

Mr. Gordon Cartwright

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San Rafael, CA

Brian Shoemaker

Interviewer

(Begin Tape 1, Side A - 000))

BS: This is an oral interview with Mr. Gordon Cartwright, taken as part of the Polar Oral History Project conducted by the American Polar Society and the Byrd Polar Archival Program of the Ohio State University on a grant provided by the National Science Foundation. The interview was conducted at Mr. Cartwright's home in San Rafael, California by Brian Shoemaker on the 9th of May, 2000.

Mr. Cartwright, you've explained that you're not Dr. Cartwright, you're an M.A., that's correct. Well noted. Well, we're interested in your background, where you're from and how you became involved in weather observational work. What led up to it, your schooling and possibly people who influenced you to do this?

GC: I came from the working family living in Newcastle, Pennsylvania, which was the largest tinplate center in the world at that time. My family came from Wales which were mostly working in coal mines or factories. But the development of this large conglomeration of tinplate or plate producing factories resulted from the supply of ore that came down through the Great Lakes and the coal came and the limestone came from Pennsylvania. The boss of this little group had a beautiful big house on the highest point in the town and with a pair of binoculars, he kept track of the mills. He could tell from the smoke how they were doing and he'd call up and say, "What's the matter with No. 22? What's happening down there?" But that soon became ancient stuff because the mills were designed that the metal came through in a big ingot - some 100 lb. ingot - and went back and forth through the rolls - a complicated and time consuming process. But that's the way it ran for a whole generation. The head of the mill was the "roller". He was in command of the mill and he had a "shareman", which my father was, a "screwboy" who kept the rolls at the right tension, and the ingots kept going back and forth until they were the right

thickness to make tin sheet metal. But somebody realized that that was a stupid way to do it, and they built the continuous mill where it started at one end and went through a succession of rolls until it came out as finished sheet metal.

But they didn't fix that for my town. They built a new mill in Gary, Indiana. And that finished the big operation in Newcastle, Pennsylvania. The mills were used for various, sundry purposes later, that is, the structure was. But it never regained its stature as a major steel center in the world. You know, to make steel, you have a big furnace, and you heat that furnace with hot air so each major furnace then has four stoves. They're large buildings, but all they do is produce very hot air which is blasted through this mixture that's in the main furnace. And then the steel is drained off and it goes one way and the slag goes another way. And all the roads around my hometown were surfaced with slag. It was first used . . . they would run it out of the mill into where it would solidify, then it would be crushed so it was rather like limestone. But then they began to run it out on water sheets, on plates covered with water, and it produced a candy-like, puffed up stuff and they decorated the roads of Pennsylvania with that for quite a while. But it didn't solidify and traffic would make it into rough surfaces. It just didn't join into a solid surface. So, we went back to macadam and concrete.

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The governor of Pennsylvania at that time was (Peatrow?) and he was determined that the limestone and steel industry would be preserved and he did a lot of work in keeping these factories in the lead. I worked at odd jobs as a kid. After I graduated from high school, I saw this advert in the post office for . . . there were two of them - one was for an airways keeper - the old CAA, and the other was for an observer in the Weather Service. So I applied for both, got notice that I was being accepted for an interview in Pittsburgh. I took the Pennsylvania and Lake Erie Railroad from Newcastle to the P&LE station on Smithfield Street in Pittsburgh - quite a beautiful station. And then I walked across the Smithfield Street Bridge which was a one-of-it's kind. It was called a combined compression tension bridge that was self contained. It didn't have any anchors. The tension side and the compression side were joined in such a way that it didn't require aggregates for it. It was a, a remarkable design but I don't know how long it lasted. Pittsburgh was a city of bridges. We had all kinds of mostly cantilevered, but there were a few suspension bridges there too.

So one of the interesting things about the Pittsburgh office was that we were at the confluence of three major rivers - the Monongahela going to the south, the Allegheny going to the north of Pennsylvania, and of course the Ohio going on down to the Mississippi.

BS: *And which year was this that you interviewed?*

GC: What?

BS: *Which year was this that you interviewed?*

GC: That was in 1929.

BS: *1929. And what was the organization then?*

GC: It was the Weather Bureau.

BS: *Just the Weather Bureau?*

GC: Yeah. (William S. Bronson?) was the meteorologist in charge at Pittsburgh on the 25th floor of the Oliver Building which was an aluminum company building on Smithfield Street. And I passed the interview all right and Mr.(Bronson?) said, uh, you should report for duty on a certain day - first of June, 1929. So I walked that . . . First I moved to Pittsburgh, but I didn't like being away from my family so I moved back to Newcastle and commuted. Commuting cost me \$18 a month for five roundtrips every week and I got so that I could tell exactly how fast the train was going by counting the exhausts of the locomotives. I knew just where they were along the track. I used to go up and talk with the engineers before I boarded the train and it was quite a pleasant experience. And commuting was rather active at that time. All those small towns along the Ohio and the Allegheny - a lot of people commuted every day to their offices in Pittsburgh.

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One day, you see they had established the Pittsburgh Station - they had established an aviation station under the Civil Aeronautics Act to expand the aviation system, but they didn't have an airport in Pittsburgh at the time. There was no commercial airport in Pittsburgh at that time and that was true in San Francisco. It didn't have a commercial airport. They had Oakland. And New York had Newark. And I finally was assigned to LaGuardia when that was built in 1939. So, I started out in the aviation business at a very favorable time, I thought. The routes were dependent on good forecasts. Pennsylvania Airways . . . got the . . . and the support for the aviation business in those days was the airmail contracts. And Pennsylvania Airways was one of the early beneficiaries. They got a contract from Pittsburgh to Cleveland that paid them \$3.00 per pound for airmail and so they made money at that rate. And . . . but the aviation business soon expanded dramatically under the influence of the airmail contracts that provided the financial stimulus for these companies to grow.

Finally it was decided that uh . . . I was offered a transfer to Cleveland, Ohio, which had the additional advantage that they had upper air observations there including both balloons and airplane observations. They had a contract with a local pilot, a local operator, for \$22.00 a flight up to 16,000 ft. And we managed the aeronautical side. We managed the mounting of the instrument on the wings. (Wensinger?) was the first contractor and he had his little operation just on the Cleveland airport around from the main building. And it was necessary that he take off at 6:30 in the morning or he would lose part of his contract. So he would come swinging around there at high speed, throttle his engine a bit to tell me he was there, and I'd run down and mount the (aerograph?) and off he'd go. He'd climb to 16,000 ft. and come back and we'd take the instrument off and work up the data, transmit the observations on the teletype system.

But when I first started there was no teletype. It was all telegraph, and the Western Union had developed a system of collecting and redistributing the observations according to a plan. They had two centers - one in Chicago and one in New York. And each weather station had a fixed number of observations that it would get. And if you had a fairly large office, Western Union would send a man over - a telegraph operator over - to take the signals as they called them in those days. He'd listen to his, to his clacking of his key and he'd be typing away there and he'd tear this sheet out and pass it over to the forecaster who would plot the map, and off they'd go. But the teletype system was a tremendous change because the CAA

needed it for their control system and it was then expanded to include weather data. And that absolutely transformed the whole weather collection strategy. Instead of sitting around waiting for the data to come in from the Western Union, you sat there with the teletype and it just rolled off there.

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At first they had tape printers so you had to pull the tape off and stick it up on a piece of paper and you'd collect them by airways and hang them on a chart so that when the pilots came in they could look at an organized sequence of data. But then the page printer came into being and that changed everything . . . eliminated all that fuss with the tapes and . . . just tear the piece off and hang the page up. Then the question of transmitting weather charts was raised. We didn't have a facsimile system that was adequate for the purpose, so they transmitted the data in a certain sequence. They would put a base map in the teleprinter and the forecaster would draw the data on it and . . . the isobars . . . and then that would be put into a printer, a transmitting printer that would send that map over the circuits within a certain range. We uh. . . since we didn't have copiers at that stage, we used ditto. You remember the ditto period? It was a gelatin roll that would absorb the ink, this indelible ink, and you could make copies on that.

BS: *The old blue stuff?*

GC: Yeah. And that was a pain and when they finally got to the transmission of actual facsimilies, it was a big improvement. But that came, oh I guess when I had actually moved to New York by that time. But I stayed in Cleveland long enough to learn all the intricacies of the airplane soundings and then I was transferred to Shreveport, actually Barksdale Field where, by that time the Air Corps had taken over responsibility for making these airplane soundings. Initially there were five stations.

BS: *The Army Air Corps did this.*

GC: What?

BS: *Army Air Corps?*

GC: Yeah. There were five stations but before they were finished there were 30-some. So it was a tremendous adjunct to the weather information at that time. So after learning the (A ?) system, I was transferred to Barksdale where we ran, the Air Corps ran the soundings there. And this recent . . . there was a documentary on the destruction of the Ploesti oil fields and some of the pilots that flew for me eventually wound up on that operation. It was a wonderful experience to have all these . . . first we had only the cadets, but that proved too complicated. There were 30 or 40 different pilots that you had to brief and train so they finally settled on only regular officers. And they would come up to the station and I would brief them about the instrument and off they would go.

One of them didn't keep track of his altimeter. When he finally looked at it he thought he was at only 12,000. He was at 22,000 and about that time he passed out and fortunately he came to before he hit the ground. Landed about 300 miles away from the station though. That was a typical example of these young pilots who really were in the flying business for the hell of it.

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One of the best pilots we had later became head of the Air Weather Service - Captain, later Colonel Arthur Meriweather. He had gone to Spain to see what the civil war in Spain was like. He was an adventurer, married the police chief's daughter in Shreveport, and one day the police chief took him around to see some of the houses in Shreveport. And who did he find but half of his crew were at this one house. As the crew people said, the Colonel was embarrassed, but they thought it was pretty funny. But the . . . one day the regional officer came through Shreveport and we had a long discussion and he asked me if I would like to come to Fort Worth and Dallas. Well it was Dallas first and then later transferred to Fort Worth where I began to work on the forecasting side.

BS: *This was about what time?*

GC: That was about 1936.

BS: *You went to Dallas in 1936.*

GC: Yeah. And I continued going to school there. I took the night (tricks?) all the time and went to SMU and later TCU in Fort Worth. And one day one of the people from the central headquarters came through and asked me if I would like to go to school on a full-time basis. So I said, "Sure," so they transferred me to NYU where I worked for a while at the uh. . . I initially worked in the domestic aviation side but the international service was developing rapidly. First it was with seaplanes. That was before there were enough large airdromes or airports to handle the aviation service across the Atlantic. And they didn't think they were reliable enough, so they used seaplanes as a safety operation. But it soon turned out that the reliability of the aircraft were such that they began to fly land planes over the Atlantic and I was involved in those forecasting for the land planes.

BS: *That was out of New York?*

GC: In New York.

BS: *Un-huh. And where did you go to school? You had an offer to go to school. . .*

GC: Yeah. I had an offer to go to school. What year would that have been? Must have been 1940, I guess it was.

BS: *That was at TCU?*

GC: No. I had gone on my own to TCU and SMU, but when I came to New York, I was on a fellowship. So all I had to do was study and I thought that that was the easiest thing in the world. But then about that time it was decided that they would prepare . . . the war was imminent . . . and they would prepare a series of maps, hemispheric maps that would be transmitted

in code so that stations that didn't have a full complement of weather people could get these maps and know what the current weather was. So I worked on that project at NYU. We had (Theodore Wiegand scientist?) Professor (Jurgen Homebeau?), a super analyst . So they then transferred the preparation of these northern hemisphere maps to Washington and I accepted a transfer to Washington DC to continue working on these maps. But I wasn't there very long until the process was put under a larger group and I became Head of the Aviation Forecast Center there.

BS: *That was about 1940.*

GC: Yeah.

BS: *And that was at what field? LaGuardia?*

GC: No. That was in Washington . . . went back. Well, I worked at LaGuardia, yes. I opened LaGuardia. That is, it had been Newark and finally the airport at LaGuardia was completed and the whole office was transferred over there.

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BS: *And you became head of the forecast service?*

GC: At that center, yes. The wartime pressure was growing all the time and they decided that they wanted to prepare these . . . this series of charts that could be used as a basis for work by smaller airports - military stations where they didn't have a full team. And what they would do would be to code up these charts so that they could be transmitted to any station that didn't have a fully operating forecast center. I'm not sure that I made that clear.

BS: *I understand it took places that have an airport that need to look at the weather.*

GC: Yeah. And we sent them the date of the day's map that was most similar to the series of maps in their file that was most similar to today's chart. So they'd get out their file and look over these maps and then they had a general idea of what the weather situations were like in their area. See, that was before . . . facsimile had started, but it wasn't in wide use at that time. Facsimile was initially a system for transmitting photographs and it was then modified to accept line drawings and used for the transmission of all kinds of data in analyses - in analytical form.

So when the war was imminent, they decided they had to produce a series of maps that could be used on a global basis, or northern hemisphere basis, by small stations that didn't have sufficient staff to do the analytical part. So it produced these, this northern hemisphere analysis and this became then the basis . . . these were copied and sent to all the stations, all air force stations that had any forecasting responsibility, and they would send out, the central analysis unit would decide what series of maps was typical of today's weather and that data would be transmitted to them. They would then go into their files and find those maps and they would therefore have a replica of the best representation for their area on the weather that they could expect.

(330) So, that project was then transferred to Washington and I accepted a transfer to Washington to continue that work. But I was then selected as the head of the forecast division - it actually included both the station facilities and the forecaster's division.

BS: *This is for the whole Weather Bureau?*

GC: Yeah. I was still in the Weather Bureau, and the head of that division was a very fine forecaster by the name of Tennao. He's written several books on forecasting.

BS: *And that was during the war?*

GC: That was during the war.

BS: *And so you were in Washington, D. C. developing the weather forecast system . . . during the war.*

GC: And the base map, preparation of the base maps which can be used for reference by weather stations that were remote and not connected to the major weather circuits.

BS: *So that took you up through the war, is that correct?*

GC: Yeah. I stayed in Washington DC through the end of the war.

BS: *So I understand you to say that the Weather Bureau was closely allied with Army Air Corps.*

GC It was indeed.

BS: *Before the war and throughout the war. Did they do work in England for weather forecasting over Germany?*

GC: No, but I knew all these people and one of my. . . we provided a lot of the basic data for them. And one of my bosses, Colonel Holzman, became the major forecaster at, what was the big station in Germany?

BS: *Wiesbaden?*

GC: Wiesbaden was one of them . . . yeah, he was at Wiesbaden for a while.

BS: *Frankfurt.*

GC: Frankfurt. Right. He later was promoted to a General and became head of the research side of the air weather service in Baltimore. Colonel, later General Holzman - very bright chap.

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Well. . . it was about that time that the International Civil Aviation Organization [ICAO] had been formed under what was called the Chicago Convention. It was a convention held in 1944 by leading aeronautical countries and they developed this convention on civil aviation. And the convention specified that the headquarters of the organization oddly enough would be in Montreal. So they began to form the staff of this international agency in Montreal and I was asked to go up there to help set up the meteorological division of that. Met division of . . . it was originally called PICA0 - Provisional International Civil Aviation Organization - and after the convention had been ratified by all the states, it simply became ICAO. And they had their headquarters in Montreal. And we had . . .

BS: *And you were assigned to ICAO.*

GC: I was assigned there by the Weather Service.

BS: *In forecasting the section?*

GC: Yeah. And that's where I had the great pleasure of meeting Norman D. Vaughan because he came up there from the Air Force. Was he? Yeah, he was the Air Force? He was a Colonel and he came in charge of the search and rescue division. They had communications division, met division, search and rescue division, air traffic control and one on airports and ground facilities. There were five major divisions and Norm ran the search and rescue division.

BS: *Quite interesting because Norman didn't mention that in his book.*

GC: What?

BS: *Norman didn't mention that in his book.*

GC: Oh didn't he? That's strange.

BS: *Because I remember, you know the book is quite small. It's . . . it's ghost written.*

GC: He, uh. . . he was still handling dogs and he brought his dogs to Montreal. He had a cabin up in the North and he used to drive them on trails, on old ski trails in the Laurentians. General (Cueder?) was the principal representative at that period. He was the US rep to the ICAO council. And he happened to be a close friend of Norman's. They had met in the Air Force. So Norman went down to see Cueder one day and he had his dogs with him - two of his favorite dogs. And he said, "I'm not sure what I'm going to do with my dogs," I think it was Larry. . . .Larry, Cueder's Lawrence I think his name was - Larry Cueder. And he said, "You just let them go and they'll tell you what to do with the damn dogs." So Norm kept them up North and drove them around the ski trails in the Laurentians and finally he had only two left which he kept in his house.

Well that was a very interesting period. Where are we now?

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BS: *Well, here we are at the formation of ICAO, and you're assigned there. . .*

GC: Assigned there in the met division. . .

BS: *In the met division.*

GC: And I worked there about four years, I recall. And one day. . .

BS: *Did you have, uh? This is right after World War II . . .*

GC: Yeah.

BS: *Were they . . . is that the period of time when they started building Arctic observation centers? Canadians got interested in it?*

GC: Yes. And we cooperated with them on what was called the JAWS - Joint Arctic Weather Stations - We provided the basic equipment and they provided the staffs.

BS: *And what year was this about? This is while you were at ICAO.*

GC: Yeah. That's one of the problems, Brian, is what are these dates?

BS: *It was after the war though. After ICAO was established and you were at ICAO?*

GC: Yeah. Yeah.

BS: *That's the date. So JAWS were Joint Arctic Weather Stations, uh . . .*

GC: Jointly with Canada,

BS: And the United States?

GC: And the United States. Canadian Weather Service and the US Weather Bureau.

BS: *OK. But ICAO was involved with recommending this, is that correct? Or . . .*

GC: They, they had. . . they recommended facilities that should be set up in support of the aviation system, and these recommendations provided for a number of upper air stations over the Canadian north.

BS: *And the Russians participated in this as part of ICAO for weather stations in their area?*

GC: When did the Russians come in to ICAO? That's a good question. Can you answer that?

BS: *No. I don't know. But,*

GC: But they weren't in it initially.

BS: *But what I'm getting at is, what drove the establishment of those weather stations up in the Arctic? Was it at the insistence of ICAO?*

GC: That's right. To cover the northern routes for observations and forecasting.

BS: *Uh-huh. And so the United States and Canada . . .*

GC: Joint Arctic weather stations in which the Canadians provided the ground, the facilities and the staff and we provided the technical equipment - the radio-sondes and the radio (?) equipment, and so on.

BS: *Did we have US personnel there?*

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GC: Yes. There was always a technician who knew the equipment, the ground equipment and could keep it in working order. But then the administration in Canada changed and a new transport, the weather service was under the transport division, and Dr. Tom Howe, a big tall 6 foot 3" Canadian took over and he said, "There's no reason why we have to depend on the US for

these things. Canada will take them over." So eventually the Canadians took over all the support for these so called joint aviation weather stations.

BS: *But prior to IGY, the Weather Bureau had an Arctic section, correct? The Arctic. . .*

GC: That was Glenn Dyer.

BS: *Glenn Dyer, yeah. When was that formed? And how were you involved with that?*

GC: It must have been after the war, but I really don't remember those dates very clearly. But Glenn had gone up there from the very earliest dates. He really managed that part - it was called Arctic Operations Office - and when we started in the Antarctic it became the Polar Operations Office although he didn't immediately take charge of the Antarctic system. He kept working the northern hemisphere.

BS: *But he was involved during IGY or you were in IGY. . .*

GC: Yeah.

BS: *And Wesbecker was sent south and you were sent south.*

GC: Right.

BS: *OK. So basically the JAWS system was set up and that was driven by ICAO and that drove the Weather Bureau to establish an Arctic program office.*

GC: That's right.

BS: *Headed by Glenn Dyer. And who are some of the people - when did you get involved or how does that put . . . were you in Washington when the JAWS program was started?*

GC: Yes. I was in charge of the observing system then. Uh, in fact it was surprising. We had a relatively small office but we had all the special services in the Weather Bureau. That is the Aviation Service, (? frost?fire?) weather, River and Forecasting, River and Flood - all this in a small office that I headed at that time.

BS: *This is about 1950?*

GC: Yeah. Now where are we?

BS: *Here we are at Arctic Project Office. It was organized under Glenn Dyer, IGY's in on it, meetings are going on in Paris, CSAGI. . . We're thinking of IGY. A lot of things happened.*

GC: Yeah. Harry Wexler who was the, our chief scientist, and Otis Shaw were the principals. Did you know Otis Shaw?

BS: *Um. Met him.*

GC: Very bright fella. They went to Paris to the CSAGI meeting and when Harry came back he called me on the telephone. I was running the observing system then.

BS: *Um-huh.*

GC: And he told me about the meeting and he said that I have some papers down here that I would like you to see, so I went down and picked up the papers and took them up to my office and looked over them. And he called me the next day and he said, "Have you read those papers yet, Gordon?" And I said, "Yes." He said, "Good. Come down, I'd like to talk with you about them." And he said, "There is an Antarctic Program and we'd like you to go down and spend the year with the

Russians." And I said, "What did you say, Harry?" And he said, "Yeah." And I said, "Well, first of all I don't know anything about the Antarctic. Secondly, I don't speak Russian." "Oh," he said, "You can. . . that's no problem, you can!"

SIDE TWO (000)

BS: Incidentally, I'm taking notes as we go along just to key the tape. We're back on with Gordon Cartwright and proceeding with Side Two, Tape 1 of the interview. And we were discussing you being requested to winter over with the Russians at Mirny Station as part of the International Geophysical Year and how that came about.

GC: The IGY committee for the Antarctic had met in Paris and when our delegate, Dr. Harry Wexler, came back, he called me and said he'd like to show me some papers. So I went down and got the papers and looked them over and the next day he said, "Gordon, We'd like you to go to the Antarctic with the Russians." And I said, "You're not talking to me Harry." He said, "Yes, we are." I said, "I don't speak Russian. I don't know anything about the Antarctic." "Well," he said, "That's no problem. You can learn those things, Gordon." And the next thing I knew, I was in a Russian language class with an ancient white Russian Colonel, who, not knowing where I was going, warned me very carefully not to get involved with the Russian women. And I was sorry that I didn't have that opportunity. In fact, we were as surprised when the Russian research vessel, *Ob* came on, came to stop at *Mirny*. We went aboard and one of the staff took us down to the various quarters, including the women's quarters. And I thought how beautiful they all looked. But that was another story.

BS: Was it after the winter or before the winter?

GC: This was after the winter.

BS: *Well, we're getting ahead of ourselves there. So, you got assigned and the white, Russian Colonel, do you remember his name?*

GC: No I don't. I probably could find it in my notes, but it would be a bit of a . . . I'll look for it.

BS: *Did he have a big moustache and all that?*

GC: No.

BS: *No?*

GC: No.

BS: *But he was living in the United States.*

GC: And he was very concerned with what I was going to have to do.

BS: *Un-huh.*

GC: I never discussed it with him, but . . .

BS: *So, you learned Russian and, and . . . what did you do to set up your observation program. What, uh . . . did you have to take equipment? (?)*

GC: Yes. One of the things I was asked to do was to do cloud movies to study the development of clouds in the southern hemisphere, particularly over the Antarctic. So I had a special movie camera that was, uh . . . had been modified so that you could take time-lapse pictures with it. And I had a goodly supply of film for that camera. So I took some 25 rolls of cloud-

lapse photographs which I then turned over to the research part of the Weather Service. I never was involved in the analysis of these photographs because I moved on to another job after I came back.

BS: *And that was not the only thing that you did.*

GC: That was one of the special assignments I had - that I was involved with the Russians in the daily analysis of the synoptic charts. Now I had never worked in the southern hemisphere where everything is, in a sense, turned around from the synoptic point of view, but you soon get accustomed to that.

BS: *How do you mean, turned around?*

GC: Well, the wind circulation around the low pressure systems goes in the opposite direction from that in the northern hemisphere.

BS: *So you were working with the daily weather observations with the Russians. What did that entail?*

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GC: Well I had this special requirement from the USIGY to take these cloud motion photographs. That is, I had this camera that was specially modified to take time-lapse photographs. So I was often seen standing in a good view of the sky watching this camera operate. It had to be attended because I took eye observations as well to correlate with the time-lapse photographs. Now I never saw the ultimate use of those time-lapse photographs because I moved out of the program, unfortunately, before they were completed. But I assume that, as you know, time-lapse cloud photographs are very valuable in studying the process that's going on in the skies that produce this sequence of clouds that you see on the photographs. So unfortunately I didn't . . . wasn't able to contribute a great deal to that eventual research.

BS: *These photographs went to the USIGY Committee?*

GC: Yes. And the Navy had, and the CIA, had access to them.

BS: *The daily weather observations, launching of weather balloons, and so on - did you get involved with that as well?*

GC: Only in a peripheral way. The Russians were hearty observers. Many of them had worked in the far North in their regular job.

BS: *They were quite experienced, then, in cold weather .*

GC: And the problem of taking balloon observations in high winds which was the standard most of the time at Mirny, was pretty difficult. They also didn't have helium like we had in the US stations for inflating the balloons, so they had to generate hydrogen, and that's always a slightly dangerous process if you're not careful. They had a very large gas bag of an impermeable fabric which they used to inflate. They would manufacture the hydrogen gas and pipe it into this large bag and then when it was time to take an observation, they would simply connect their balloon to that bag and inflate the balloon with hydrogen. But all this was a bit tricky because of the high inflammability of hydrogen and in this dry weather, a spark could have been the end of things.

One of the remarkable events in the south - their new crews had come in with equipment for their year of work in the Antarctic and that included building a couple of new houses. So they immediately set to work on a new house and these equivalent of our Seabees, were very skilled workmen and they soon had the house nearly completed. Now I can't remember what it was that started the fire, but once a fire starts with these 30-40 knot winds, it's very difficult to put out, and I could still hear the Russians calling for water - ("Vodah, vodah, vodah!)Bring more water!" But where you get water in the Antarctic, you have to melt snow and that takes time. And so the house was a complete disaster before the fire could be put out.

BS: *Were you hurt?*

GC: So I went to the leader of the expedition and expressed my concern over the loss of the house and he said almost casually, "Don't worry, Cartwright. We'll build another one." And they did.

One of the things about the Russians - they had a lot of supplies. They had tons of coal that they had stashed there in the previous expedition in bags and sacks. And these were used in the little coal stoves that they had in each of the huts. And I have a picture with my colleague and I, Morton Rubin who followed me, that was there for a time with me, digging out these sacks of coal out of the place where they had been stored the previous winter from the ships.

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BS: *We are getting ahead of ourselves, I think. Back up a little. Um, you learned Russian. OK. From learning Russian did you have to - that was in Washington, D.C., is that correct? - Did you interface with any of the Russians there - the politicians or scientists in Washington before you left?*

GC: No.

BS: *Where was your first interface with them? In relation to this trip?*

GC: When I arrived in Cape Town and waited for them to arrive from the "Korporazzi"(?) - the ship, the transport ship that was going to take us to Mirny.

BS: *So you were sent to Cape Town to wait for the Russians.*

GC: Yep.

BS: *And so you boarded the, what was the name of the ship?*

GC: "Korporazzi "(?) and you spell it with a K and more or less the same, the rest of it. I thought I had . . .

BS: *OK. I saw the picture of it. I just had the Russian spelling on it. So you joined the crew in Cape Town.*

GC: Unfortunately it started to rain almost the day they . . . the hour they arrived from Moscow, or Leningrad - most of them came from Leningrad. It rained virtually all the time they were there.

BS: *At Cape Town.*

GC: At Cape Town. The poor guys were all running around town to buy things that they would be able to take back with them when they returned home to the Soviet Union. But they accepted this pretty well. Just before we boarded the ships to leave, the weather cleared and I - there was a Japanese ship in dock in the port also – Syowa?

BS: *Syowa? That's correct.*

GC: Syowa. And the Russian ship Korporazzi was there, and as we boarded the ship, as they pulled in the gangplank, the Russians began to sing one of their beautiful, mournful songs and this one was "Evening on the Roadstead," a maritime song. And it really touched you when you heard them all in the crew singing this song. The pilot came aboard and off he left to get out to the channel to board the final ship going on down to the Antarctic.

BS: *So you sailed across the Antarctic Seas direct to Mirny?*

GC: More or less. Cape Town is a bit to the . . . as I recall, a bit to the west.

BS: *Yes it is.*

GC: So we set off in the evening. Wait until I find Mirny. Yeah, there it is. Oh, it's to the east.

BS: *That's east of Cape Town, right?*

GC: The Russians sent (the Japanese ?) were not quite ready to leave yet.

BS: *Swoya was the one that set up the Japanese station, correct?*

GC: Yeah. And the pilot boat came out to take off the pilot and we knew when he went over the side that was the last contact with civilization until we got back there roughly a year later.

BS: *How's the trip across the "Roaring 40s" to "Furious 50s" and "Screaming 60s"?*

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GC: Well, I was one of the few people who managed to survive that. Many of the Russians got sick . I had taken some pills with me and I was able by very careful eating to be able to go to the mess hall or, what would that be in Russian? Anyway, I was able to climb up the steps from my cabin, and sit down at the mess hall, and I was now the (pomornick?) - a uh. . . a uh. . . "pomornick" . . . now that was a uh, that was a uh scavenger bird. So my reputation was established rather early as a pretty sturdy eater.

Of course, the Russians had an unlimited supply of vodka. But more than vodka, they had what they called "alevisky" (?) which was essentially pure grain alcohol. And they carried it in little aluminum cans and every - once you got to the Antarctic, every crew had a certain assignment of alcohol which they enhanced by mixing it with various things like apricot jam or anything that could give it a little bit of a flavor besides just the raw alcohol. In fact, they told stories about the wartime when alcohol was very hard to come by and the crews would occasionally drink the hydraulic fluid out of the aircraft. They would look at the aircraft and take a little bit out of one strut and then go over to the next one and see that it

lined up. But it was pretty dangerous stuff to drink . Many of them didn't survive. Some of them didn't survive - I wouldn't say many of them.

The alcohol was a-uh. . . and vodka was a primary part of the entertainment on board ship. But their vodka , of course, was . . . if you got first-class vodka (vodka you would drink?) It had the advantage that it left no odor on your breath, and I was told later when I was talking with friends at home that at one period, traveling salesmen - that was their common drink .They could drink vodka and still be able to see their customers as they went on their daily rounds. But there were problems with drinking. A few of the men had to be restricted by the commander, but the commander was very careful about this and excess drinking was very severely punished.

They had a KGB man, I even remember his name - Micheron - a big husky bland looking fellow - but the Russians on board all knew his role and they asked me, "Who is Mr. Micheron in the US program?" Of course, I didn't know that we had a CIA man aboard. So I said, "I simply don't know." "Well," they said, "That's strange. We're sure there's somebody there," and perhaps there was. But I never . . . when I came back, the CIA did make several arrangements to discuss the expedition and my experience with them and I provided them with documents that I had that they found interesting.

BS: *So you were debriefed by the CIA.*

GC: Yes.

BS: *Did you find anything when you were down there that you thought would be of concern to the CIA?*

GC: No. Mostly talking about the state of their equipment and any special instruments that they had. While I was there, the Australians made their visit to the various country programs in the Antarctic and Dr. Phil Law was the head of the Australian Antarctic program and he stopped with his ship, the "Talaradan," the Australians didn't have suitable ships, so they hired these Danish vessels - the "Magadan" and the "Talaradan" were two that they used in conducting their research.

BS: *That was in early 1957?*

GC: Yeah. The Russians had transported a small automobile to the Antarctic base and when the head of the Australian expedition came, he was given a royal lunch that lasted for two or three hours and involved the consumption of large amounts of vodka and other wines and liquors. And I was surprised how well he stood up to that because he wasn't a very big man, but when we came out, the Russians wanted him to tour the base with him in this little automobile. So I went with him to help out, interpret and take notes for him because, by that time, he had lost some ability to concentrate on matters. So that night, he reciprocated by inviting the Russian leaders for a dinner on board the "Talardan," I think it was. And I was impressed by the way he was in control of things. He even played the accordion and played some Russian songs which everyone joined in singing. Unfortunately, I had a very fine Eddie Bauer parka, which I greatly prized, but it disappeared with the Australian ship somehow and I never forgave them for that.

BS: *Let me back up again. The ship pulled into Mirny - this was early 1957. Correct?*

GC: Yeah.

BS: *When you came down. Now the base had already been established the year before.*

GC: That's right.

BS: *So it was a year old.*

GC: It was a very minimum establishment .

BS: *It was just in preparation for the IGY.*

GC: That's right.

BS: *They hadn't started scientific observations.*

GC: They also set up an elementary station inland about 300 or 400 miles at Pioneerskaya they called it. They attempted to reinforce that station and to move further south when the main expedition arrived, but once they got out of the windy area of the coastline, the tractors sank too heavily into the soft snow. So the next year they came back with a much wider tread on the tractors and were able to push on through that area.

BS: *Were these the tractors that were converted tanks?*

GC: Yeah.

BS: *With the wide tread.*

GC: Well the first tractors were tank built, but they only had about a . . . oh, I'd say the tread was about a - typical of a tractor about 20" wide. But then they came back with a 30" or 40" wide tread that was able to push through that soft snow.

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One of the interesting things was that the head of the expedition - Dr.Treshnikov . . .

BS: *Treshnikov?*

GC: Treshnikov.

BS: *T-r-e-s-h. . .*

GC: T-r-e-s-h-n-i-k-o-v -- and that "e" is a kind of a "yuh" sound.

BS: *Uh. . . his first name. Igor?*

GC: Alexander. You should never fail to remember the middle name or the (autisphone?) I can't think of what his (?) was.

BS: *His father's name in it?*

GC: Yeah.

BS: *Yeah.*

GC: But he was a very big, genial fellow.

BS: *And he was the station head?*

GC: Yeah.

BS: *He a scientist as well?*

GC: Yeah.

BS: *So they put chief scientists in charge of their stations.*

GC: Yeah.

BS: *Not a military commander, or . . .*

GC: No. I remember he went around to the different specialties just to visit and to talk with the scientists at each of the places, and when he came to the met group, I can remember him saying, "Doubicha, doubicha, doubicha!" "Think, think what you're doing. Try to analyze the problems that you find here." He was uh, . . . he seemed like a very decent guy. There was one story - he went off one day to visit different parts of the area with his little station manager who was about half his size and Treshnikov fell into a crevasse. And the little guy simply couldn't get him out. So, he rushed back to the base and they sent men out in a tractor to haul him out of this crevasse. But he was stuck down there.

BS: *How deep down?*

GC: Oh, I don't remember. Maybe 20' or 30'. Those crevasses were remarkable things to visit. I've gone down in them myself because of the dazzling appearance that you have down there of these large ice crystals that form under very stable conditions. And you reach up to touch them and they just collapse. But the crevasse itself - some of them go down a couple of hundred feet due to the movement of the glacier over an irregular base, a sub-base of rock. The glacier is, in a sense is falling, and it flows over the uneven surface of the land and it ripples and changes its shape as it moves.

BS: *And was this crevassed area - was this on ice shelf or was this on continental glacier?*

GC: This was on the continental . . .

BS: *Continental glacier. Mirny was on a continental . . . based on a continental glacier or on the hard rock?*

GC: On uh . . . Well, it was. . . it was. . . there are many areas of exposed rock there.

BS: *Yeah. OK.*

GC: But it was covered by ice, nevertheless.

BS: *Edge of the glacier, then.*

GC: Yeah.

BS: *So, this was . . . you're anticipating the beginning of IGY in July 1st, 1957. Everything's being rushed to get ready at Mirny station.*

GC: That's right. To have all the observing equipment in order . . .

BS: *Now, am I correct in my understanding that they also set up a station at Vostok for IGY?*

GC: They did. But because of the . . . once you leave the area of high winds, the snow becomes relatively soft and so they set off for Vostok with their current tractors with a relatively narrow tread. But they simply bogged down in the soft snow and they stopped some couple of hundred miles before they reached the area that then intended to go to. But the following year, they brought in these wider treads and the tractors could navigate over that soft snow. So they moved the - it was Vostok . They termed that first location Vostok I indicating that they intended to go further when the new equipment arrived. There was also this Area of Inaccessibility? That was down near the coast. We were not involved in that program.

BS: *So they were able to set up Vostok station prior to IGY.*

GC: They what?

BS: *They were able to establish Vostok station prior to IGY.*

GC: Yes.

BS: *And was that a big tractor train? A lot of stuff pulled out there or . . . ?*

GC: Yes. When the first train started out, I think there were about 20 sledges that were being hauled by a couple of tractors and it looked - it was quite remarkable to see it going up the steep slopes of the ice cap. They had a beautiful little reconnaissance aircraft. A little high winged, red plane. It was a famous make. Not an Aleutian. Aleutian was the - I can't remember the name of it. But it was used for reconnaissance near the bases. It didn't have a very far range. It was set on skis, but it was a beautiful aircraft.

BS: *Did they use it to fly reconnaissance ahead of the tractor train?*

GC: No. It was not designed for long flights, but it was used at the bases to do any reconnaissance from the base.

BS: *I see. Uh. . . support science in the field? Did it put scientists into the field or land in the field?*

GC: They did. But I think that was mostly done by helicopter.

BS: *They had helicopters too. Do you remember the kind of helicopters?*

GC: I don't remember the designation, Brian.

BS: *So, they had aircraft, or fixed wing, and helicopters to support science down there.*

GC: Yeah.

BS: *For both reconnaissance and for placing scientists on glaciers in remote areas.*

GC: Yeah.

BS: *So they had that early on like the Americans did. OK. So, this . . .this was all in the summer before it gets dark. Basically devoted for getting both Vostok and Mirny ready for IGY.*

GC: And uh . . . *Oasis.*

BS: *And what?*

GC: Oasis.

BS: *Oasis station. Where was Oasis?*

GC: Oasis was east of Mirny on the coast. Let's see if I can find it here.

BS: *I think it's gone away.*

GC: You think what?

BS: *I think it's been decommissioned.*

GC: Yeah.

BS: *Probably doesn't show up on the map. It's within (?)*

GC: I get a little confused because I went back a year later and visited all the US stations.

BS: *So, for the Russians, Mirny was basically the headquarters, the main station from which other stations were built for IGY and the main*

GC: For service, that's right.

BS: *Similar to McMurdo for the Americans.*

GC: Yep. Absolutely.

BS: *And they built Oasis station, Pioneerskya which became Vostok I, and then Vostok main base itself.*

GC: Pioneerskya Yeah, that's right. Oasis was on the coast.

BS: *Yeah. And all these three stations - Vostok, Oasis and Mirny - were the three Russian participant stations for IGY.*

GC: That's right.

BS: *Did you get to those bases?*

GC: I did briefly. I spent a week at Oasis.

BS: *I see.*

GC: I flew over there on a glaciological expedition with the chief glaciologist, Strumsky. Theodor Strumsky. He was in my view the most skilled scientist they had with them, although I don't think he was accepted as the chief scientist. Very independent man who was not very happy about the Soviet system. He . . . when we were . . . when I went back to see him

in Moscow, he told me several stories. His father was apparently a professor of some note and he had been criticized at times by the Soviets for failure - for failure to follow their dogma.

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BS: *Did you get to Vostok?*

GC: No. I never got to Vostok. It was hard to get on a flight into the interior because they had to move all the gas up there. They dropped gasoline in a number of places.

BS: *Oh they did, they did airdrops?*

GC: Yeah. They did airdrops.

BS: *Parachute airdrops.*

GC: Yeah.

BS: *What type of plane did they use for that? Must have been a bigger plane.*

GC: Well they had - let's see if I can remember that. Their basic plane was a DC-2, but they also had a larger aircraft and what was it? (?) some of my notes, Brian.

BS: *It looks like a DC-3? Looks like a Dakota?*

GC: Yeah. They were a propeller driven aircraft.

BS: *Well it doesn't matter much. They did do parachute drops of equipment to Vostok then, and fuel.*

GC: And fuel. In fact, the parties on the ground used to complain because they would sometimes miss the drop by several miles and that meant they had to go over and dig them out and uh. . . parachutes. Sometimes they just dropped them without parachutes.

BS: *So, here you are - you're in the summer and you begin your observations in the summer before IGY, I assume.*

GC: Let's see. What time did I get down there?

BS: *You said January, '57.*

GC: Yeah.

BS: *And then . . .*

GC: IGY started in July.

BS: *July 1st. So, uh . . . here, it's summer. You're set up beginning your cloud observation program and weather observations with the Russians. You transition into winter. How was the winter at Mirny station?*

GC: Well like all these stations on the edge of the continent, it was isolated

BS: *OK. Winter.*

GC: I don't remember anything in particular about the arrival of winter. It was pretty windy at *Mirny* most of the time. I can remember we had several outdoor ceremonies to initiate some program or other, or just for the leaders to address the men.

And I can remember standing in that steady 30 - 35 knot wind coming off the ice cap. Even with a very good parka, you could just feel the heat being drained out of your body. And you can imagine what it would be like if you got stuck out there. But one of the interesting things is, I had this US issue of clothing that the IGY program had set aside and when the Russians saw it they said, "No, no, Mr. Cartwright. That's not enough clothes. Come over to the warehouse and we'll give you Russian clothing." So I went over and I came away from there with a bag so full that I couldn't carry it. They took it on a sledge and took it over to my house. I had a leather jacket, leather trousers . . . shirt and boots. But I had one thing that they didn't have and that was a pair of reindeer boots that I highly prized. The trouble was that they were that solid leather bottom and slippery as hell if you weren't in snow. So you had to be very careful when you were walking around with them. I didn't wear them much except around the base and occasionally sitting in my cabin.

We were . . . my house was about 200 or 300 meters from the mess hall and during the winter, in almost constant 30-40 knot winds, you had a kind of a trail that was dug into the snow just by walking. But they finally had to put up a line so that you wouldn't get lost. It was very easy to get disoriented and they were constantly warning people not to go out with some notification of where they were going. On one occasion, one of the groups was coming back towards the base from the ice cap and uh . . . it was in the winter time, the snow had been blowing pretty hard. And they went right over the cliff. Fortunately there was still a lot of snow that had piled up below this spot and no one was seriously hurt. But they had to go out and find them and get the, what they called the (hood?) which goes anywhere. It's a tractor-type vehicle. But they were damn lucky that they didn't get killed because they went over this cliff about . . . oh, it was about 30' high at that point.

BS: *What were they doing out on the ice cap in the winter?*

GC: They may have been coming from one of the other nearby stations.

BS: *I see. So . . .*

GC: They took these accidents very nonchalantly. They were accustomed to it - risks - and I remember when they were unloading the next expedition, they had an aircraft - a second aircraft that was going to be used in the . . . that year, and it was

sitting on the ice and the wind came up and the ice broke and the aircraft went to the bottom. So I went to the Commander and expressed my concern at that. "Ah," he said, "We have more of these. Don't worry about it." They never seemed to be concerned about losses of materials. It was just that they always were well supplied. They didn't have other aircraft, but it didn't matter. They would improvise somehow.

BS: *Good improvisers.*

GC: Yeah.

BS: *And so . . . what did . . . did they have any problems in the winter with psychological problems from withdrawal, from lack of sunlight?*

GC: They did, but only one case came to my attention. You see they all joined at the mess hall at mealtime and I tried to sit to eat with the different people. The one problem with that was that they all wanted to toast you and you had to drink. And in the winter time they served, instead of vodka, they served this so-call ale-whiskey which was pure grain alcohol. And they would serve it in a water glass so you

(626) End of Tape 1, Side B

(Begin Tape 2, Side A - 000)

BS: *This is Tape 2 of an interview with Gordon Cartwright at his home in San Rafael, California.*

Mr. Cartwright, you were talking about wintering with the Russians and the aerowhisky and the drinking of the toasting at dinner when we changed tapes.

GC: That was a problem for only a few of the Russians and they were soon spotted by the ____?____ and taken aside and told that this would be very harmful for them if they didn't straighten up. And I don't know of anyone that really went over the hill

because of that. But drinking was a regular accepted social nicety, and it was commonly their vodka which they had in large quantities. They had them in big - I don't know that I saw their supply, but they must have been in drums because the base of 180 men would consume a fair amount of vodka during 6 or 9 months.

BS: Was there any bootleg stills hidden away around the base?

GC: Well that's a good question, Brian. All the different houses had their own way of making vodka palatable. They would mix it with various things - prunes, apricots, jams, or anything to give it a little bit of special flavor. But vodka was the basic drink, and it's not a bad drink if it's good quality vodka and made of grain, rather than potatoes. It has a rather pleasant aroma if you don't drink it down like the . . . One of the problems is that the Russians had this tradition of getting drunk and you would see them take their glass of vodka and just toss it down. Wouldn't taste it at all. It would just go down to the bottom and the theory was to get drunk. Apparently this comes out of the rather gloomy life that some of them lead back home. But they really didn't have to do that in the base because there was plenty of companionship and their work was rather pressing. They had a press officer who sent out regular notices of the operation of the expedition and they had this KGB man, Mr. Micheron. My friends used to kid me - 'Do I know Mr. Micheron,' and I said, "Oh yes, I know who Mr. Micheron is." "And who is the Micheron in the US base?" they would say. And I'd say, "Well, I'm sure there is one, but I'm not acquainted with him at the moment." And we had, I'm sure we had a CIA guy there.

BS: If we did - I'll inject this - If we did, in any of my interviews, I haven't run across him. Certainly the military have, that are involved at the US bases, the officers anyway, are alert to . . .

GC: They control these things.

BS: Well, our people weren't there for controlling anyone politically speaking of our own, but to possibly keep an eye on the New Zealanders and what they were doing for enhancing their claims or possibly exchange scientists because our friendly nations like the British and others had claims down there. The Russians and Americans had the same outlook towards all those claims. We recognized none of them, and reserved the right to make claims in the future. And so, at least politically

speaking, the Russians and Americans had the same policy concerning Antarctica. Not the British or the French, or the Australians or New Zealanders, Argentines, Chileans, or the Norwegians. They all had claims down there and we were opposed to them, both of us.

GC: Yes. What's the status of that problem now? Still the same?

BS: Well, I wrote a paper on it before they came up with the present protocol, so I've stayed quite up to date on it. In the research for my paper, I found out that the British, New Zealanders, Australians and the French, and the Norwegians, had all agreed during the discussions on the Antarctic Treaty to give up their claims if the Argentines and Chileans would do it. But their delegates refused!!.

GC: When was that?

BS: 1959 with Paul Daniels

GC: Is that so?

BS: Yeah. But what's silly down there is that there's a Russian, Chinese, Brazilian, American base in their sector. Do they think they're going to throw us out?

GC: Right.

BS: They would have a tough time taking on a lot of big countries.

GC: What does the treaty say, do you remember?

BS: OK, you're in the winter and IGY - was there any special ceremony when IGY started on July 1st?

GC: I don't think so. Not that I recall, that there was no introductory announcement on their part. They all . . .all the different groups knew about it and they all began their - but they'd been already working on their program, just as the meteorological program had been operating.

BS: *So you were already geared up in doing the work and you rolled into IGY*

GC: Yes.

BS: *And you're research dove-tailed the Russian research. I'm curious on the photographs that you took. Did they get copies?*

GC: I would say no, because I turned the film over to the CIA and they produced them, or their representatives. I don't know that I turned them over to the CIA. I turned them over to the IGY people and they had arrangements with the CIA to copy those things that they wanted. The Navy made a lot of copies of photographs, sky photographs and other things and I was given a packet of those and I don't know whether I could even find them today

BS: *This was US Navy.*

GC: Yeah. Big format

BS: *From McMurdo or . . .*

GC: No, when I got back.

BS: *Oh, I see, from all the bases that we had. I see. I think I saw those, a book of them or something. So, the work continued on through the winter and into the following summer. Were any new programs added in the summer? I guess I should say, did you take any photographs during the winter? Sky photographs?*

GC: No. Basically the light got too low, so I had to discontinue, but I can't remember the dates that that would have occurred. See, I was doing time-lapse and you couldn't take time-lapse if the light was at all low.

BS: *Yes.*

GC: I wonder where that camera is. I must have turned it over to the IGY administrators when I got back. It was a Kodak movie camera.

BS: *So all of your data went to the IGY US committee for the International Geophysical Year.*

GC: Yes.

BS: *I'm curious. Did the US Committee for the International Geophysical Year have a chief weather officer assigned to the committee or did they go to the US Weather Bureau.*

GC: I think they went to the US Weather Bureau.

BS: *So, they managed that section.*

GC: Yeah. As far as I know, Brian. I would have remembered any special meteorologist assigned there. Is Glenn Dyer about at all now, do you know?

BS: *I don't think so. Wesbecker doesn't know and he didn't think he was or he would have heard from him. The Russians took observations - surface observations? Upper-atmospheric observations?*

GC: Upper-air, yes. Wind and temperature . . .

BS: *Um-huh.*

GC: They were quite religious about that. That is, if one instrument was damaged. You know you hang them on the bottom of a balloon - they would immediately send up another one. Well they were quite serious about their observations and at certain periods which I don't know that I wrote down, they took four radio-sonde observations per day, instead of the regular two. And that meant generating a lot of hydrogen. They had this large fabric bag that the observer would go out and start the generators. I think they use caustic soda and aluminum. And then filled the bag up so that they would have plenty of gas to inflate each balloon and I'd see them blow on the balloon to give them enough pressure in the balloon, or on the bag. It was a big fabric bag, oh probably as long as this room.

BS: *Different from what you were used to using?*

GC: Yeah. That was hydrogen. We were using helium.

BS: *Helium. That's correct. OK.*

GC: Hydrogen has a little better lift than helium - not a great deal. I've forgot what the factor is. But it is slightly better - lighter - and yet helium we regard as the only practical gas.

BS: *There's an empire penguin rookery near Mirny. Did you ever get out there?*

GC: Many times.

BS: *Many times.*

GC: I've got some photographs of that. I would estimate about 25,000 in that rookery.

BS: *Did the Russians study the penguins during the IGY - I know it wasn't part of the IGY, but did they have observers there studying the biology of the penguins?*

GC: Yes, in fact they took several penguins back with them. They didn't last long. Took them back on the ship, as we did.

Oh, who was it - who was it that had them in the supermarket in Baltimore?

BS: *Bill Sladen.*

Gc: Yes. Did you ever see that? They built a separate refrigerated area, didn't they?

BS: *Huh. They died though.*

GC: Yeah.

BS: *So, the Russians - how far away was the rookery?*

GC: Within a half hour walk.

BS: *So you could just hike out there.*

GC: Yeah.

BS: *OK. But there weren't any biologists assigned to study penguins per se as part of . .*

GC: I honestly didn't meet them if there were.

BS: *Um-huh. But for entertainment during the winter, you went out and saw the penguins huddled in the dark.*

GC: Yeah. It was an amazing sight, because they were in a perfect circle and those on the outside were all working themselves in, so there was a constant flux in the thing. None of them - I never saw one of them that died because of cold.

BS: *These were males with the eggs on their feet?*

GC: Well I don't know. You couldn't tell.

BS: *I see.*

GC: One of the New Zealand biologists said to me later that it depended on the size of the bill, but that had to be a comparison - you'd have to have both bills right at hand. Now that was an amazing sight. And they would . . . if they lost the egg it was doomed, but sometimes the chicks would get lost and you'd see a penguin without a chick run over and grab it and stuff it into its pouch in the hope of having a child, in other words. It had something to look forward to.

BS: *Were there any successful adoptions that way?*

GC: Oh yes. Well, I'd have to stay around and mark it, but that was often . . . you'd see them run over and get this little chick and push it up under its pouch. The pouch was beautifully made. It was just a big heavy lap of feathers and skin and you could see them - the chicks would put their little heads out so they could breathe. But they had a pretty big rookery there. I think it was estimated at about 20,000 birds.

BS: *You talk in here about traveling with Chumsky across from Oasis on foot.*

GC: Yes, what we did was we flew up with the glaciological group and they landed on the ice and that was an experience because the ice was absolutely blue bare. And the ice, because of the action of the sun, tends to form in a series of little sharp hollows and it's very hard on skis flying across that stuff because these little hollows intersect and they had little sharp edges in between.

BS: *Tear the skis off.*

GC: What? Yes. But we landed first at a particular point on the slope and as they shut off the engines the aircraft was slowly starting to slide down the slope, so he turned the engine back on - took off and flew up maybe a hundred yards higher, stooped and turned the engines off. Still slid. So he finally found a little depression and he landed or taxied into that and it stayed all right. And then that's when I left the aircraft.

We had what was called an on-board mechanic and the on-board mechanic had to make the lunch for anybody on board. And they 'd have cheese and Russian bread and jam and tea - those were the common things. And they didn't usually . . . sometimes they'd serve vodka on board, but normally it was hot tea with lots of sugar and jam and their cheese and Russian bread. And then the mechanic, he had to make up the lunch for you. So it was . . . they were satisfying and you could have as much as you could eat. There was no shortage of food. But it was nice to get back to the base and have a piece of their lamb or whatever they had for dinner that night.

BS: *You had to hike back on one of these occasions.*

GC: Yes. That was Strumsky. Strumsky was the finest scientist in my view and the strongest personality and not a communist in any sense of the word. In fact, he said he feared to talk in his own home openly. And when I went, after the IGY, I went to Moscow to see him, we didn't meet in his office or anyplace. We went out in a park and sat on a bench. But he was a very able guy. Very good linguist in English, Russian, of course, German and I think he even spoke one of the Latin

languages. But he didn't trust his daughter. He thought. . . he just was unsure of what she would tell when she was back at the office.

BS: *Well, you and he were out in the field and you landed and you had to hike back and was there any problems with that?*

GC: Well, it was - you know the ice cap is like a danish pastry - it gets steeper and steeper the farther you go, so he gave me an ice axe. I had cramp-ons and boots on the cramp-ons - or crampons on the boots, and he said, "If you start to slide, hit that axe as hard as you can in the ice and I'll come and get you." But we weren't roped together. We had been on the last trip when we were going down this almost vertical cliff, but there it had melted a lot and it was sort of snowy and we could cut our way down the cliff. But then we walked several miles down this grey-ish stream off the glacier and that was fascinating because the ice there was about 3' or 4' thick and you could see - he was very interested in this - the trail of bubbles that would be squeezed out and frozen into the ice and the patterns were often quite beautiful. They were often like little flowers or geometric in shape. You could see the line where the bubbles had frozen as they started to come up. But he was a - I have his book somewhere - he has what was considered a standard text on the glaciology. I wonder where that is. He was my most important contact on facts, you might say, both about the expedition or about the science.

BS: *OK.*

GC: In fact, excuse me, - he came to an IGY or AGU meeting in Canada and I met him very briefly there. Unfortunately he didn't have much free time.

BS: *Did you - do you remember the sunrise? When the sun came up after the winter. . .*

GC: Well, it's so gradual . . . just goes along the horizon. You see it over here - the very tip of it, then you don't see it for a while and then sometime a little later you see it a little farther and pretty soon it's going farther and farther around the horizon. But what was most impressive was the sunrise over the pole because there it appeared when we didn't see it down on the ice. And you could see this glow that looked like a lighted city. And it was the sun shining on the ice over the pole.

BS: *From the south.*

GC: Yeah. Very impressive.

BS: *That's after it had risen everywhere else.*

GC: Yes.

BS: *So it was the final - that's when you finally had 24 hours a day of sunlight.*

GC: But it was pretty weak for quite a while, it seemed to me. You got very little warmth out of it, that's for sure.

BS: *The winter's over and you're into the next spring. How did your activities change?*

GC: Well, I began to resume my cloud observations which I could do then with sufficient light, but I was doing some analysis also of the weather charts and I wasn't very expert on southern hemisphere analyses, so I consulted with the Russians quite often on that subject.

Now Morton Rubin who followed me - he had spent two years in the southern hemisphere - one on a special project in Praetoria and one year when he worked for Panagra (?), he was based in either Chile or Peru. So he had. . . he knew the analysis procedures in the southern hemisphere.

BS: *So . . .*

GC: And now he's on his way to Australia.

BS: *So it was during the cloud observation when the sun came up and I assume that you had a set date when you were going to leave. How did you return to civilization, so to speak? You went out on a ship?*

GC: Yeah.

BS: *Did you have to wait until. . .*

GC: Yep. Wait until

BS: *Wait until Mort shows up?*

GC: I had to wait. We were together for over a couple of months, and he kept complaining about "When am I going to get into my cabin, Gordon. You'd better get out of here." He didn't have any problem, but he wanted to be near and secure as the US representative. But we were told to get packed and the ship would leave on a certain date. I didn't leave then, but it was imminent, so Mort and I went down - we were invited by the captain to have lunch with him on board his ship and that was probably a week or so before we actually left.

BS: *Which was the ship you went out on?*

GC: The Korporazzia.

BS: *You went out on the Korporazzia.*

GC: Mort had come on the *OB* and I've forgotten what he went back on - returned on. And they sailed, it seemed to me they sailed up the 90th meridian for quite a long time and they landed then in - where did we land? in India? Cape Town? India would be a logical place but I think we went back to Cape Town.

BS: *A rough ride?*

GC: What?

BS: *A rough ride, returning?*

GC: Well, not particularly. We were accustomed to these high seas and I didn't have any trouble with sea sickness, but many of the Soviet sailors did. Not sailors, but the scientists did. See I had some pills that I would take to quiet my stomach down. See Mort came down on the . . . on one of the other ships, either the *Ob* or the *Lenin*. I think he came down on the *Ob*, but I forget what he went back on. They were very different from the *Korporazzi*. They were nicely made ships with attractive cabins.

BS: *I assume you went back and you turned your research over to the National Committee. What happened then?*

GC: That's a good question. I think I turned it over to the Weather Service - Weather Bureau.

BS: *I meant - I didn't ask the question right. What job did you go back to? Same job?*

GC: No. I spent a bit of time working on material, but now let's see - I've forgotten. I guess that's when I was asked to go to Montreal with the ICAO or was that before I went south.

BS: *You said that was before you went south and that's what drove the Arctic observation program.*

GC: Yeah.

BS: *Were you appointed to the head of the International Affairs Office?*

GC: I was for a while, but then I was assigned to Honolulu. When did I go to Honolulu Sweetie? See, I was supposed to go to Geneva.

BS: *Um-huh.*

GC: But Art Thompson, who was one of my staff, went over there while I was away and he did a perfectly satisfactory job. So I went to Honolulu.

BS: *And what was in Honolulu?*

GC: I was supervisory meteorologist for the bureau in the specific area - in other words, all the island stations that we operated on ship arrangements, and things like that. See, there were a couple of ocean station vessels out there at that time - I think there were two between the mainland and Honolulu and a couple beyond there.

BS: *OK. And you were based in Honolulu for how long?*

GC: That's a good question. There's nothing in your notes that indicates that . . . ?

BS: *No.*

GC: What does it say there, Brian - let me have a look at that for a minute. Oh, here it says that I came back to the International Affairs Office instead of going to Honolulu. That was the time of the launching of the satellites, wasn't it?

BS: *Yes.*

GC: It says here I was appointed head of the International Office.

BS: *Well, the next pertinent question to the polar stuff is did you ever get back to the Arctic or the Antarctic after wintering with the Russians?*

GC: Not to the Antarctic.

BS: *You didn't make a tour back to any of the bases afterwards.*

GC: No. Well . . . that's not true, that's not true. I was asked by the IGY about a year later to visit the American stations.

BS: *Which stations?*

GC: Well. . .

BS: *McMurdo?*

GC: McMurdo, of course. What's the one out . . . Byrd.

BS: *The pole?*

GC: The pole. I went to the pole. And then I went to Hallet and another one along the coast, I can't remember the name of it.

BS: *Wilkes?*

GC: Yeah.

BS: *Hallet, well that's about all of them, isn't it? Hallet, Wilkes, pole, Little America?*

GC: McMurdo. I remember flying out there with a New Zealand representative.

BS: *To Hallet?*

GC: Yeah.

BS: *Was it Bob Thompson?*

GC: No. You said Thompson.

BS: *Yes.*

GC: No. A very fine man. Very . . . he wasn't at all very strong. He had lung problems, but what was his name?

BS: *And what was the purpose of your trip? Was it to oversee the weather . . .*

GC: To look at the weather stations there to see if I could make any improvements in them and talk to the people about assignments and things like that.

BS: *And the Navy flew you around?*

GC: No. How did I get around? I don't think it was the Navy.

BS: *You didn't have much choice.*

GC: What?

BS: *You didn't have much choice.*

GC: That's right.

BS: *You had the Navy and the Navy at that time. The Air Force was there flying KC-124s, but that was for big air drops.*

GC: Yeah. I came back with the Air Force, I think.

BS: *Yes. They would fly people back and forth to Christchurch.*

GC: But who did I fly with?

BS: *Which year? '59?*

GC: Who?

BS: *Which year did you return? In '59?*

GC: Yeah.

BS: *So that was your last trip to Antarctica. Did you ever make it back to the Arctic after that?*

GC: Yes. Boy, my memory isn't very solid on that. I think Glenn Dyer and I went together on one occasion because I remember we went from Resolute to was it - where's my chart here? I went with the Canadian head of observations and flew out to Winnipeg first, and then up to Churchill and then . . .

BS: *Resolute?*

GC: Where did we go from there?

BS: *You had your main base at Resolute, or the Canadians did.*

GC: Yeah. Yeah, I'm sure I stopped at Resolute, but I was trying to figure out where I went here because I went all the way up to Alert and across to the main military base on Greenland.

BS: *Thule?*

GC: Thule, yeah. We had a station called Nord - the Weather Bureau did - on Greenland. I've never gone to it, but it was right on the north coast. And Alert is the only place that comes to mind, but I don't think . .

BS: *You're most famous for spending a long period of your career in Geneva. How did you get . . .*

GC: How'd I manage that?

BS: *How did you luck out and get to go to Geneva? How long were you there eventually?*

GC: Well, Bob White sent me over. He said, "Gordon, this was a development of the several new programs in the WMO. I'd like you to go over there. I was perfectly happy in Washington, but he thought it would be useful to have somebody over there.

BS: *Were you married?*

GC: No. Divorced.

BS: *So you could go*

GC: That was what struck him.

BS: *Well, you answered my question. I was going to say do you think that was the reason they picked you?*

GC: Perhaps. But how long did I - I don't think I was there more than two years working as a working person.

BS: *In Washington . . .*

GC: No. In Geneva. And I attended the meetings on demand or by recommendation and reported to work with the US delegation to achieve their goals and to influence them as far as the Weather Bureau was concerned.

BS: *But you went there in 1965 according to this and stayed 25 years, is it?*

GC: You mean to date.

BS: *No. How long were you in Geneva?*

GC: Well I was only there several years.

BS: *Several years . . . um-huh.*

GC: I should get out my notebook and review it - I should have done that before you came.

BS: *That's, that's fine. And when did you retire from the Weather Service?*

GC: '78

BS: *1978. When . . . have you visited any of your friend's from the experience Mirny and the Soviet Union and Russia.*

GC: Only mostly through contacts in Geneva and not many, but some of them would be coming to conferences and we would get together for lunch and go over matters, but I never kept up an official correspondence with them.

BS: *But you did get over - you were in Russia and visited Chumsky.*

GC: Yeah.

BS: *Um-huh. Any of the others?*

GC: Oh I must have touched base with the rest of them.

BS: *Um-huh. And Chumsky was the one that was a little bit concerned about people listening to your conversations. OK. How about the Canadians in the Arctic. You didn't have any work in the field. Did you ever do into the field again after Thule - I should say to work. I know you made an inspections.*

GC: No the last I went was when I went as far as Alert, and came back then through Thule and what's the date of that? Do you have some date on that?

BS: *You said '59 for your Antarctic revisit and later you went and made a tour in the Arctic and I don't have a date on that, but you did an inspection of Resolute, Alert, Thule , Winnipeg, and went through Winnipeg and Churchill to get there.*

GC: Yeah. Did I give a date on that?

BS: *No.*

GC: How could I fix that?

BS: *Well, that's not important. You know, it's an inspection trip. And the purpose of the trip, I assume was to help observe how the station was going and to possibly . . .*

GC: Keep in touch with Glenn Dyer and keep in touch with some of the changes that might be desirable. Brian, did Glenn go with me on part of that? I think he did.

BS: *Um-huh. Now I've got to ask you some retrospect questions. I think your significant experience in the field as far as polar things go was your time with the Russians. How did that change you? How did that help your career, I guess, was one thing and how did it personally change you, or did it?*

GC: Well you become tagged a little bit, having lived with the Russians, which was rather unusual in those days. Many people have done it since then. It's not at all rare now. So, I was often called for discussions about the attitude of the Russians or what capabilities they had. But I don't remember those specifically. I got back into the observing program and, when did I go to Honolulu? Did I give you that date, Brian?

End of Tape 2, Side A

Tape 2, Side B

BS: *What were your impressions of the Russians at Mirny as People?*

GC: Gordon, the tape is garbled here so you have to write in your answer!!!

BS. Was the experience of spending a year with the Russians during the height of the Cold War a valuable experience to you personally?

GC. Gordon, we need you to insert your answer here!

BS. Did the experience of spending a year with the Russians enhance or promote your career?

GC. Gordon, again we need to have you insert a response!

BS. Would you do it again if given the chance?

GC. This is really a summary of your interview – so you can say anything you like!

INTERJECTIONS : Gordon, after we had unhooked the tape recorder you mentioned that you had not commented on your experiences while building weather stations during WWII along the ALCAN Highway construction route. I told you that we could interject them in the text when we wrote it up. Here is your chance.

You can also interject other experiences that you remember and you should, of course, correct and expand on the text as you see fit. _____