Byrd's son, Richard Jr., after the flight. He told me the admiral was ecstatic that he had been able to make the flight. He was not in the best of health, probably knew he'd not get another chance.

I think the thing is that when you have two people in control on the same ship, there are bound to be problems. There can only be one captain of a ship; I'm enough of a Navy person to believe that.

When I was aboard ship, when I briefed Admiral Byrd—as I told you, he was the most gracious person I'd ever met—I can understand where his staff, people who worked for Byrd, reported to Byrd, not Admiral Dufek, and the staff of Admiral Dufek could come to loggerheads. Inevitably, something would happen to cause hard feelings.

DOB: So Dufek was in charge of Task Force 43?

RB: Absolutely.

DOB: And Byrd was nominally—

RB: He was head of the Antarctic programs. I think the term is United States Antarctic Programs. He was entrusted with the overall stewardship.

DOB: And he came down on one of the icebreakers?

RB: He came down on one of the ships, I don't know which one. He was aboard one of the ships when I was in Cape Evans, and I got a message asking me to come in and brief him.

He wanted to know what was happening ashore and thought people weren't telling him. I was delighted to do it.

DOB: Tell me what you thought about Admiral Byrd.

RB: As I told you, he was just absolutely gracious, very personable, hanging onto every word that I said. He didn't miss a beat.

DOB: How knowledgeable do you think he was in . . . ?

RB: Do you mean as far as our operation?

DOB: Right. If there was some tension between him and Dufek, I'm wondering if he thought that he wasn't

RB: I'm not privy to the individual problems that they had, but I heard comments from Paul Siple. Siple was Admiral Byrd's chief of staff. Before he went into the Pole everything had to go through Paul Siple. Certainly the admiral was curious. He wanted to know what was happening all the time. He probably wanted to be part of it. He probably wanted to get his finger in the pie.

I just don't know how it would be possible to have two people of that stature on the same ship and not have problems. And you can still think highly of both parties.

DOB: Was he able at that time do you think to have played a more central role?

RB: I don't know the extent of his physical problems, but he died shortly after that. I really don't know that I can comment on that.

Certainly, if you give a person a job and let him do it, and sure you can look over his shoulder and ask questions and everything, and that's what happened. I understand Byrd was responsible for getting Dufek brought back to active duty from retirement as a rear admiral and given command of Task Force 43. This is what I'm told, through his political connections he had arranged that. At that point in time, I guess you'd expect that he'd have to release some of his responsibilities and commensurate authority to that person. I just don't know enough about the details of it.

I just heard comments from people over a period of time that Byrd's staff people didn't think that they were giving him enough attention or respect. And then I heard people from the other side saying, "They want the damn moon and they want this and they want that and we can't do this."

The only specific problem I had with Siple was the one on the extra building. I got in the middle of that a little bit. I would have loved to give him an extra building, but we just didn't have it.

DOB: Dave Canham.

RB: I think we talked about him. He was an outstanding administrator and a tireless worker. I don't know how many times he was put to bed for exhaustion. He tended, in the eyes of a lot of people, to be a nitpicker because he was very meticulous about detail. If he wanted something done, he wanted it done to the max. You know, dot the i's and cross the t's.

And he was very supportive. As I told you, I asked him for twenty-three people and I got every one I wanted, including *his* yeoman, and I knew that hurt him because he depended on these people to help run McMurdo.

He was much closer to the Antarctic program than I was in many ways. After he left the Navy, he was a very active member of the Antarctic Society and Polar Society, and he wanted very much to continue his work and his association with anything having to do with the Antarctic.

Most of the Navy people, including myself, simply left and were assigned to other billets. We got out of it almost completely. I didn't get back into it until 1985, thirty years after, when I went to our first reunion and Dave asked me to take over the roster.

Antarctica is just one other job in the Navy . . . literally. When we came back from the Antarctic, we made recommendations for medals to recognize many, many of the men we served with. Dave Canham personally carried them through to the commander of Navy Seabees, Atlantic Fleet (COMCBLANT). He turned them down. Apparently service in Antarctica was just another job. He had battalions working all over the world in equally hazardous, demanding conditions, so I was told.

The admiral had been a trooper during the war. He had very strong ideas about what was a commendable act and what wasn't, ideas forged by unbelievably difficult experiences in the South Pacific during WWII.

DOB: It's pretty hard to impress somebody like that.

RB: Yes, right. But a nice, marvelous individual. He had a tremendous war record and everything, but Antarctica was just another job for his troops.

Many times back in Davisville, we got the distinct impression that we were a wart in the hide of progress in other business that they had to take care of because we really demanded a lot. We had such a short time, we took over the docks, we took over the

storage yards, we had to have a big commissioning ceremony, parade, pass in review with lots of reporters and photographers and national press, the whole business. And many just weren't amenable to that sort of thing.

They wanted things to just go along. They wanted their battalions to go out when they were scheduled to go out and come back when they were scheduled to come back, and use standard outfitting procedures and follow all the things that they were used to, and this was something that was completely offbeat.

I was answering about Dave Canham, right?

DOB: Yes.

RB: I got off track. Sorry. Dave worked hard and was highly respected, but sometimes the way he did things was somewhat resented by the working people.

DOB: Why?

RB: Because he was a nitpicker—he tended to be that way. For instance, when Admiral Dufek was intoxicated in camp, he just made a hell of a big thing of it. He wrote letters . . . later those letters were released and published, and made a lot of people look bad. You don't display your dirty laundry, right? This guy [Dufek] worked hard and he relaxed every once in a while. [I think many of us felt Dave was a little too self-righteous at times. Don't get me wrong. If it hadn't been for Dave, McMurdo and Pole operations would have been far less successful. Admiral Dufek agreed, readily honored him with the Legion of Merit following DF2.]

And his people he knew, his staff, which had been with him on previous job assignments, he knew them well and he trusted them all. Some of them he over-trusted, but . . .

DOB: Can you comment on Finn Ronne?

RB: Not at all. [Laughs] I can comment on him, but I can't comment with first-hand information. I just know what people have told me.

DOB: Do you want to?

RB: I can say that some of the first things I heard when I was camping with some of the old-timers at McMurdo were not very favorable to him, to his leadership capabilities. And that this has been reinforced many, many times after that, as late as our latest reunion when some of the people from the Ellsworth station told us about some of the things he did there. I'm not surprised, but they told me—I've never met the man. I never met her [Edith Ronne] at all, unless she was here yesterday. No one pointed her out. Did you meet her?

DOB: I talked with her many times.

RB: Did you?

DOB: Yes.

RB: I wouldn't know what she looks like. I know she and Ruth Siple spend a lot of time together with the Antarctic Society. I hope I'm not being unjust to the guy, but if he did everything that people say he did, he was a very unique individual and I can understand why he had problems. Is that enough?

[Laughter]

DOB: I won't push you further.

RB: Really, I think the other people are saying it and I don't have to say it.

DOB: How about Slats, Charles Slaton?

RB: Charles Slaton—just a remarkable individual. I don't know whether I told you that I had written a letter recommending his getting the Navy commendation medal, and then we had it approved up the chain.

The reason I wrote it was he had done so much for us at McMurdo. We depended on him for everything as far as offloading the ships, keeping the equipment running—especially for the runway project and getting ready for the Pole, leading chief at Pole, and so on.

Slats wasn't at our reunion, so I had to make separate arrangements after the meeting to have the medal presented to him. I learned that Rear Adm. Don Iselin, a friend of mine, lives in Santa Barbara, near Oxnard. Don had been the Chief of the Naval Facilities Engineering Command at one time. He's just an outstanding individual, worked for Admiral Rickover in the nuclear power program early on.

So I called Don and asked him if he could make the presentation to Slats. He said, "Dick, I've got to tell you that Slats worked for me when I was in Alaska." Evidently, prior to Deep Freeze the Seabees had a group go up to the Aleutians to do a very important job to keep a roadway open for some fifty or sixty miles along the Aleutian chain. Anyway, he said Slats worked for him and just did a superb job for him. He said there's nobody in this world he'd rather give a medal to, so it just worked out beautifully.

He went down to the Construction Battalion Center at Port Hueneme and he talked to the commander there. He found out they were going to have a pass in review of all the

battalions on the West Coast and a parade and celebration the following month. So Don arranged to present it to him then.

Slats had his family, his son, his kids, his grandkids all there and they had a really big show, and then Don sent me all the pictures which I sent to Slats and some of his friends.

DOB: So what did he do? Why was he worthy of a medal?

RB: He was just a type of person who knew equipment backwards and forwards, and he was absolutely honest. If he didn't like what you told him, he'd tell you, and sometimes he'd be a little rude about it and this is what bothered Paul Siple.

Absolutely dependable. If you gave him a job to do, you didn't have to worry about it. He drove his men very hard, and a lot of the men found that a problem. Under the circumstances, it was absolutely necessary. For example, when we first were unloading equipment, we had a lot of people operating equipment who were not trained as operators. A lot of it got damaged and shouldn't have been damaged. We had to use people from the ships to keep the trains moving.

He didn't have a place to repair it except a shop that he set up in the open with a little trailer that he had full of tools. Night and day, twenty-four hours a day, he had his crews out there repairing equipment so we could unload the ships. He kept it going. He kept the people working, and we got the ships unloaded. There were a lot of frostbitten fingers.

Then, when we were preparing to go to the Pole, he was to be senior chief there, and I'd ask him to do a lot of things to get ready and he got them all ready. He got the tractor all ready. He took an old tractor and rebuilt it to take to the Pole. The tractor he named William Joseph after his son. It made all the papers.

He didn't sleep very much the whole time we were there. He told me he didn't sleep very much because he was concerned about getting out of there to get back to his family. Every night after he was done work and others were sleeping, he'd take the tractor and go out and drag the ski runway to make sure that the planes could take off.

[Laughter]

DOB: You started telling me yesterday about a difficulty that you had with Mr. Slaton at one time.

RB: I told you that at the Pole one night I had raised hell with him because he had brought some beer to the Pole and was drinking it, and I told him that he ought to save that in order to—we'll have a little celebration at Christmas time. This was before Christmas.

I said, "You know, that's not right. You've got to keep this under control" or something and he just really raised hell. Doc Siple was kind of wondering what I was going to do about it. I said, "Look Slats, you go drag your runway, get this all worked out, and tomorrow we'll talk about it." The next day he came in and apologized profusely and went back and did his job. He was just unbelievable.

I knew he was just frustrated, and he was very concerned about getting out of there—he really was. He wanted to get back to his family. They were very important to him.

DOB: Was he concerned about getting out or just in terms of the time of it?

RB: Getting out. Not the time of it. I think he just was very insecure there. When he was there, he worked tirelessly, but as I say, almost every night he was out there dragging the runway because he wanted that thing perfect for the planes. It's just one of those things.

He was just one of those absolutely trustworthy individuals.

DOB: Is there somebody that I haven't named that should be—is there somebody else that you particularly were glad to have there?

RB: That's the toughest question because actually, as I told you, this was a real team approach and there were so many of them. When we recommended the four medals this last spring, I could have recommended twenty-five or thirty that I thought very highly of, but we didn't have a chance of getting that many approved.

There were mechanics, there were yeomen, there were radiomen, just all sorts of good people. And most of them, not amazingly and probably understandably, when they got out of the Navy they went on to much bigger things. Many own their own businesses, just did unbelievably well.

DOB: I have to insert a question about the flights into the Pole. The equipment and the supplies that you got there were airdropped, but the plane landed with Dufek and the plane must have landed with you.

RB: The plane *Que Sera Sera* (R4D) landed with Dufek on October 31, 1956, and met very cold conditions, windy conditions when they landed. They had a terrible time getting off. They were very lucky to get off. Fortunately, the emergency refueling site at the Liv Glacier had been set up a day or so earlier, was able to refuel the plane en route back to McMurdo.

Afterwards Dufek said, "I don't want you going yet," and we were all ready to go. He wanted to wait for warmer temperatures. I got a little concerned about it and I went to ask him if we could—because I thought it would take us longer to do this than it did. Our

planning showed it would take us about forty-five days I remember, and I thought it might take longer than that if things didn't go well.

I briefed him twice on November 3rd, and I said, "You know, this is going to really shorten up our time if we don't get in there as soon as we can," and I said, "I'm not worried about the temperature if you can get us there." He said, "No, it's that airplane—every red light on the dashboard was lit." I think it scared the hell out of him and rightly so because it was a terrible situation. They barely were able to break free of the sastrugi with every JATO activated. He was concerned that the R4Ds couldn't take it.

So he said, "I'll tell you. I'll send some of your guys back to New Zealand for R&R while we're waiting." And this really upset me a little bit. But anyway, he did that. You should ask others about the crew who went to New Zealand for R&R. Several came back engaged after the short visit (three out of ten!).

DOB: I was asking about landings at the Pole.

RB: We knew then that Pole landings would not take place for about ten days, and then it would depend on the weather. Admiral Dufek had a weatherman named Mirabito that he relied on entirely. He worked very closely with all the weather guessers in the whole Antarctic so he could predict what the weather was likely to be as accurately as possible. They didn't have information from the Pole itself, although they had dropped an automatic weather station—a remote sensing device that was supposed to record and broadcast wind and temperature conditions, but it never worked to my knowledge.

When 10 November arrived we were hopeful, but then we were given a 15 November target date. When the weather got up to about forty below, he said, "Okay, I think we can go now," so the first nice day after that we went [20 November 1956].

DOB: But you did land on the snow.

RB: Yes. We took two planes in at first, our advance party with two four-man teams. Jack Tuck and I plus two radiomen, a corpsman, a mechanic, an aerographer, and Bill Bristol, our photographer, who was also a helpful worker. Everybody worked. I mean everybody did everything.

We landed at the Pole, and the conditions were really good. It was about forty below, and once we got the planes offloaded, when we got out of the prop wash, it was not bad at all, comfortable. There was little wind.

We got our tents set up, and the first thing I had to do was find out where we were. I made a first observation giving us an initial line. They had located us as close as the fellow could get us using navigation on the airplane. But in navigating, you get only one line at any one time and you can be anywhere on that line if you only have the sun to

shoot. We didn't have any stars to shoot or the moon to give us another reference. So the navigator did the best he could. He got us within eight miles.

We were somewhere on that line, and I had to find out where we were. So after six hours, I was able to get another line crossing the first to pinpoint our location. We were eight miles grid, bearing 23°, from the Pole. I took additional sun shots every six hours to verify the finding. About twenty-four hours after our landing, and about ten minutes after I decided that the Pole was where it was and where we were, a C-124 flew over with spare parts for our damaged Weasel. I got our radios out and the guy said, "Dick, which way is the Pole?"

[Laughter]

RB: I said, "Boy, you're just in time or I'm just in time or something." Anyway, it was really laughable because [the timing] was just a coincidence. He knew [locating the Pole] would take some time. The pilots wanted to take every available time that they had to get to the Pole whenever the weather conditions were right.

He banked and went in the direction I gave, and we could see them eight miles away dropping at the Pole.

We wanted to get to the Pole ASAP to mark all the dropped material so we could find them all when we had our crew available to retrieve them.

Anyway, had we had the Weasel to take to the Pole, we would been there in a few minutes, but the Weasel cracked a transmission housing when it dropped, and all the oil leaked out. We had to radio back for a replacement, which they sent to us.

So while they were doing that, Tuck, Powell, Bristol, and I took the dog team for the Pole while the other four stayed back to complete repairs on the Weasel. I lost my train again. We were talking about landing at the Pole. Okay.

DOB: The plane then took off immediately when it dropped you off?

RB: Yes. The two planes took off using JATO. We have some photos of that somewhere, but it's not on my footage because it was so cold that my film broke. We have footage of that second and third takeoff from the Pole (Gus Shinn (again) and Roy Curtis pilots) from footage found in Bill Bristol's films after his death in early 1998.

Then subsequently as weather permitted and we got set up at the Pole itself, the other sixteen men and Dr. Siple were brought in. Within a matter of a week, the construction camp was up and running. The full crew was hard at work by December 2.

[Interruption]

DOB: Tell me about the construction process itself. When you arrived at both McMurdo and the Pole, I'm assuming you saw not much more than a field of snow.

RB: That's right.

DOB: What did you do?

RB: Pole Station was completely different than McMurdo. McMurdo is constructed on a shelf of volcanic soils. It's constructed basically on a field of permafrost. We actually dug and blasted, with shaped charges, test holes and we'd go down about a foot, a foot-and-a-half, and then it's frozen solid—it's soil with water in it and it's frozen solid.

What we did there was to build the buildings, pre-fabricated buildings made of four-by-eight insulated panels hooked together with clips, built on top of foundations in such a way that air circulates under the building. That's designed to keep the permafrost from melting with the heat of the building.

The buildings are insulated like large refrigerators. Huge twenty-by-forty-eight refrigerators. Any increment of four feet in length.

At the Pole we faced a more difficult foundation problem. The foundations are more difficult because when building on snow, you not only have to keep the heat away from the snow, but you have to spread the loads over a wider area because snow is much softer. Otherwise buildings will settle.

Pole buildings were put up on trusses that run under the buildings. The trusses are supported by foundation pads along the sides of the buildings. [This keeps the load on areas unlikely to be weakened by heat from the building floors. The garage was an exception because loads from heavy equipment couldn't be handled by the trusses we had available. The garage was supported by foundation timbers under its entire floor area.]

The construction at the Pole was expected to be covered by snow within a few years and then later covered completely, so it had a limited useful life. At McMurdo, some of the buildings were still standing as long as last summer, although most of them had been replaced for other purposes because of operational considerations, not their structure.

DOB: How long does it take to put up a building?

RB: Not very long. Once the foundation is set, four or five men can put one up in a day easily.

DOB: And how many buildings would there be?

RB: I think there were a total of thirty-four Clement-type buildings of various sizes at McMurdo initially, and eight at the Pole. Temporary buildings were added to both stations, using Jamesway buildings. McMurdo needed the extra facilities because of the large summer population.

The buildings that are used for garages and power plants and that sort of thing have to be taller, bigger, and the foundations have to be beefed up also because of much heavier load on them, vibrating engines and generators and that sort of thing.

DOB: So at the Pole if you wanted the ceiling height or the roof height to be the same, then you had to—

RB: We lowered the foundation. That's exactly right.

DOB: Okay. How did you provide for power?

RB: We had electrical generators, Caterpillar generators. I told you earlier they worked beautifully except that we had to operate them all independent of one another. We couldn't operate them both on the same circuit. We couldn't parallel them. We didn't have a chance to check them out before we left. That was one of those hazards of having to do things in such a hurry.

DOB: Generators powered by what?

RB: Diesel fuel. We used the same fuel for our tractors and for other construction equipment.

DOB: Okay. How about water?

RB: Water was obtained by melting snow. At McMurdo we took certain areas around the camp and fenced them off and made these areas out of bounds.

Of course we couldn't keep the birds out of it. We used a front-end loader to go up to the snow fields and pick up the snow and bring it back and dump it in a big box next to the—we had two snow melters: one at our eating facilities/mess hall and one at the power plant that we used for washing machines and showers. They filled them, and then the waste heat from the stoves, the ovens, and the generators would be used to melt the snow. A similar system was used at the Pole.

DOB: How much would it take?

RB: It took a lot. Water was a real problem and will always be a problem. They have more modern systems now that make things a lot easier, but in those days water was rationed all the time.

DOB: How rationed was it?

RB: We had limited showers for people, and we told them not to stay in the showers longer than a certain time—I don't remember the specifics. It's the same aboard ship where you have limited amounts of water. We did not use desalinization or anything like that at that point in time.

DOB: I know now there's a very clever well at the Pole.

RB: You heard it at the reunion, yes.

DOB: I read about it—

RB: And they use waste heat to keep a reservoir of water melted and available at all times. It's just marvelous, unbelievable.

DOB: High tech.

RB: High tech.

[End Side A, Tape 2]

[Begin Side B, Tape 2]

DOB: Were you ever truly frightened?

RB: Running heavy equipment over sea ice is probably as frightening as anything I've ever done. Sea ice deteriorates from underneath as well as on top. Sunshine will shine on it and you might have a melt pool on top of it, but it will also erode with water movement running under it, and you won't know this is eroding unless you are very clever. At least we didn't know at that point in time. And then there are cracks and wide leads caused by the many forces acting on the ice—wind, waves, tides.

And particularly after we lost one man through the sea ice with his heavy bulldozer, Williams, it was really scary. As the season progressed, every time I went out on the sea ice I really crossed my fingers as to whether or not we'd have problems. And problems were real severe because the water is very deep, and once you go through it, unless you can get out of the equipment in a hurry, your chances aren't very good.

DOB: So how did you deal with that? I mean you had to unload.

RB: You went as fast as you could [laughs], and you didn't stay there any longer than you had to. But it was something that really had to be dealt with. When they were able to get the channel down to the old sea ice so that our tractor trains could operate on the old sea ice, we felt much more secure.

But even then, the following summer we lost a man through a section of ice that was really old sea ice but was near the shore and had been eroded underneath from the currents and we weren't aware of it. He went through with a Weasel and wasn't able to get out and drowned.

DOB: Who was that?

RB: He was one of a ship's crew who had been assigned to offloading.

DOB: What was your worst memory?

RB: I think the worst memory was the first month or so at Hut Point trying to get the ships offloaded and working over the sea ice, trying to get the base established. Once we got the offloading squared away onto the old sea ice, we knew where we were going, material was arriving, and we started to build buildings and move into them and get settled. Then it was fine.

DOB: So it was uncertainty?

RB: Yes, the uncertainty in having people work up to forty miles away on ice that could go to sea at any time, with inadequate or minimal radio communications. If the ships were in, we had fairly good communications, but when we were using small portable radios shore to shore, the systems were not reliable. We would often have crews working not knowing whether they were safe or not for long periods of time.

At one point in time, we were able to listen to a harbormaster in Lyttelton, New Zealand, twenty-three hundred miles away on our radio, and we couldn't hear our own crews forty miles away at Hut Point. The very unique environmental conditions would affect the communications so that they were really ineffective at times.

DOB: And it was a factor of Antarctica rather than a factor of the radio equipment?

RB: I think so because we used the same radios in the states. We checked them out and they seemed to work just fine.

DOB: How about the best memory?

RB: Oh, the best memory of course was finishing the Pole station and getting everybody in and getting them out without losing anybody and nobody got hurt—we had no plane crashes. It just worked like a clock because we had such a tremendous team working on it. Very satisfying.

DOB: It must have also been extremely well planned.

RB: It was planned as well as could be planned knowing what we knew at the time and knowing what we had to work with. The timing was turned around a little bit and we learned a little more than we knew when we started. Other than that, it just worked out fine. A very satisfactory experience.

DOB: Is that your proudest moment?

RB: I think it was the proudest for all of us, not just me. I think we all had good feelings about that. We get together very often, as you know, as often as we can.

DOB: What would you do differently if you could?

RB: There are a couple of things I'd have done differently. One of the things we did before we left the states was, in order to reduce the weight of the Weasel, we took pontoons—they were located normally in the front and rear of each Weasel—and removed them because we were going to be operating on snow and ice and thought we didn't need the pontoons. We could have saved a life had we kept the pontoons on them. The Weasel was designed for use in water and land. It was designed to be able to cross rivers with positive flotation.

It was a decision that was made to save space, weight, wear and tear on the drive systems. With pontoons the length of the Weasel made it more unwieldy to use, and that I'd do differently. I would make sure that Weasels operating on sea ice would have pontoons on them. They would have caused more maintenance problems, the tracks would have worn out faster because of the extra weight, but it would've been worth it.

There are other things. We would have probably taken different equipment or more of certain kinds/models of equipment and less of others.

DOB: Any specifics?

RB: Not at this time, it's too long ago. But I remember that—we didn't have enough D-8s. We could have used more of the heavy tractors. We would have perhaps taken additional equipment of different types had we known how to do things better. We used what we had and we did what we could.

DOB: As I read the accounts of people who were in Antarctica during that time, just about everybody laments the lack of women there, and yet there was enormous resistance to including women on the ice. What do you think?

RB: I think all of the people who were down there were glad to get home and be reunited with their families and girlfriends. Women would have caused real problems in those early days simply because of limited facilities. I don't know that they cause any real problems

today. They have large numbers of them at McMurdo now and working at the Pole and throughout the scientific community.

In those days, the living conditions were so primitive that it would've been difficult for women. Sanitary conditions were so poor We had enough problems without adding sex to it.

[Laughter]

RB: And now they have more time for that sort of thing. They have bowling alleys now, they have satellites for navigation, they can talk by phone, with hardly any problems to communicate back and forth to the states.

Our communication was by ham radio, and fortunately we had some very dedicated people who would man the stations at all sorts of hours so that we could talk to our families. We had rotating procedures so that everyone would get a chance to talk home as often as we could. We talked with the states at least once a month, but schedules depended on weather conditions and what we were doing. Ham radio was a real blessing. Sometimes they could patch phone lines through, but sometimes my wife went to the ham operator where they could make it easier. She was in Rhode Island at the time. There was a man who lived not too far away who handled that sort of thing.

DOB: So you got a schedule and you'd know?

RB: Sometimes we did, yes.

DOB: Was there any mail?

RB: Not during the winter night. Once the ships leave, there's no mail until the following October, then they bring it all in along with boxes of oranges and fruit, things we didn't have. Morale goes up pretty fast, although morale was never really much of a problem during the winter night because we were so busy. Now I think it would be a problem because people aren't that busy.

DOB: You think it's worse now?

RB: Oh yes. I wouldn't want to go there now. Not for the winter anyway.

DOB: Would you go back?

RB: I'd go down for a visit. Perhaps I could have in 1995 when Sally and I were down in New Zealand. I probably could've gotten a trip if I had pushed, but Sally and I had other plans and I wasn't that strong about it. I wouldn't hesitate to go down now for not too long to look around, see how things are.

DOB: A few weeks?

RB: Sure, a few weeks.

DOB: Okay. What about the chores, and I'm thinking about housekeeping.

RB: We distributed them pretty equally. As far as housekeeping in our own barracks, we took care of that ourselves. There were certain things like washing the dishes and mess cooking that had to be assigned, and when things got really tight the officers even did some of that.

When we were working at the runway, for instance, in order to get enough drivers out to the runway and to do everything we were doing at the same time, we didn't even have enough enlisted men for mess cooking so the officers took turns doing that.

DOB: Did you cook or drive?

RB: I didn't do any because I was out on the runway. I was out on the job all the time. I didn't mess cook, but some of the officers who weren't tied up at that time actually stood in. People responded when things were tough.

DOB: How aware were you when you were there of world affairs and political and social issues, nationally and internationally? And what were they?

RB: We received news through our normal Navy channels on occasion, and we could listen to short-wave radio. But frankly, we were in another world. I'm only speaking for myself. Probably there were people who were tuned into that sort of thing, paying some attention, but I don't think many of us did. I think we were just wrapped up completely in doing what we were doing and when we weren't doing it, we were watching a movie or reading a book or catching up on our sleep.

DOB: So you didn't care much about the Cold War?

RB: We were aware of it, of course, because we knew the Russians were also building stations while we were building there, but it really didn't affect us any. Probably we should be as citizens, but I'm sure at that point in time we had other things in mind.

DOB: Okay. Tell me about the food.

RB: I think the food was better than I expected. Whoever planned the diets—they have people in the Navy who do that—sent us down a tremendous amount of food and we ate very well. We gained a lot of weight. I weighed about two hundred twenty pounds when

I was down there. And it was spread out. You were so busy and physically active all the time, you didn't put on a lot of blubber.

The food was, I think, superb. We had plenty of meat. We didn't have a lot of fresh fruit, but we had a lot of juices and everything we needed to stay healthy. There was no case of scurvy or anything like that, as they had in the old days. You'll have to ask one of the doctors what he thought of it. Maybe they had some dietary problems. I can't remember whether we took vitamin supplements or not. Probably we did because I always have. I can't remember specifically doing it.

DOB: But the people were generally healthy?

RB: Yes. The only time they really weren't healthy was if they got some physical problem like a broken arm or a cut or something like that, and when the ships came back in or when an airplane came in with a new bug, then it spread around the camp.

DOB: Okay.

RB: And that's typical of the Arctic. Well anyplace that's isolated, really. Once the germs circulated throughout the ninety-three people we had, we became immune to each other's bugs. We lived in close proximity. We ran into almost everybody at least once a day. It was very healthy.

DOB: So when the bug came, did everybody get sick?

RB: Yes. If a ship came in and a bunch of people came ashore and walked around and had mess and everything, before long someone would come down with a cold or flu or something and then it would just go right through the camp.

DOB: Everybody would get it.

RB: Typically yes. Everybody would get it except—you know, it's funny because when we went to the Pole, we had a lot of aircraft coming in but we didn't have any ships, and for some reason none of us were ill when we were there. We went through the whole Pole era without a medical problem. When we came back to McMurdo, some of us got pretty ill. I know I had a day or two of sinus-type problems.

DOB: Did you have interactions with any of the other countries that were there?

RB: New Zealanders, yes. When we got back from the Pole, we actually took a bulldozer over to Scott Base and helped with the earthwork for their station. That was a nice thing. Sir Edmund Hillary was there at the time and they were just getting it established.

Originally they had planned to put their station on the other side of McMurdo Sound where one of their geologists by the name of Bernie Gunn had recommended. But when they came down with their ship in late '56, they found they couldn't get their ship near enough to the station to offload it.

So then they made another survey, found a real nice site on the other side of Ross Island.

They only had these little farm tractors, so we asked them if we could help them because we had just come back from the Pole and were kind of extra hands. They didn't have a lot for us to do because the new people had come in and the jobs had been pretty well distributed. So some of our Pole crew went over and helped level their stations with our big tractor, saved them a lot of time.

We did find other jobs to do. Mechanics worked on equipment and things like that. I was put on a job with Lynn Cavendish to coordinate offloading cargo. He took twelve [hours] and I took twelve for about a month. That worked out nicely.

DOB: So the New Zealand station was very close. There were no other stations from other countries as close as that?

RB: No. It was the closest within a mile or two. Hallett, manned by us and New Zealand, was located to the north about three hundred miles. But I never got out to that. To answer your question, no.

DOB: Okay. Over the course of this weekend at the symposium of the American Polar Society, there was discussion of current issues and among them tourism. Knowing what you know from your experience on the ice, do you think that increased tourism can be sustained on the continent?

RB: In some of the large well-endowed communities like McMurdo, I don't know that increased tourism would make much of a dent because there are so many people there now and they're really geared for a large influx of people. But in some of the outlying communities where their facilities are limited, I don't know how they'd handle an influx of tourists.

The South Pole station has limited assets, limited space, limited food, limited water, limited sanitation facilities and everything. Maybe they can if controlled. There has to be some sort of discipline imposed.

I think that with a good education program and people who run it who know what they're doing, tourism can take place in some areas without problems. It has been for years around Palmer Peninsula. Just the outlying stations where the assets are so limited pose serious problems.

DOB: Can the environment handle it?

RB: As I say, people have to know what they're doing and control it as far as disposal of waste and how they handle themselves. If you add large numbers of people, something's going to happen, Lord knows what. People will get hurt and then when they call for help you'll have to put down what you're doing in order to help them, then you don't get [your work] done. I guess that's what you have to do.

DOB: Is tourism a good thing . . . if you had your druthers?

RB: If I were stationed there I'd have my druthers, yes. I'd prefer not to have it, but people are people and money is to be made and they're going to make it. It's unfortunate, but I think that's the case. So I think what you have to do is control it in such a way that it minimizes the impact.

DOB: The Antarctic Treaty in 1959 set aside the continent for science and peace. Do you think it's possible that this will continue indefinitely? That we won't get into political and military messes if, for example, valuable resources are found there?

RB: I'm pessimistic about that. I think that people are too greedy, and that ultimately the negotiations that have been so successful so far in keeping this thing under control will break down. I just believe that if people need resources and those resources are available there, that they're going to do everything possible to get them regardless of any treaty. I'm pessimistic about that. I wish I weren't, but I am.

DOB: Do you think there are resources there?

RB: Sure, I think there are resources. I don't know that they'll be economical to get, but they possibly could. Look at the resources they found in the Arctic. Siberia is loaded with resources mined successfully under inaccessible conditions. It's just a matter of how badly you want it. If people want it badly, they'll go to any end to do it. And unfortunately our population is exploding at such an unbelievable rate. See, I'm pessimistic. Is that the wrong answer?

DOB: It's a valid answer . . . and a good one.

RB: I try to be honest. This population explosion, I think, is a very real problem, and unless people do something about it in time, we'll be overrun.

DOB: What's your favorite story? When you go to your grandchildren's class, what do you want to leave them with?

RB: Favorite story? Well I guess there's a big lesson to be learned in what we did down there. The biggest lesson I think is that in spite of our inadequacies to deal with many of the problems and the mistakes we made, we still pulled it off. I guess that says that if you

have the proper motivation regardless of your intelligence, you can do almost anything.
[Laughs]

And we were very ill prepared when we went there even though we were educated and had good training in our respective fields. Last night we heard about Inuits in Alaska, and about the practical knowledge gained over years of experience in the Arctic. They're not easily transferrable. You have to get them through experience unless there's somebody telling you about it, somebody teaching you.

DOB: Ill prepared in what?

RB: That we didn't know what to expect and sometimes we didn't deal with it the right way.

DOB: What was unexpected?

RB: We didn't know about how to deal well with the salt-water ice. To me, that was the biggest shock I'd ever run into. Here we were forty miles away from where we were supposed to go, and the only way to get there was to go over the very treacherous sea ice. We weren't prepared for that.

DOB: Paul Siple wrote that the polar experience has a profound effect on character and personality and that practically nobody goes to the continent and comes away the same.

RB: I think that's true.

DOB: Were you changed and how?

RB: I think that's true. Everyone that I run into who was down there with us will tell us the same thing. They think it's the high point of their lives. It's running into something that's so unique. Distances, you see forever, and climate. Everything is extreme.

Maybe a person who has grown up in Wyoming or someplace with vast expanses of land and mountains in the distance wouldn't feel that way, but I think the average person grows up in more confined, conventional surroundings, less physical challenges. We're dealing with things that are both tangible and intangible. They're very real and at the same time they're really hard to grasp.

I think you gain a lot of respect for nature and your own abilities to deal with hard problems. I think you tend to be more realistic about things and not pretend they'll go away.

DOB: Confidence?

RB: Confidence? Yes, you can call it that. I think you learn to be more tolerant of people in many respects. A lot of people can't deal with these things, and you have to be able to see this and accept it.

DOB: If you were an artist and could paint one canvas that would convey the essence of your experience on the ice, describe it. What would it be?

RB: I'm thinking of the scene that was most amazing to me is when the sun gets to be a certain height above the horizon at the Pole, you get a ring around the sun that, at a certain elevation, touches the horizon and it's just a natural phenomenon that very few people have a chance to see. I forget the exact reason why this happens. It has something to do with the way light is refracted off the light crystals. There's a name for it which escapes me right now. But I remember standing at the Pole with Siple or Tuck or somebody looking at this tremendous natural phenomenon that very few people will ever witness, but we did.

And the other natural phenomenon was standing at the Pole looking at the sun as it reached its highest level—that is when it reached its lowest level with respect to the equator—and watching it go up and then watching it go down again. Few people have ever done that. Siple and I were standing there one day and said, "Hey, very few people ever saw this happen."

DOB: How fast does that happen?

RB: Very slowly, fortunately, so you get two or three people to look at it and they'd say they saw it. Siple was one of them and I think Tuck was the other one. We did it on purpose. We knew that it was going to reach its highest point in a certain point in time, so we went out and watched it.

DOB: What haven't I asked you that you would like me to or that you'd like us to know?

RB: I think maybe the thing to do is cut it off and then review it six months from now. I'll be in contact with you many times between now and the time you're ready to go to press. And you might have other questions and we can have another, shorter session later. I'll be back in Washington at least two times this next year, I'm sure. I'll be back visiting my son.

DOB: All right. Thanks a million, Dick. You're so wonderful.

RB: You're certainly welcome. I hope it's what you wanted. I hope it helps you.

DOB: Thanks.

[End of interview]