

PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: C. B. Newmarch

INTERVIEWER: David Finch

DATE: April 26, 2001

DF: Today is April 26th, in the year 2001 and we are with Mr. C. B. Newmarch at his home at 24 Maryland Place S.W. in Calgary. My name is David Finch. Could you start Mr. Newmarch by telling us where and when you were born?

CN: Sure. I was born in Whitehorse, Yukon, January 17th, 1919. My father J. C. Newmarch was manager of the Whitehorse branch of the Canadian Bank of Commerce. My mother was Doris Jean Newmarch, Doris Nell. Her sister Eileen and her mother were brought to the Yukon over the White Pass on Yukon Railway to join their father who had travelled on foot in 1899 to join other gold seekers settling in Dawson City. At the time of her marriage Doris Newmarch, my mother, was a very active outdoor person, running a large dog team, maintaining a trap line on which she caught mink, red fox and ermine. She also served as a big game guide to numerous American hunters and ran a Model T Jitney from Whitehorse to Dawson City.

DF: What's a jitney?

CN: A jitney is another word for a taxi. You can imagine that the jitneys were always breaking down. They were an early model Ford car, they were serviceable but they did break down. So you had to fix them because there was nobody else around except for yourself to get from A to B.

DF: Do you remember much of your time up in Whitehorse?

CN: Yes, a surprising amount. We left Whitehorse when I was 7 years old and moved to Victoria, B.C. but the things I remember were riding in the sleigh with my mother to go out to the trap line. I guess what I remember the most was the wolves because the wolves have a way of slinking along in the woods beside the trail that you're on and if you begin to get weary the wolves seem to get closer and louder and more numerous. And as a little boy of 7 or 6 wolves really bothered me. They still bother me in the bush today and they still do the same things. If you're all by yourself on a trail and they wolves are just in the woods behind you, they get closer as you get more tired. And they have a sound that's very piercing. So I remember that. I remember my father had gone out one night to cut ice on the Yukon River, which everybody did to put in an ice house. He had the dog team with him and somebody else had been there cutting ice before him, unknownst to him and it had snowed and the snow had covered over the opening that this man had made to recover some ice. My father fell through into the Yukon River and luckily was holding on to the traces that he had to the dog team and he yelled at the dogs to pull, mush, and they pulled him out of the water. Then he had to drive home over the trail. By the time he got home it was 40 below so he was just a chunk of ice and I remember him coming into the house all iced up. So those are vivid memories of those days in the Yukon that I

remember as a boy. So our family moved to Victoria when I was about 7, I guess because my parents were worried that education in the Yukon might not be so good. My mother was educated in the Yukon because she came up when she was a young girl and grew up in Dawson City. I think there was just one teacher for one large room and it wasn't so great. So they moved and my parents stayed in Victoria until my dad retired and even after that, which was a very nice place to be and a great place to grow up really. So I spent a year at Victoria College, which at that time was at a place called Craigdarrock Castle and then spent the years 1937-1941 enrolled in the University of B.C. in Geological Engineering.

#049 DF: So why did you go into geology?

CN: I guess because my parents were exposed to a lot of mining activity in the Yukon and they may have influenced me to some degree and the outdoor life that they had led. The activity of a geologist or mining engineer tends to be outdoors. That's about the way it came on. So once started along that road I just continued and took an interest in and enjoyed doing geology and enjoyed the outdoor life.

DF: So tell us about getting your PhD in Geology?

CN: Towards the PhD I spent two years taking graduate geology courses at Princeton. These were the course requirements towards a PhD and I'd sort of run out of money by that time and I was hired by Standard Oil of California to do some work that involved outcrop mapping in southern Alberta.

DF: What year?

CN: This was 1943. So the work involved outcrop mapping along the coulees in southern Alberta. This was followed by the supervision of some structure test hole drilling. We drilled a test hole on every mile corner all over southern Alberta down to a marker zone and used it to work out the general structure of the area. This led to the discovery of a couple of oil fields in southern Alberta, which were out on the prairies, the first oil and gas area that had been found. The reason people were working in southern Alberta at the time was because Montana had some producing oil wells and the idea was to get as close as you could get to where there was some production, figuring that something similar might be found. And it did in fact, work out that way.

DF: Where were these fields?

CN: There was Taber and Conrad were the names of the two fields. They're medium gravity oil that's kind of easy to get to market. So they were the first discoveries and we felt quite proud of the fact that we, California Standard had produced these two oil fields and Imperial Oil had drilled 100 wells and found nothing. So we were quite proud of that fact. Imperial Oil soon caught up when they made the Leduc discovery but for awhile we looked to be ahead. In 1945 I married my wife, Beverly Farnsworth, who was a nurse at the Taber Hospital. We had three children and these involved, the eldest Keith was a Petroleum Engineer at Husky here in Calgary, Marion is a physician in Portland, Oregon and Bruce is a physician in Kamloops. I had tried to use the work I was doing that was original whilst I was at Chevron but every time I asked them if I could use it as a thesis they refused, saying we don't need our geologists to have a PhD and so on and so on. So

that, taken with the fact that many of the oil companies, Shell included, were leaving the area because nothing had been found, this was just prior to Leduc, and so I thought well, I want to finish my PhD anyway, no matter what they say. So I wrote the B.C. department of mines in Victoria and asked them for a thesis area. They wrote back and said, we have a problem in southeast B.C., there's a quite large coal mine and this mine has built an incline up the mountain to a coal seam and they spent a million dollars on this incline and then they entered the coal seam and the coal seam pinched out and they're quite unhappy and they need somebody to figure out what the hell happened. So they said, you can map the region as a thesis project and why don't you do that. So we did that and we moved to Fernie, B.C. I had some summer students that I hired from UBC and we went about mapping the area as best we could. We climbed up the mountain side to where there was an outcrop of the coal measures and we went from top to bottom of these coal measures and described how thick they were and collected fossils that we got identified by the Geological Survey. Then we also worked on this damn problem of why this coal seam was pinching out and to do that we did the simple thing that we climbed up the hillside to where the coal seam was and we followed it around the mountain until it pinched out to see why it did that. It did that because there was a big fault that interrupted it and it just pinched out against a fault and then it went on on the other side of the fault. Only to follow it you had to go down and the coal miners all said, oh you go down, we always thought all the faults went up. And things like that. So we solved the problem and mapped the area. I got a thesis project from it and I got some work over a couple of years and mapped quite a bit of the geology of that region and it worked out very well.

#115 DF: Can I ask you a couple of questions about that?

CN: Sure.

DF: So did you take time off in order to do this work?

CN: Well, I had left Chevron

DF: Oh you left, okay.

CN: As many others had left. Some quite senior people left, some went to Manitoba and some went to South America. People just left the industry because things had sort of fallen on poor results. ??? when that was really, I think poor results at the time, this was '46 and things were going from bad to worse. Shell was acting like it was never going to come back. Everybody had just disappeared.

DF: Which coal mine did you work for?

CN: I worked for the B.C. government for a couple of years but meeting with and working with people who were Crowsnest Pass Coal Company. And after a couple of years of getting my thesis pretty well organized, the coal company said, we'd like to hire you at twice the salary that you're getting from the government, which wasn't very big anyway. But you get a company house and you get a company truck and things like that. So we left the government and I'm writing my thesis in my spare time and starting work for the coal company.

DF: How much were they paying you, do you remember?

CN: I would guess they were paying me \$225-\$250 a month, something like that. And it was

enjoyable and it was different. I had a very nice President of the company, who was a big drinker but really knew what was on and had been in the business a long time. And he said to me, why don't you go and look around and see if you can find a place where we can start an open pit mine as opposed to our present underground mines. So I did that and I had an idea that by means of faulting this thick coal seam, which was 50' thick down near the town of Michel, in the Crowsnest Pass, could be doubled in the over thrust fault and this ought to happen near the town of Michel where it would be accessible and we would go and look there. So I went there by myself and crawled up the mountainside with my little pick and I started at the top of the mountain and I worked, there was coal all the way from top to bottom, it was unbelievable. This fault had just pushed the measure up and doubled it to 100 or more feet of coal. So I suggested to the company that we diamond drill the area and see how much coal was there. We had to build a road up the mountain and there was just lots of coal, it was easy to get at. But the underground people just didn't like this idea. They kept saying it would be too dirty and we couldn't sell it and all sorts of excuses. But we went on and we said to them, why don't we just start as a small mine and we blend in 5% of this coal that you don't like, with the underground coal. And if nobody notices then we increase it to 10% and on like that. Which is what we did.

#155 DF: So you said you did diamond drilling?

CN: Diamond drilling, taking cores out down to the surface, through this coal measures to see how big an area and what the structure was shaped like, and how far it went, was it just a little small area or was it a big area. But it went right along this fault zone so it just kept going for miles, so easy. But we had to do quite a bit of drilling to outline this block. And then get on with an open pit mine. And a company named Mannix, who were road contractors came along and offered to do the mining and so that really solved a lot of problems because they were pretty good guys, pretty able and they could strike a decent rate of work. So it went and it began to work out. To everyone's surprise, it wasn't very long, a year or two, before the open pit mine was producing 3-45 tons per man per day, as opposed to 8 tons per man per day for the underground people. And the underground people had several underground mines and every so often they'd have an explosion and they'd kill 100-200 men. You got all these wives in this little village and it's just hell when this happens. So it wasn't very long before the underground mines shut down completely and the open pit mine got bigger and bigger. So they began to produce millions of tonnage a year and ship it by the CPR to Japan because it was good metallurgical coal and it just worked out great.

#177 DF: So was there open pit mining before this?

CN: No, that was the first one.

DF: Because of you. Good for you. Saved a lot of people's lives too, didn't you.

CN: Sure. So one of my friends who was operator of the coke ovens because they made coke in this little town of Michel, from the coal and they'd ship coke to Kimberly for making steel. So he said to me one day, look out there, that mess, that awful black mess, you can

say to your relatives someday, I made that awful mess up there. It turns out the government required them to reseed these areas of coal waste that was too dirty to sell and quite surprisingly, after about 40 years, that reseeded area, which used to be just a big pile of black coal is all grown up in grass seed and trees and you'd never know anything had happened there. So it all worked out quite well, even environmentally. So that was a success. The next thing that happened, of course was, Leduc was found. So in 1947 oil companies suddenly swarmed back into town. My old employer phoned up one day and said, why don't you come back to work for us. You've got your PhD degree that we don't need but that's all right. You can be Assistant to the Vice-President of Exploration, located in Calgary and all these benefits and the salary is good. So I did that, I went back to work again for Chevron.

DF: What year?

CN: 1949. So I went back again, in the oil business. I hadn't been in Calgary long until it was suggested that I go out to Regina and start an office there and start exploration in Saskatchewan. Several of the major companies were doing that and so I did. But just before I left, we'd had a group of people trying to find some extension of the reef trend that Imperial had found at Leduc and they were in an area of sandy surface beds and geophysical people couldn't get any records through the sand. And I'd been doing all this structure drilling in southern Alberta, so I suggested that why don't we go in and structure drill in this area that seismic can't get any records or very poor records. So everybody thought about that and said, there's a coal seam at less than 1,000' that we can drill down to as a marker bed, why don't we do that. So all the drilling rigs were rounded up and people to look after it and we started drilling holes and. . .

#223 DF: What kind of pattern was this on?

CN: It was on a mile corner pattern. It was just like we'd been doing the drilling in southern Alberta. Then we put all the obviouses together and pretty soon we had a nice dome. We got a farm out from Imperial, they couldn't get any records either and so we drilled out and it was Chevron's first Devonian reef oil well. It was really fun because to suggest and idea, to do it and then find some oil, find a new oil field, especially a Devonian one, it was just terrific.

DF: What was that field called?

CN: I can't remember but I've got it written down and I can tell you what it was. Acheson.

DF: So that had to be pretty exciting.

CN: It was exciting, you got it.

DF: Now you've told us some things that are in sort of shorthand. You drilled on mile corners and then how did you make the sub-surface map?

CN: You drill down and you know the depth, you know the elevation of the surface and you know the interval distance from the surface to the coal seam. So you can map structurally from each point of control the shape of the coal seam and if it's shaped in a dome like shape then that's the kind of structure you need because the structure will continue on down to the . .

DF: Oh, so you were using the coal seam as your indicator.

CN: Yes, so we mapped the structure of the coal seam, which was only 1,000' deep instead of 5,000' where the oil and gas Devonian beds are.

DF: And what were you drilling for a hole?

CN: We had 4 3/4" hole, not a very large hole and then we ran an electric logging tool down there, which makes squiggles on a sheet of paper that are distinctly marked when you hit a coal seam because it will zing out and makes a big line on the electric log. And this piece of paper that you get with this wiggly line on it has got the depth mark on it, so it's easy to do. And fairly inexpensive. So we did that and it all worked out and we made a discovery. Just about that time then, I was asked to go to Regina and did that and started an office and rounded up some staff and began exploring in Saskatchewan.

#268 DF: Did you find anything out there?

CN: No. We got some land here and there and didn't find anything out there. Nothing that was significant at the time, even though we had some land that eventually became of value. I suppose what happened was, because of the lack of progress and not finding an oil field, the company decided they'd move in a man on top of me in the scheme of things. They did the same thing in Manitoba where they had a new office and a man running it, they moved a man in on top of him also. And I didn't like the idea because I'd been the boss and I wasn't going to be any longer. So I left and found employment in Calgary with a French oil company called Total. I was offered the job of Exploration Manager with Total. So from 1956 was when this happened and from 1956 to 1971 I was Exploration Manager for Total, which was a company which had its head office in Europe, in France, in Paris, and that's where it was directed from. I was beginning to do the things that I'd been doing before when I was living and working in Calgary, with Chevron. So that was an exciting time because it included, amongst other things, doing field work on the Sahara, in the Sahara Desert, driving jeeps across the desert. I'd been working in B.C. when I worked for the Department of Mines, where you packed everything on your back and you make your own meals and you walk 20 miles a day and you record everything in your notebook. Maybe you run horses to carry the load but the horses are a damn nuisance because they're always running away and they have to be fed and on and on. But here on the desert where you'd think it was very difficult to work, first of all you worked around the edges of the Sahara where there's some rock outcrops and you'd look at these rock outcrops. And you had a body of slaves who were local people that had been hired and they would set up the tents and do the cooking and they would import fine wines from France and you would serve dinner at a great cook tent in the desert with 10 course meals, all to be ordered and people to go and set up the next camp. It was incredible.

#320 DF: All for just a bunch of geologists.

CN: All just for a bunch of geologists. Amongst other things we drove across the desert to the Algerian border, where there was a Beau Geste type thing going on. They had this great wall with army men marching with a gun over their shoulder and then marching along this wall to guard the border, like in Beau Geste and they see our jeeps coming in the distance. They haven't seen anybody for god knows how long and they drop their guns

and they run across the desert to meet us because they haven't talked to any stranger for years, or I don't know how long, ages. They ran to each jeep and they started talking furiously, only my French is poor. So the guys face falls and he runs to the next jeep, who he thinks might speak better French. But the whole thing is weird and we're going there because we know from listening to the radio that a sandstorm is coming and we've got to get refuge. So this wall with all these people guarding the border has got all kinds of living that you can close up tight against the sand. So we went in and got inside and the sandstorm hit and we stayed there for a whole day, 24 hours, while this sandstorm raged. And they listening to the radio we know it's over and back to work again. But these things are rather special occasions you know. The work that was done there resulted in drilling which resulted in a huge gas field being found. So it was very rewarding. As I came back to Calgary after doing this field work, some of these guys that had been forcing me to speak French began having to work for me and speak English. So I got my own back.

DF: So how is your French?

CN: It got better over the years but it was never as good as it might be. But I took all the courses that were available in Calgary and I could get by but it was always a strain I thought.

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Tape 1 Side 2

DF: So what did you find out there in the desert?

CN: Well, what we were doing was, there was a sandstone that was expected to be a reservoir bed because it had some porosity and it was outcropping on the edge of the desert. The idea was look at this and see how thick the sandstone was, would it be thick enough to make a useful underground reservoir or not, was it fairly continuous or not, did it have permeability or not and we found these things out and everything was favourable.

DF: You did all that out from the surface on the edge.

CN: From the surface on the edge. And then you can drill a hole in the middle of the desert, at greater depth of course. And all those things came together and we found a great bloody big gas field, which in the middle of the desert was of dubious value but as time went on, pipelines were built and gas was exported to various parts of the world and it became very profitable.

DF: So you were hired in Calgary but this company had operations elsewhere in the world?

CN: Elsewhere in the world yes. It was a company the size of Esso really, it's quite a big company.

DF: Did they have operations in Canada?

CN: Yes, I worked for the one in Alberta and they had other operations in other parts of the world.

DF: So why did they take you from Calgary out to the desert?

CN: Just to give me some experience.

DF: Oh, okay, with their company?

CN: Yes. They provided other kinds of experience. For example, I would go once every year or two to Paris for a company annual meeting and I'd go down to the south of France where they had a research lab and visit with the research people and see what they were doing and what they were learning and what was different and unusual. So all that was some kind of training.

DF: Was this all geology or was it geophysics too?

CN: It was geophysics too. There was some kind of a battle in that I was trying to suggest to them that there were things that we were doing in Canada that they weren't doing and they should do and vice versa, so there was quite an exchange of ideas. Since I was working for them, they usually won the argument but it was fun to do. We saw quite a bit of France this way because this happened a number of times. So it provided some extra training and enjoyment in seeing something about France and learning about it and meeting other geologists who were working in other parts of the world. Having some of them take my wife and I around to nightclubs in Paris was pretty good fun because they knew where to go and what to see and that was fun.

#027 DF: Did you find any oil for them in Canada?

CN: I found a gas field for them in Canada, up in northeast B.C. Again, it was found because we did structure test hole drilling when the seismograph couldn't get any records. And we found the structural high and we drilled it and found a gas field for them. So that was quite specific.

DF: So these were big structures. If you could map them with that kind of huge size surveying.

CN: That's right. And we drilled a well in the foothills of northeast B.C., which blew out because it hit some gas. But the well had become so expensive that our partners, Richfield and our parent company were worried it would already cost a million dollars for a well which in those days was a lot of money. So they said, button up the hole and forget it. But it turned out to be a major gas field eventually. It was one of these places where I had to go out in the field in a helicopter and I had a petroleum engineer with me to stake out a place to drill, based on looking at the structure, hiking along and so I put the stake in the ground and said, that's where you should be drilling because I had air photos and I knew the structure of the whole area from the air photos. So for reasons I can't understand, we had been dropped off, the two of us, by the helicopters and I was going to go because I had the air photos in my hand in such a direction and this engineer wouldn't agree with me at all. I said, I'm going this way and I'm going to hit this road in such a place then I'll start walking along the road, when I get to a big clearing I'll be picked up at such a time by the helicopter coming back late in the day. No, he was going to go off in the bush in another direction. So we parted, which is ridiculous but we did. So the helicopter was late for whatever reason and I went down and I sat down in the opening in the road that I was heading for and the chopper came by and he could see me in this clearing easily and landed and picked me up. He said, where's your partner, I said, he's off in the bush somewhere. Oh he said, how the hell are we going to find him. So as it

happened he had a Luger pistol with him which I didn't know about, it was in his pack, and so he'd seen the chopped come and it wasn't very far from where he was and he let off a volley or two so we could hear him and flew around and kept going back and forth to this clearing, so he turned around and went to the clearing and we picked him up and that was the end of that. But it was pretty tough because he might have been just left there. Interesting.

#060 DF: Interesting indeed. So what else did you do for that company?

CN: Just the usual things. We explored prospects that we thought were worth pursuing and entered joint ventures with other companies. By and large we made a fair representation. I think after something like 10 years, well, I was with them 15 years, I think the parent company got fed up and said, you've been horsing around there for 15 years and the items of value that you've found represent a rate of return on our investment of 3-45 which is not good enough. We like return on investment of 15-20% or we're not going to be staying there anymore. So I left Total and joined Westmin Resources in 1972 and worked for them also, for another 15 years. Mostly doing coal work as they had reason to explore for coal. Actually there was a short period of a year, '72-'73 when I'd been told there was a job for me with Total in London, England but there was a lot of internal disputes within the parent company and between our Canadian company and the parent company in France. One arm would say you have a job and it's in London, England and the other half would say no you don't. While I was in London, England I met an old friend who had been the head of a small oil company in Calgary and we talked to one another and decided we'd start consulting. So we did and we consulted for about a year. One of our major customers had become Brascan, which was a quite large Canadian company. They wanted to get involved in the oil business and so, instead of consulting for them, they kept saying, well you two guys come to work for us and start up an oil company, which we did and which became a company called Westmin Resources, which I worked for until I retired, for 15 years. He became the President and I became the manager of coal exploration and industrial mineral exploration. It all worked out very well, we had about 6 employees in a little oil company that we bought and it eventually became one of hundreds of employees and we bought a mine on Vancouver Island that wasn't doing very well and we turfed out the mining engineer in charge and put a new one in and it became a very profitable mine. The whole operation was successful in the oil business because Bill Farmillo, my partner hired a very capable geophysicist and he had developed a method of looking at shapes on the geophysical records that were shapes representative of the horizon at which the oil was found. It was called the white spot method and it was a direct means of finding oil that was underground from mapping that you did on the surface. We were the first ones to do it in Alberta and we had something like 15 straight successes using this method that nobody knew about. This is what geologists and geophysicists dream about. But this guy who was our Chief Geophysicist got so many offers from other people that he couldn't resist and went elsewhere. And soon the whole industry began to discover this method. But for awhile it was wonderful and we had all

kinds of oil success in the plains of Alberta. So the oil end of things went well and the mining end of things on Vancouver Island went very well. From our 6-8 employees we were up to 300 employees and everything just went roses really. And it was a small company, so small companies are great to work for because you do things that you want to do, not something head office tells you to do in a major, like Imperial or Total or Esso. So that was fun. And I worked there till retirement. Retirement was in 1983. After retirement what I did, amongst other things was to join an outfit called CESO, Canadian Executive Service Organization. They were one in which you volunteered and you put your name in a pot and from time to time head office, which was in Toronto would phone you up and say, do you want to go to South America and I would say, if I can take my wife, sure. Oh no, you can't take your wife. Well, I'd say, I won't go then. Well, yes, take your wife. Then we would go wherever. So we went to the high mountains in Columbia, in South America. That was to help out with some small coal mines. I thought it was a geological problem I was to work on, so I went to meet with these small coal company managers and they had very primitive mines and miners worked underground in very poor surroundings and they had no hard hats and they had little coal cars that they pushed by hand. And I'd say, you don't use horses, no, no, we push them by hand. So the tracks would go up and down a little bit and because they go up and down a little bit, when they start going down, you jump on the coal car and ride it and then you push hard when it comes to an up part. And you're walking along this narrow passageway, by yourself, coming back from doing something and you hear this noise and it's the noise of a coal car coming behind you and you start to run. You don't have an electric lamp, what you have is a gas flame lamp, the flame is sticking out, when you start to run the wind blowing on your gas flame blows out the gas flame, you can't see, you stumble and fall down and you get run over but a coal train. My wife is an old nurse so she volunteers to go out to the hospital and do some volunteer work. What happened to him, oh he was run over by a coal car, what happened to him, run over by a coal car, all of these things. We eventually found that the problem was that all these little mines that had 20 or 30 men employed were shipping their coal to a plant in Bogota that was making electricity from the coal. So they treated it as though it was a thermal coal, just good for burning, where it was in fact a metallurgical coal, good for making steel. So they were selling it for \$25 a ton when they could get \$50 a ton if they sold it to a steel plant. So I said to them one day, you're only 8 miles from the Orinoco River, you can take your coal there, you can ship it to Venezuela and sell it to a steel plant just across the border in Venezuela, why don't you do that, get twice as much for your coal. They said, we don't like the Venezuelans. I said, we don't like the Russians, but we sell them our wheat. So I helped them negotiate their first contract for selling their coal to Venezuela and they started to do that. But I was just there as a volunteer for a month and I left, they negotiated the contract and it worked. So it wasn't a geological problem at all, it was a marketing problem. It was kind of fun. So we went amongst other places to Ireland. Compared to some of these other parts of the world, where there's a language problem, Ireland was a picnic because they spoke English. I had a little car and a cottage and my problem was to meet with the mine managers of these various coal mines in Ireland. I had been told that they were all fiddling

the government somehow and what could we do about that, maybe close them down. They wanted somebody from out of the country who would go away after you'd written the report and visited the area. So we went out to Ireland, my wife and I and we drove to the first coal mine, which was up on a mountainside and I was told that the man had one dirty coal seam and one clean coal seam and he had a blending plant. And he would blend this 12% ash coal with this 20 or 30 % ash coal and make a product acceptable to the power plant down in the bottom of the valley as a result of mixing the two together. So I went and saw the coal seams underground and did this and that and I said to my wife, why don't we go back home another route, the one we didn't come along, just for seeing more scenery. And as we did that, we encountered a truck that was going uphill towards the mine, it was loaded with coal. I said to my wife, now that's a funny thing. It should be loaded with coal going downhill to the power plant instead of this, it's loaded with coal that's going up to the mine, why the hell is that. So we asked some neighbours around the area what was going on and it turned out this guy was importing clean 10% ash coal from Great Britain, landing it and trucking it through his mine and blending it in his blending plant with his dirty coal and he was paying 30 pounds a ton for the coal and selling it back to the government for 90 pounds a ton and peddling the government. And this was just mine number 1. Then we went to mine number 2 that was doing something else and mine number 3 was doing something else. So I wrote a report and said, shut these guys down and why and I got all the mine managers in a big room one day and said, now this is what I've written, is it bullshit or is it okay. The local people that ran the governments of the area, the local counsellors all looked at all this and they shut the mines down. What I didn't realize at the time was, they had a deal, Ireland did with the Common Market, so they got money from Belgium. They paid taxes to Belgium but they got more money back than they paid in taxes so they wrote to Belgium and they said, we've got all these miners that are out of work now, and so we want all this money to retrain them and Belgium coughs up the money to retrain them, using my report for why they were put out work and so it turned out it was a political document, which I didn't realize.

#198 DF: Not geology at all.

CN: Not geology at all.

DF: Any other adventures in other parts of the world with the organization.

CN: Yes, we went to India and I would never go back there. They kept saying we want you to go back to India. We went to India with a group of people who were all volunteers who had done projects. We were looking at projects that CESO had done to see whether sending these people to these third world countries was doing any good or not. So we went to a Ford factory and the Ford factory seemed to be doing pretty well. And we went to a hotel business that a volunteer had helped with their business organization and their audit and this kind of area of study. And the most interesting place we went to was a factory that was making prostheses for guys that had lost a leg or half a leg or what not. These guys were making their own prostheses out of rubber tires and bits of aluminum and so on and a volunteer had shown them how to make their own prostheses. So we go in this factory and these guys are sitting all around the floor making their own leg, what

we would call a wooden leg. Made of black rubber mostly and since they were black people to begin with the black rubber worked out good. So at the end of this tour they said, we want to show you a demonstration of one young man who's made his own prosthesis. So we all went outside and this young man came out and he had long pants on, so we couldn't tell which was the artificial leg. And he ran up and down and he climbed a tree and he came down and came up and chatted with us. We thought this was bloody wonderful, here was this guy who had made his own leg with advice that he'd been given by one of our volunteers so we thought terrific. So we took up a collection, from the collection we coughed up enough money from the next guy in line to build his own prosthesis and went on our way to the next project, it was pretty interesting. So we felt after visiting these several projects that CESO really had done some good in these particular areas and that was rewarding really. So an interesting bunch to work for. So that kind of brings you to what I'm doing now, which is prospecting. I've joined up with Ned Gilbert and some other fellows as partners, Dave Keffer who's an engineer. We run a little company we call Dymin Exploration Ltd. and we have . . .

DF: What's the name of the other fellow?

CN: Dave Keffer. And Jack Cook and we're all partners in this little company and we started out coughing up our own money and exploring in southeast B.C. because in the literature there was a record of kimberlite being found. A record that came from a Chevron geologist who had been doing field work in the area and recognized this rock outcrop on the side of a mountain road was kimberlite. So that's in the record. And since I'd done my PhD in the area I knew some of the things that went on there. So we've rounded up a prospector and got him out in the hills in March, when there was 15' of snow and he was on snowshoes and he staked out claims for us. It happened there was another company staking claims at the same time as we were doing. This was 7 years ago. It was at the time when things were just starting in the Northwest Territories and everybody was thinking about what else you could go look at. So we got into a dispute with the other company as to who owned the land because we staked at the same time, nobody knew that the other staking was there because of the snow. Anyway, we got some land and they got some land. And we farmed out later to them because they had more money than we did. As time went on, they have found six more kimberlites and they've taken samples near surface and found about six 1/4 carat diamonds, gem quality. So we know they're diamonds, so we're getting ready for some drilling this coming summer and we hope to find out whether it has any merit or not because the samplings been not very good because just slump material from the near surface has so far been sampled and we have to do a little drilling to get below the surface slump areas. So that's where we are right now. I can hardly wait til the snow melts and we can get back there.

#272 DF: How big is Kimberlite pipe?

CN: They vary from about 50 yards to about 150 yards. They're fairly large and then they go down thousands of feet, so they go down a long way.

DF: And what's the geological theory behind them, why do they . . . ?

CN: Well, the diamonds are found deep in the earth at great depth and these things come up to

the surface, like any volcano does. They spread apart the beds that happen to be above them and they come up to the surface and blow off like any other volcano does and then they shut down and all this stuff falls down from the top. So the stuff near the top may not be very valuable material but as you drill down you get into more worthwhile beds.

DF: But it's not volcanic is it?

CN: Yes, it's a volcanic rock.

DF: And it's transporting the diamonds from the deep?

CN: From a great depth, yes. That's the nuts of it, they're just volcanoes that people didn't notice before and didn't look for before, until very recently. It's just like the oil business, when I first came to Alberta and the oil business, there was a professor at the University of Alberta in Edmonton said, I'll drink all the oil that people were going to find in Alberta. And everybody was saying, there wouldn't be any oil in Alberta. And this has been the same in the diamond business, everybody said, there aren't any diamonds, people would have found them by now.

DF: So what happens if you do find enough in that pipe, do you just drill it out?

CN: You form a company and you either sell what you own to somebody else who wants to exploit it for a price and you become a partner in the venture and that's the idea, when you're a small bunch like we are. Or you form a public company, which is bigger than the one we have and you exploit it yourself. The usual thing is somebody comes from some other part of the world, maybe South Africa who's got some experience and wants to exploit this venture, that's the usual thing. Somebody like De Beers, who did very poorly in looking in the Northwest Territories, finally had to buy their way in at a place called Snap Lake, De Beers has bought and is becoming its first active venture and they've been there for 20 years for god sake and never found anything themselves. I don't understand that.

#317 DF: So tell me more about your geological career, what have you liked most about doing geology?

CN: Most of the geology that I've done has been in search of metals or oil and gas or some product that you need to find and it's part of our way of life. It might be industrial minerals or it might be coal, something that has practical application. And you need to go out and seek it and find it and exploit it and make a profit doing it. So it's a whole package of things. And it's this challenge that's there that I enjoy. And it gets you to parts of the world that you wouldn't otherwise get to which is often very enjoyable in itself and it's very often outdoors, because you have to go seek this material, whatever it might be. But it's always a challenge and it's very often exciting, usually worthwhile.

DF: Did you do any of this exploration in a canoe?

CN: I did not. No, I never did.

DF: So were you not up north, along the Mackenzie and so on.

CN: No. In southern Alberta, central Alberta.

DF: Yes, because often time, the guys who were up in that part, they were flown in up high and then they came out and did geology along the way.

CN: I've done some exploration in the far north all right, flying in by aircraft. It was again, a

very different thing than most other people did. When I was working for Total, we acquired some acreage in the Northwest Territories and the way you had to explore in the Northwest Territories or to get at our acreage, you had to go down the Mackenzie River, which meant that you had to wait until it thawed out in the spring and then you had to take a barge and go down the Mackenzie River and find a landing spot and offload all your material, your seismic equipment, your portable camp and all this stuff. Having offloaded it on the side of the Mackenzie you had to wait until the winter so the ground could freeze up so you could travel over the ground. So I said, I don't want to do that. That's too expensive, you can't have the stuff sitting there six months, while you wait for it to freeze up. What we're going to do, is we're going to fly in our stuff in the winter, the camp, the seismic crew, the dogs, and on and on and on. And we're going to land on this lake that is quite close to where we want to work and we're going to set up tents and we're going to have people get up at 6:00 in the morning and put on a fire and . . .

End of tape.

Tape 2 Side 1

DF: So start with the part about get up in the morning.

CN: Yes. We put up the tents and we hire Eskimos who are used to the cold and they're going to light the fires in all the tents and they're going to help with the breakfast in the cook tent and they'll get things going. And what we're going to do is, we're going to start out with several Eskimos and a dog team and they're going to go down the first seismic line and they'll cut the trees out of the way, knock the snow off the trees and they're going to go along this line with the dogs. When they finish they'll have the dogs run back and forth and pack the trail down and then we're going to come in with skidoos that we've already flown in and landed on the lake and they're going to do the seismic work and pull out the seismic equipment and go along these lines. So we'll only occupy the crew and so on for three months instead of nine months and we're going to save all this money, instead of it sitting on the bank there waiting for it to freeze up. So we did that. And what do you think happen. The union objected to this. There are always unions around. It worked, we were looking for a structure that we could drill up there. We drilled it and we drilled it in the middle of winter and we stupidly used some Eskimos on the rig and we thought, they'll be wonderful. It turned out they were no good at all. They were no good at all because white men go in for breakfast in the morning in a cook tent or a cook cabin and eat a huge breakfast of bacon and eggs and on and on and on and then they go out in the cold and get up in the derrick and they're able to withstand the wind and the cold, which is 65 below. These guys don't eat very much because they're not used to eating very much, they get up and then they can't stand the cold. White men can stand the cold because they eat so much. So that didn't work. But we drilled the wells anyway and this happened to be a dry hole. But that's some experiences in the north country that were different and kind of fun to do.

DF: Which of your geological discoveries most excited you, what did you like the best?

CN: I suppose the most exciting discovery was the one you and I talked about earlier which was Chevron's first Devonian reef oil well, because the technique was different than anybody had used before, it worked, it was a new technique, nobody knew for sure the structure that was present in the coal beds near the surface or 1,000' down projected on down to where the reefs were. But it turned out they did. And it was a big well and it led to an oil field that was producing a lot of oil. It turned around the activities of the company because once you found some Devonian oil then you knew how to do it and you kept doing it. So it was exciting, it was a big discovery. In those early days a company either got bigger, pushed onwards, or left the country. It was a big turning point. So I happened to have left Chevron at that time or soon after, that was . . . But it was probably the most exciting. And another one that really turned out to be very interesting is this number 4 I've listed here. When we started this little company, Westmin resources, we to buy a little oil company and I had recommended we buy from Eric Harvie's estate, some freehold lands west of Edmonton. I recommended the company pay \$1 million for them. These lands were a checkerboard. Every other section was owned as a piece of free hold that we now own. So it was free hold and you didn't pay any royalties to the government. There was an open pit coal operation just at one end of these lands and you could see it was going in this direction, it was going to go right into those lands and it was going to be an open pit mining operation and we were going to get a royalty that was not less than, had it been Crown land and Trans Alta was paying royalty to the Crown, they'd have to pay the same to us. So the open pit mine zoomed onto our land and I had to go out from time to time to make sure they were honest, that's about all, pick up the royalty. In about a year and a half, they were on our lands, they were mining 10 million tons a year, paying us a buck a ton royalty on half of the land, that's 5 million bucks a year for doing nothing. We were making more money than most of the small oil fields that the guys were finding. We got 5 million bucks a year royalty for 20 years and then sold the land off for 90 million bucks. It was just joyful.

#061 DF: You didn't do anything.

CN: Didn't do anything. Just picked up the royalty.

DF: So what do you think of the whole current situation around using natural gas to make electricity instead of using coal.

CN: It was great at the start, when natural gas was cheap but now that natural gas isn't cheap it's not such a great idea anymore. From what I read they're going back to coal again. So it makes a lot of dirty black dust in the air but it serves heat. Per unit of energy, coal is just great. Environmentalists don't like it, but it's sure cheap. And householders don't like the high price of natural gas either, you and I don't like the price of natural gas now that comes into the house. If it weren't for the subsidy that we get it would be just too much, is too much but anyway.

DF: So how did you come to be associated with the CSPG?

CN: Well, I think the CSPG is a very useful organization in that they get people together to swap stories and ideas and present papers and produce manuscripts that are worthwhile reading. So even in the very earliest days when we just used to meet in a cafe and there

were only 20 or 30 people going to a meeting, in the earliest days, you learned something every time you went to a meeting and you couldn't afford not to attend because your knowledge would increase by attending. So I volunteered to become the Business Manager for a year on the CSPG. Business at the CSPG at the time I volunteered was not as well handled as it might have been. Both when I was a business manager and later, when I had been asked to become President, which I did, they just said, will you volunteer to be President and I said, yes I will. But what I suggested was that each of the committees, whether it was the publication committee or convention committee or whatever would always form a policy of break even, so you didn't charge people too much. It turns out they never met that objective, they were always losing money. So each of the committees was always losing money so I said, each of these projects is going to make a small profit, that's our objective from now on. So in one year we paid off the debt that we were in and things became rosy again and we had enough money to go publish some worthwhile publications which we previously hadn't had. And that's the story really. And I've always felt, still feel that the CSPG is a worthwhile organization and continues to be so. I have been quite a bit worried that involving paid staff, as they're now doing and a big office, might be too expensive for them and that if you had paid staff, volunteers would back off and say, let this paid staff do it, hire some more people and I don't have to do it. But it didn't work out that way and it's been working okay and I'm pleased that it has worked out so well because the volume has kept getting bigger all the time. So the paid staff seems to be fitting in quite well. And this area of past Presidents meetings, I think that's been a useful procedure in that when you go to a past President's meeting, that's a good opportunity to complain about this or that or how they're doing things. This one guy who was a university professor named Ed Klovath??? and he's really brutal and he really tears at them at the meeting. And this is good, you know. So I think they do quite a bit of good. They're experienced people all of them, who have done their turn at running the outfit and I think that works well.

#110 DF: What do you remember from the year you were President?

CN: I've been a member as long as I've been in the oil business really.

DF: But the year you were President, what do you remember from that year?

CN: There were certain things, number one, the members of the executive who worked with me were all able people but much more argumentative than I expected them to be. So the meetings were quite wild at times, there was always somebody who objected to whatever the hell it was. So it was hard to get things done. But this activity increases your broadness of vision I think, so it was good for me in that respect. The process came out quite well, there was this business of making a profit as I say. Publications began to pick up and become more numerous. It seemed very worthwhile.

DF: Any anecdotes, any funny stories from CSPG?

CN: Off hand, I can't recall. I'm sure there must have been.

DF: Does some story telling get done at the past Presidents meeting?

CN: Yes, quite a bit really and it's often to do with pack horse trips up into the Rocky Mountain foothills on various parties that different guys have been on. One of the very

recent stories is one that Alice Payne has written about her father. It's a pretty interesting story and makes pleasant comparison with R. M. Furlton??? for example, which is a similar kind of story of a pioneer doing things. But a very successful one Alice Payne's father had as a prospector in the north, and in the oil business as well as in the mining business in the Yellowknife area. That's the most outstanding story is the one that Alice has written, I think because her father probably suggested that she write it up one day. And he kept a good diary. I guess that was true of R. M. Patterson, who kept a diary.

#141 DF: Just a few more questions here before we end, how did you experience the National Energy Program, where were you in 1980 when all that happened?

CN: I was with Westmin then. We like everybody else, was really upset by the National Program and felt that we'd been hard done by, by the government in Ottawa. And that the province was being raped for millions and billions of dollars. A feeling of inability to do anything about it, despite all the things that Peter Lougheed was doing to fight about it. The federal government still went ahead despite the objections that were billed by the Petroleum Association objections, the government objections and the federal government just plunged ahead anyway. So very unhappy time for anybody in the oil business at that time.

DF: How did it affect your company?

CN: I don't think it affected our company particularly at the time. I think it affected the industry as a whole, creaming off so much money, but our company plunged on like it always did during that time.

DF: And you retired in what year?

CN: 1983.

DF: So just shortly thereafter. But it's not been a real retirement has it?

CN: Well, yes. It is and it was because I did what I wanted to do and that's the enjoyable part of retirement, you do what you want to do. You play some golf and you travel some. This business of Peking Man in China for example. The University of Calgary was offering a trip to China and the way it was to be run was you went during the winter months, once a month, to the university to a lecture about China. And then in the spring the lecturer, who was a Chinese professor at the university, would act as a guide on this trip and he would make all the arrangements, you would go to China, you would visit this, this, this and this. So I prevailed upon the lecturer that Peking Man was the link between the ape and modern man and we should go look at it, see what they had to say about it. And it was a special event and it turned out, from the available data, that there was a professor at the university in Peking and he'd been working on ancient man and he had a limited budget and he was collecting a bunch of fossils. The way he did this was, there was a limestone cavern and in this cavern there was 30,000 years of continuous living. And you could date the living because they built fires and the fires had left carbon and they built up layer after layer after layer and you could go along and you could, through carbon dating, date the layers of these various fires. And then at certain levels you could dig out skulls and these skulls were dated and you could arrange the skulls in order and you could see the big teeth and the big brows of the skull and watch it change through time. And this professor

was doing this and it was at a time that the communists had just come to power and they heard about this guy and they said, ah, this is anti-Western, this is anti-religious, how about your budget, we'll double it. So he got all kinds more money and started doing more work and that got a nice museum started and he arranged his skulls in order for display but nobody from the west had ever been there or heard about this at all. So all this was discovered by the professor. And he in fact, had hidden during the Japanese invasion in this limestone cave as a place to hide from the Japanese. So he knew the bloody place quite well. And I prevailed upon him to take us there, so we were the first westerners to ever go there and see. This bunch of people, we all came from Calgary, went there and here were all these skulls laid out in a row and you could see this great change from early man to more modern man and nicely displayed and it was wonderful. So what happened was that the Chinese guides that had been provided to us by the government were bringing along a tape recorder and recording everything we said and they had translators and on like that and they were setting this up for tourists to come. So after our visit, this became a thing that tourists could also go to. So we started a new tourist industry in China, from this initial visit. I don't know what happened after that but it was an exciting time. So this was something that, as a geologist, I took an interest in and it started a new way of looking at things.

#213 DF: When was this?

CN: This was about 1984 or 5, somewhere in there, soon after retirement, when I started to travel and do things that I hadn't been able to do before. But in a way relating to geology I guess.

DF: Yes. I have several more questions here, when you were President of the ASPG, that's what it was called then?

CN: ASPG originally, yes.

DF: What was the relationship between the ASPG and the American organization?

CN: That was an interesting thing and part of what I had a problem with because we ran each year and they still do run, a big convention and put on a lot of talks and papers and they publish everything. These big conventions once a year turned out to be very profitable and the AAPG, a similar organization but a bigger one, got wind of the fact that we were making a lot of money on these conventions. So they proposed this idea that ASPG become a division of AAPG, like there were other divisions, which were usually state divisions all over the U.S.A. and we would become a division. And that would be great because they could help us with the conventions, they could run some of the conventions for us. And incidentally take away some of the money that we were making. And so we had a great rousing argument because some people were AAPG members for a very long time and thought that was okay, AAPG was a big outfit and we were just a little outfit. And I just opposed it vehemently and was able to persuade the other members of the executive that it was wrong, that we wanted to remain Canadian and tell them to go away and get their hands off our bloody money. So that's the way it worked out and I was quite proud that CSPG, as it's now called, was able to remain Canadian and do its own thing and that's that and keep its hands on the money it was making from the conventions.

Which was quite important to publish, as you probably know, publishing is expensive and that's the way you get information out to members and if we want to continue to do that you don't want somebody scheming away and getting away with some of your profit that you need.

DF: Do you have any regrets from your career, any things that you wish you could have had time to do?

CN: No, I have no regrets whatever. Sure there might have been things you'd like to do but you kept putting them off to retirement and retirement has been more enjoyable for that I think, so I have no regrets, no.

DF: Anything else you'd like to tell us about your career?

CN: I'm not sure, I don't think so.

DF: Or the CSPG?

CN: No, I think we've covered that reasonably well, I hope you do.

DF: I do too. So on behalf of the CSPG and the Petroleum Industry Oral History Project, I'd like to thank you so very much for inviting me to come to your home.

CN: Well, I'm pleased that you could do so.

DF: And spend this afternoon with you and now, we'll end the formal part of the interview at this time, so you can finish your cookie. I kept you talking, you didn't even get to eat your cookie, so thank you very much.

CN: You're most welcome.