PETROLEUM INDUSTRY ORAL HISTORY PROJECT TRANSCRIPT

INTERVIEWEE: Dr. C.B. Newmarch

INTERVIEWER: Robert H. Erickson

DATE: January 3, 1992

Side 1 – 47:42

RE: This is Robert H Erickson. I'm going to interview. Dr. C.B. Newmarch at his home, the home of Chuck and Bev Newmarch, 24 Maryland Place in Calgary. The date is January 3rd, 1992.

CN: Well in relation to your general directions Bob, I'll start out with a few comments on my early days. I was born in Whitehorse in the Yukon in 1919 and lived there until was 7 when my parents moved To Victoria BC. My father was a bank manager with the Canadian Bank of Commerce. He was transferred to Victoria where I grew up and went to school with a few notable people, one of whom was Pierre Burton who was a classmate of mine in school in Whitehorse and a classmate of mine in high school, and still a classmate at the University of BC. And we both, when we were trying to work our way through college worked for the Yukon Gold company during the summer months, where we worked 12 hours a day and 7 days a week for 75 cents an hour. Pierre has written about this in a book he calls "Growing Up", and I think he relates it quite well.

RE: [inaudible question]

CN: Very, very little we followed rather different paths. I went into engineering and his relations were with the Arts fraternity and those two seldom mixed and ... so we lived rather separate lives, of rather different identities and interests. But from time to time I get called upon to introduce him as a speaker and a lot of background on... and with him and in our early days, I enjoyed our high school and he didn't enjoy it at all according to his books and he really didn't enjoy his education until he got into university where they had a college paper in which he was a shining star. But there was no high school paper, so he objected and still objects to that.

Following high school in Victoria I went on to UBC in Vancouver and took geological engineering and worked in the summer months mostly for the BC Department of Mines doing field work in hard rock areas throughout BC. First summer was one in the Yukon working for The Yukon Gold company and ... well, these were long days and it was my first job away from home, so I found that quite trying and wrote some letters home to my folks that worried them I think. But I know that despite the long hours at work, I used to be ... and because of the 24-hour daylight, I used to wander up the creek where we were working in the evenings. And on one occasion found a prospector with his tent and his gold pan at work and since I'd taken one geological course I chatted with him and borrowed his pan and took out my hand lens and looked in the gold pan. And he retrieved the pan from me and said "Sonny don't use that there magnifying glass. If you can't see it with the naked eye it ain't worth having". And ... following five years at UBC I went on to do graduate work at Princeton University.

RE: [inaudible question]

CN: Yes.

RE: [inaudible question]

[00:04:55] CN: I guess I went into geology because my parents were in a mining community in Whitehorse and they'd become accustomed to the employment offered by the larger mining companies. They had visits from geological survey type people, they were outdoor people in terms of their interests, snowshoeing and this kind of thing. And they kind of steered me in that direction. One of my dad's friends was a Dr. John Walker, who was the Deputy Minister of Mines in Victoria. Chatting with him aroused an interest in geology. So I guess that's how I got interested in it. I think that the UBC course was a broad general course that ... it's true, had a strong emphasis on mining but had really broad training. On ... when I went on to do graduate work at Princeton in New Jersey, I went there primarily because entry to the BC Department of Mines as an employee was contingent upon one having a Ph.D. In much the same way as one needed one for the geological survey. And the opportunities for employment in those days were somewhat limited. And so it seemed logical to try and get a PhD in order to firm up a job. In the '30s, jobs were rather scarce, so that's why the graduate work.

Going on to Princeton I had very little money to get myself going, and so I took on all kinds of odd jobs with the university people. I drafted slides for university professors and I ran the wood business and sold armloads of wood to students who were mostly wealthy students who had fireplaces. And I sold wood to Albert Einstein. I remember I had a partner in the wood business, and one day we delivered a load of wood to Einstein and he insisted we had to stack it away in his basement. And it was a long corridor filled with wood, he was hoarding wood for whatever purpose. He explained that we had to carry all this wood down to the far end of his basement. And I thought "that's going to be a big job". So I looked around and thought maybe there's a basement window near, you could just throw the wood in the window. And sure enough we found one. And took the window out, backed the truck up and hurled all the wood through the window and had it stacked in no time. Einstein came around and looked at the two of us and said "aah you smart boys, all the other wood men carry the wood in". So I always thought it interesting to be called a "smart boy" by Albert Einstein.

RE: [inaudible question]

CN: Yeah, he was at a research institute. Not really a part of the University proper, but we used to see him walking around town. And he always walked with his head kind of tilted up, thinking I suppose. Terribly worried he'd fall in a manhole somewhere ‘because he never seemed to be looking where he was walking. But quite a well-known character around Princeton.

RE: [inaudible question]

[00:08:43] CN: Yeah, there was an ??? (name) who ran much of their summer school activities in and near to the Yellowstone Park area and ... we had a guy named Samson who was an economic geologist and closely related to the mining business, and a lot of strong connections with operating mines and he gave a pretty sound course in the profitability of mining. And my first couple of years at Princeton were still pretty much hard rock and oriented in that direction. The Chairman of the Department at the time I was there was a guy named Dr. A.F. Buddington, who was a petrologist who work mostly in the Eastern ranges of the USA. He was a sound geologist, but rather closely limited interest mostly petrology and not much else. We had...

RE: [inaudible question]

CN: Yeah... no, but we had a guy named Harry Hess. And Harry Hess was a man who took a lot of summer cruises funded by partly American government money, doing work in the South Pacific. And I guess because of the cruises that he went on with students each summer, he quickly got caught up in the Navy and its activities during the war. And it was wartime when I was there, and Hess made a great name for himself because he was the most effective submarine hunter that the U.S. Navy ever had. The reason that he was so effective was that he conceded that geologists are trained in trying to make a firm decision with inadequate evidence. So this was why he was able to do the submarine hunting.

RE: [inaudible question]

CN: Yeah, well, Harry Hess was the one that seemed to be the outstanding one. And I think he was well-known coming from a university and, and he did very well at it and he was bright so... And while I was at Princeton, I was teaching a number of guys who were in the Navy, air photo interpretation primarily, for reasons I don't really know, and a lot of the guys that were there taking these courses, some which I taught, went into the Navy rather than to some other branch of the Armed Forces.

RE: [inaudible question]

[00:12:12] CN: I was there ... '41 to '43, a couple of years and returned later for a one-term session. But that was the primary time and in that period of time you could get a Master's Degree, which is what I got, and then I had to leave and do a thesis somewhere and come back for an oral. And theoretically you're supposed to spend three years and I only spent two there. But being short of funds I figured I could work it out some way and working it out took about five years and a lot of it in the evenings and so on. But a lot of guys did this because there was a limit to how much time you could put in in graduate work. And after Princeton, I came to work in Calgary in 1943. I was hired by Chevron. Chevron was scouting around many Canadian and American universities trying to round up personnel for an oil business, which was quite new really in western Canada. And they seemed to like graduate students who had about two years of grad training, mostly an M.A of some sort. And that seemed to be well suited to what they wanted in the way of training ... From time to time they made clear to me that they didn't really want anybody with a PhD degree. But Master's, that was great. That's what they wanted.

RE: [inaudible question]

CN: Yeah. Well they seemed to figure this out as a technique for sorting out what kind of training you should have to go into the oil business. And I fitted that category, so they offered me a job and that was fine. I came out to Calgary and...

RE: Who hired you?

CN: A guy by the name of Jim Kirby hired me. He was the chief geologist for Chevron at the time and he was working for the general manager whose name was John Galloway. And they explained on my first day in Calgary that they had a field party running down in the Foremost area of southern Alberta. And the field party was having some considerable trouble with their surveys, that they had a man named Mickey Crockford, who was running that party, and he didn't know a hell of a lot about surveying. And so he would run traverses which wouldn't close and his elevations wouldn’t tie, and maybe I should go

there and help out because I ... they had seen on my resume that I had done a lot of surveying. So they provided me with a car and to my great astonishment they gave me a big black Buick to drive down there with. And I didn't question why they gave me this big black Buick, but it turned out it was John Galloway's car, and he had a lot of trouble with it. It wouldn't run it would stop in cold weather and he was furious about it and got so angry he gave it to me the minute I walked in the door. So I arrived in this huge Buick at the field party and it caused no end of consternation to him, here's this guy new to the party arriving in this big black Buick. I don't know, I never explained to anyone why I got this special treatment. All the troubles I had trying to keep it running.

And, what we were doing was ... finding marker beds, mostly oyster beds that outcropped along the valley in the Foremost area, looking to map surface structure under the premise the surface structure would be similar to the structure at depth. Mostly you were looking for some kind of an anticline, and we did this by the party chief going out and standing on the oyster bed with a rod and some guy like myself shooting at him with an instrument and a plane table. And most everybody did their work by plane table. And so that meant the party chief could put the rod wherever he wanted, and he was pretty good??? So it was his job to pick out equivalent beds as we went up and down the coulees, which we did. And my job to make the traverses close and balance which they seemed to do most of the time. So we did that for a summer and there were all kinds of amusing episodes that occurred doing the plane tabling. Mostly what I remember were the sheep herders. And there were a number of sheep herders in the southern part of Alberta and they were lonely people, they wouldn't see anyone for months at time and when they'd see me out in this coolie they'd immediately descend upon me with their... walking and with their sheep, maybe a thousand sheep. And they come tootling on down and surround me with all these sheep and I'm trying to do my surveying and talking my arm off. And it was kind of fun, a little different. So we did that and uh, we kind of had a headquarters in the Taber area where a lot of the guys worked from. There was a single men's camp there that Chevron built, kind of a motel like camp. Most of us were single in those days.

RE: [inaudible question]

[00:18:20] CN: There was George Springer who later worked for Union Oil. And Red Swan, an engineer, and Al Kival and Bill Fiverlowe and Don Weir and George Frenerval. George was in charge of the camp, and that general area of Southern Alberta. Quite a demanding guy and I remember when we drilled our first well at Taber, I was sitting on the well and George had instructed me that the object of the well drilling was to hit the Taber sand and not to penetrate it more than three feet before running a test. And so I had penetrated it by six feet instead of his instructed three feet and we stopped and ran a test and it flowed oil to surface, and instead of being overjoyed by this result he berated me for going an extra three feet into the sand. So that camp in the Taber area was one where I spent some time, some of it sitting on wells. And, it seemed to me that our competitors in the area … and the oil business was secretive at this time. Those early discoveries such as the one at Taber, information was kept very confidential.

RE: [inaudible question]

CN: No, no, you kept your own cores in your own core house and gave as little information as you could to the government. And there were ... all kinds of employees from other companies sneaking around, oil scouts, and...

RE: [inaudible question]

[00:20:21] CN: No I don't remember them offhand. But the oil scouts were really ... paid spies and it was an accepted way of doing business but everything they did it seemed to me was pretty illegal. And we had our own oil scouts in the company and several of them. And, I know that on occasion one of them went on to a competitor's well and was hired on as a drill hand and sat there the whole time, looking at the cores and phoned in reports to us. This was the kind of tactic that went on. And I remember Texaco more than some others as a competitor, because they were working in the southern plains when we were and doing field work, much the same kind of field work. And they were both trying to work out the surface geology as well as the subsurface.

I remember coming up to Calgary to an early ASPG meeting and Hugh Beach was chief geologist and Texaco presented a paper with some slides. And some of the data that he presented in his slides was quite original, so I asked him if I could borrow his slides, and he said, sure you can borrow them, since he'd already presented them at a meeting. So I came over and got them one day, and I had them for about a day and he came racing over to my house this one day in a foul mood and grabbed the slides and ran off and seemed very unhappy that I had them. And it was just the mood of the day, that he suddenly got to thinking he was giving away some information to a competitor and couldn't stand the thought of it.

So, we...as I mentioned, did a lot of plane table surveying along the coolies for the accumulation of structural data and we had to tie that information to some benchmark which might be several miles away from where you were doing your actual work. So these long traverses on the flat prairie were done nominally during the daytime, and there were heat waves in the summer and heat waves made your ability to shoot long distances very poor. So I concocted the idea of surveying at night and there were no heat waves, and what we did was to get the rod man to go out and take the car and hold the rod up and shine the headlights of the car on the rod and I could shoot a mile at a time, because I could only shoot a few hundred yards in the daytime. It worked very well to tie into a benchmark. And... except for one night we were doing this and the rod man went off down the road a mile and just disappeared and I never saw him again. And what he'd done was to go down in a deep hole in the ground- stood down in this hole shining the car lights on the rod which I couldn't see because cause he was down in this hole, so I had to walk a mile down and cuff him and tell him to get up on the flat prairie where I could see him (laughs). But there was always something like this happening.

[00:24:03] RE: [inaudible question]

CN: Yeah '43/'44, kind of time and after this field work the company began to embark on a structure test hold drilling program, and I was in charge of that and we opened a small office in Foremost and hired some rigs, mostly run by Bedhurst and his sons. Paul Bedhurst by name, and he had been drilling water wells for the Air Force. And he was happy to get a job that paid better, so he was drilling our test holes. And we drilled on every mile corner all over Southern Alberta from Provost up to Taber toward Manyberries and over to Medicine Hat. He used the aquifer, the main aquifer as our marker bed, or anything else, but mostly the aquifer

RE: [inaudible question]

CN: Oh they were mostly about 300 to 500 feet, sometimes 1000 feet, and now and again they would flow which was very annoying. And when they would flow water you would have to cement them. By that time the Conservation Board had some orders out and we had to plug them. But whenever you get a flow usually the farmer would come along quickly and say, you don't want to plug that, why don't we

run some casing in the hole? So what we would do is go and buy... into Lethbridge and buy some casing and run back with it and run it in the hole and take the farmer's fence and pull it out so it looked as though the well was on the farmer's land and let the thing flow and the farmer would sometimes get a little gas from it as well as some water, and he'd run the water onto his farm and it all worked out great. Nobody seemed to object to that. Very illegal I'm sure but that's what we did. A lot cheaper than cementing the holes. And I remember one hole in particular which was in a coolie just north of Foremost and it flowed, being down in the bottom of a coolie they're more likely to, and everyone in town quickly heard about this flowing well. The people in the town said, "well, don't plug it, whatever you do don't plug it. What we'll do is build a swimming pool". So they had a thing called a "bee" and which everyone in town, it turns out that... one of the big tractor dealers donated it, a dozer, and he dozed out a big hole in the ground for a swimming pool and somebody else donated the cement, and in about three days of work with the whole town working, we managed to scoop out a big hole and cement it and make a swimming pool. And after those three days of hard work, we turned the water from the flowing well into the pool and sighed with relief and thought that was great and ... so I went into my boarding house - I boarded with a general store owner - and he said, "I'll tell you what we're going to do, were going to have a little ticket selling on how long it's going to take for that swimming pool to fill up. And what we'll do is sell tickets at a dollar each, and you put your name in this book and write the time of day, and all like that. And everybody does this together and whoever gets the closest to the time it takes, takes all the money".

So I had an associate with me at the time whose name was Walt Tovell, who was another geologist, and he and I figured we could run some profiles across this swimming pool and compute the flow rate and figure out how long it took to fill up. So we did that. We took out surveying instrument down and surveyed this all out and measured the flow rate in the morning in at noon and at night, because it wasn't always constant flow. Then we came into the store and bought our tickets and put our times down. We were quite pleased with ourselves and the store owner said, "I hear you boys been down in the coolies surveying" and we ???. "And I also hear you've got it all figured out as to when it will fill up".??? And he said, "I'll tell you what I'm going to do", and I had put down a certain time of day and Walt had put down a time of day that was an hour later. He said, "I'm going to buy a ticket and put my time down halfway between his time and your time". And guess who won the pool?

[RE: Quick inaudible question at the same time]

CN: He won the pool! (laughing) I learned the difference between signing up some business very quickly after that.

[00:29:23] RE: [inaudible question]

CN: Well 1945 was the year I got married. I had met my wife in, met my wife in Taber. She was a nurse in the Taber hospital and Chevron capital was in Taber and we used to go to dances in town. And so that was a kind of special time. And after we got married we took a honeymoon in Banff at Becker's Bungalows. The company wouldn't let me take my company car to Banff. I had to go by train. Pick up my car when I got back to Calgary and uh, we moved down to a little dinky house in Foremost and began running this structured test hold program again. Continued with that kind of thing some of the time spent back in Calgary ... Until about 1946 when I left Chevron. And I left for number of reasons. Uhm the oil business was not really succeeding at that date Imperial had drilled 100 dry holes and we found this too the Taber field- there was some oil in Turner Valley but everyone was getting a bit disappointed. The company was offering transfers to the Amazon Delta and other unpleasant places. And guys began to

leave the company in droves. And Don Weir, was head of the exploration, left and went to Saskatoon to continue teaching as a university professor there. George Furnivall left, and went to become Deputy Minister in Winnipeg where he wrote oil and gas regulations for Manitoba whilst he was there. And Bill Farvalowe left and went to South America with a company. I left and joined the BC Department of Mines because I wanted to get a thesis topic. And I had written them and they said, "we've got one for you in the mountains of Rocky Mountains, and we got a problem for you to work on" and that just suited me fine. So I left. And so the geological forces with Chevron where being quickly depleted. Shell as a company had pulled out entirely from Calgary and gone back to the States. Everyone seemed to be leaving at that time. All business looked like it was getting to go on the rocks and not much excitement.

[00:32:17] RE: [inaudible question]

CN: Yeah, some people stayed with Chevron, but the writing seem to be there when it closed the office and moved back to California ... and go to other parts of the world. They were having a lot of success in Arabia at the time. So some people went out there on foreign assignments. At any rate I left and went to work for the BC government. And my job was to map the Fernie Coal Basin which I worked on for a couple of years with field parties in the field each summer. And so we moved to Fernie in the summer months and find whatever accommodation we could and move back to Victoria in the winter and write up the field work. That went very well. The coal company had a problem that... they had built a huge entrance to a mine not far from Fernie and had followed their coal seam for about six months after the opening of the mine and then their coal pinched out. People are quite upset because they built an incline up the mountain that cost a million dollars to reach the coal seam, followed it underground and it just suddenly disappeared, and they never had anything like that happen before so they didn't know what to do. Which was why I was sent there. But it made a thesis topic and I had access to all our files and information, historical data and it all worked out quite well for me as a thesis project.

So with respect to the coal company's problem, what I did was quite simple, at least in theory It was simple. We went up the mountainside to the outcrop of the coal and then followed it around, and we had to dig trenches with Mattox down the hillside to find the coal seam and kept following it around the mountain until it pinched out. And then had to go up and down the mountain to see why it did that. And we found there was a fault that had been offset and we were able to figure out which way the offset was and that the seam continued on the other side of the fault. And then were able to go back and make a three-dimensional drawing, showing the coal company in what direction they had to drive their shaft through barren ground to reach the coal on the other side of the fault. Which they did, and they found the coal, and so that was great stuff, and everyone was much amazed because the fault was one in which the coal seam was dropped down in front of them and they had assumed it was going to, if there were a fault, it would move up for reasons I never could understand. But that had been their habit before and so they when they looked for it they looked up, they never thought about looking down. And so after that they were so pleased that they offered me twice the salary I was getting with the BC government to come on staff with them, which I did. And their problem then was one of finding...

[00:35:54] RE: [inaudible question - something about when?)

CN: That was '48. Yeah, in 49, I was hired by the Crowsnest Pass Coal Company and what they wanted to do then was to find an open pit mine. And at that time an open pit mine was a brand-new concept, everything had been underground. And coal companies and their management are very fixed in their mind about what you could do and what you couldn't do. And if anybody talked about an open pit mine, most of the management would say, "oh, and you get the coal all mixed up with rock and it'll be diluted,

and it won't be acceptable to our Japanese buyers. We don't think much of the idea". But the general manager had this idea, and he hired me, so we were going to do this thing. So I went to an area I thought was suitable and scratched around with my geological hammer until I found some coal and found a place where there was coal for... all up and down the hillside. Didn't seem to be any logical reason, but it was a place where I thought there was some faulting in repetition of the beds. So then we began to drill in that area and found that a 50-foot coal seam had been doubled in its thickness. There was a hundred feet of coal and it was good cooking coal. And so that became the opening of a... of their first open pit mine.

[00:37:43] RE: Was it on a steep slope?

CN: It was on a gentle slope, yeah, but we had to build a road up to it, which we did. Because we had built roads in the area for the drill rigs to get around, but we had to build up, you know, a less than 8% access road to get the coal down. And then there began to be all kinds of arguments with the mine manager, and his washing plan because the plan was to start mining this open pit coal and blend that with the underground coal. Because nobody would admit that the underground coal wasn't the best, and that this open pit coal would be dirty and wouldn't be any good and on a whole bunch of reasons, it would be oxidized and on and on like that. So the idea was, well, we have... what we'll do is blend 10% of this open pit coal with the underground coal and then that won't bugger it all up. So we started to do that and as time went on it became more and more apparent that the cost of this open pit coal was only a fraction of the cost of the underground coal. And there began to be more and more problems at the underground because the unions were asking for more and more money and cost kept going up and there were more and more accidents underground. And so that instead of blending in 10% of this open pit coal, it worked its way up to 25% and then 50%, and of course nowadays the underground operations are all shut down and there's nothing left but open pit mines. But the process was a slow one because people get their mindset in a certain direction and it's very difficult to change them, and the only way to change them is to do it gradually which is what we did.

[00:39:35] But anyway, after that in 1947, Leduc had been found and things began to look rather better for the oil business. And Shell came back to Calgary and Chevron began to perk up again and began hiring all these people who'd left and gone to all kinds of various places. So I began to get some feelers in 1950 that maybe I ought to go back to work for them. And so I still had to do something about my thesis and so I went back for one winter at Princeton, one semester. And turned in my thesis and took the orals and in the spring of '51, got my PhD degree and then despite the fact that Chevron had said they really didn't want somebody with a PhD degree, they seemed pleased to have me back and I went back to work for Chevron in 1952, in 1951 rather, as assistant to Don Weir, who was Vice President of Exploration in Calgary. And ... in about 1952 they suggested that they needed somebody to open a district office for Chevron in Regina. So I went down to Regina and found office space and began to build up a staff and carry out some exploration and do some seismic and acquire land and do some drilling in Saskatchewan. Not very successfully I'd say, I think that our ideas about what we should be looking for in Saskatchewan were based on what we'd been doing in Alberta, and we were looking for structure. Whether it be by seismic for whatever reason. Most of the structures we seemed to find were salt solution structures, although we didn't know that at the time. And the result of that was that most of the wells were dry. It wasn't until a guy named Bob Bishop came along with a theory that the structures were produced by salt solution, which solution might have been as late as the last World War, that we began to perceive that yes indeed, it was salt solution that were making these structures all over the prairies.

[00:42:28] RE: [inaudible question]

CN: He was with ??? that's right. And as far as I know, he was the originator of that idea. And which was a very significant bit of progress in the geological thinking.

RE: [inaudible question]

CN: Hey?

RE: [inaudible question] Was this...?

CN: Yeah. But very luckily, we had acquired some land in the southeast corner of Saskatchewan, probably for the wrong reasons, but we began after a while to draw enough cross-sections to perceive that geology was pretty much layer cake and that there were some unconformities in that trap... near the unconformities was some oil. But it took quite a little while to do that, but we began to perceive that. Meantime the Saskatchewan exploration by our own company, Chevron, and by others was not really that successful ... it was a little later some success in western Saskatchewan, some sand plays, but Manitoba was doing rather better. Chevron had a lot of land in Manitoba and they are really quite successful there and by contrast Saskatchewan was not doing very well. That was the time then when I left Chevron and got an offer to go to work for a French oil company called Total as their chief geologist in Calgary.

RE: [inaudible question]

[00:44:23] CN: No, a guy named Peter Gelpkie, an engineer, contacted me about it. And the reason I got offered the job was because my predecessor was chief geologist there when they made an oil discovery in southeastern Saskatchewan. And he began to run out on his own and buy land without telling the company and so it didn't take him too long to discover from their landman that somebody else was buying land that they would like to have bought. So they fired him and begin casting around for a new boy, which was turned out to be me.

RE: [inaudible question]

CN: Yeah, they were established, and they had a man from the Paris office who was running the office and they had a landman that they'd hired from Imperial as their Vice President and had an office set up, and fact were drilling, mostly in partnership with other companies. They felt they didn't know the Canadian way of doing things, even though they had a Vice President who come from Imperial. And uh, so I joined up with them and it was at a time which... there was still a good deal of emphasis in the Foothills, people were doing field work in the mountains trying to understand the geology and they were looking for big structures, especially in the Foothills and mountains. I remember one of the first jobs I had with Total was, somebody in been doing some air photo interpretation in the area, in the Peace River area north of the Peace River Dam, and had hired Bezay?? Smith to do the photo work. And they had a big structure work out and wanted to drill a well on this structure and so there was not any seismic done just air photo interpretation, but it was a very obvious feature from the surface geology. And there came the problem of, how do we locate this well? It's all bush and untraveled country, and so I went up with our chief engineer, hired a helicopter and flew up to the top of this mountain and put a stake in the ground. And we had told that helicopter to rendezvous about four ... [00:47:32]

Side 2 - 24:05

[00:00:12] CN: Yeah so we had arranged with the helicopter company to fly the engineer and myself into the top of this mountain in the morning and leave us there and we'd figure out the best place for a site. And going downhill is lot easier to come out, but we figured that chopper would come back at 4:00 in the afternoon and take us back out. And there were some logging roads way down the mountain that we could get to if the chopper didn't come back. And he didn't come back. And then four o'clock went by and five o'clock went by, and the engineer and I began to quarrel with one another about what to do next. And I had my geologic map and I could pick a route out, and so I had a compass and I picked out a route that I was going to walk that would take me to a logging road, and once I got on the logging road I figured that would be okay. So I proceeded and the engineer disagreed with me. I don't remember the reasons, but he went off in another direction by himself and I went by myself. My route was such that I hit the logging road, like I was supposed to do, and which was a very large open clearing and by which time the chopper had begun to appear and fly around and so I was easy to see in the middle of this logging clearing. And the chopper came down to pick me up. And the pilot asked what had happened to the other guy, and I said, "I don't know, he's off in the bush somewhere". So we didn't know what to do. So, we took off and flew around couldn't see any sign of anybody, but my partner the engineer luckily had with him of huge magnum pistol, which he always carried for bears. I'm not sure why but he had this pistol. And he began shooting off his pistol making great bangs which we could hear. And so, we circled around and found a clearing near to where this noise was and then to retrieve him out of the thick bush and fly back home again. Everything came out fine. But this engineer just about disappeared in the bush forever, but luckily saved himself with this pistol.

[00:02:43] RE: [inaudible question]

CN: Yeah ... Well, I stayed with French Petroleum, I was their chief geologist or later exploration manager for about 15 years. And thinking back on it seems to me that one's popularity with a company in the oil business may rise or may fall depending on many things. But after about 15 years, many people at the time were saying, well, about 7 years is long enough with a company. But anyway, I was there for that length of time. And oh, my star had begun to descend I guess. We weren't finding as many new areas or discoveries as we might.

RE: [inaudible question]

CN: Yeah, there's lots of competition, some of which were in the French area, was doing better than we were, I would say ... So the parent company began to bring in more and more people from France and have less and less Canadians in the office than they had had previously, with a view it seemed to begin taking over the management by their own parent French people as opposed to the using of Canadians which had been their policy up until then. So ... I left French Petroleum in about 1972 and it was a time when Bill Farmlowe's ?? company, which was Super Test, had been bought out. He was out of employment at the same time I was, and the two of us had met in London, England, by chance, I think, and decided that we could set up a consulting business in Calgary until something other than that came along that seemed more interesting, which we did. And so we set up an office and began to take on various jobs. Some of my work was coal work, I recall. A particularly long job with West Coast Petroleum working on coal for a guy named Bob Lill who was with West Coast at the time. Bill's work was mostly oil work, and one of our clients was a company called Brass Can, who were showing some interest in becoming involved in the oil business. And gradually more and more of our work as consultants was devoted to Brass Can's activities, so we had less and less free time to consult as freelance consultants.

So we began to have conflicts of interest and finally gave up consulting and went to work for them as employees of Brass Can and started a company to be known as Brass Can Resources, which later changed its name to Westmin Resources.

[00:06:30] We amongst other things had acquired some coal properties in northeast BC and began to buy up a small oil company that had some rather poor plains production and began to build up staff and increase our budget. And in the early days became quite successful in central Alberta in oil and gas using bright spot seismic technique to search out channel sands in the Cretaceous. And did quite well doing that. Bill Farmlowe had been associated with a large successful company that the owner was willing to sell and leave out his company, which had a lot of land in the Yukon and Northwest Territories and quite a lot of land in central Alberta. This was Eric Harvey's company and we were successful in buying it at a quite reasonable price, I think in the order of $30M was what we paid. That $30M which is a round figure intrigues me because one of the facets of that purchase was a checkerboard land spread near Edmonton, west of Edmonton, which I administered, and which was coal. And it turned out that TransAlta Utilities had their open pit mine in this general area. So, I spent a lot of time negotiating with TransAlta and leasing acreage there to TransAlta for the coal and they couldn't very well progress without the checkerboard land. And the leases on that land began, first to generate one or $2M a year, and later $5M a year in royalty. So that, in about six year's time they generated $30M, which was the price of the whole purchase of the company, without doing a tack of work, just rake in the royalty and apart from that, of course, there was a lot of oil and gas activity that went on as well. But that checkerboard land spread the of Eric Harvey's turned out to be very useful.

[00:09:39] RE: [inaudible question]

CN: Yeah, absolutely. Yeah, so it was a very successful purchase from the nucleus of making a company that really did quite well in terms of oil and gas, in terms of coal. The Northeast BC coal lands where in the end an unsuccessful venture and a lot of money was spent exploring these coal lands. It was cooking coal, and some consultants from Australia were hired to evaluate then propose mining activities on the acreage, and unfortunately the consultants had been conditioned to nothing but underground activity. As a result, there was a lot of expensive work done and planning made with respect to an underground operation, when attention probably should have been given to some kind of a surface operation on a pit operation. So that activity had to be canceled and given up in the end. A lot of difficulty in connection with that in terms of hiring and firing new consultants and trying to reach a reasonable conclusion about whether to proceed or not to proceed. Luckily, I think the whole operation was shut down as it could well have been a disaster financially.

The company was able to purchase a small mining company whose holdings were mostly on Vancouver Island, for a very modest sum in the order of $7M. And the reasonable price related to the fact that its reserves, and life expectancy were relatively short of the order of 7 years of life left. About... by means of firing all of the existing management and bringing in new management and drilling deeper, quite a large ore body was found that increased the life expectancy to more than 25 years. And a very large mine was developed near Campbell River and which is now the main stay still of Westmin Resources. It's still continuing as a producer with something like 350 employees and one of the larger mines in British Columbia. But again, a case of management differences of opinion about what you should do, or you shouldn't do in a certain situation ... the management that was at command at the time the property was purchased, had the view that it wouldn't matter if you did drill deeper and find an ore body, it would be too deep to be economic. So that's why they didn't drill deeper. So in order to accomplish that, one had to fire everybody. It's strange how these problems of management are really quite difficult to

solve. And it turned out in that case that It was the right decision to fire the management who wouldn't drill deeper, get new management in who would, and that all worked out quite well in the end. So that initial small mining company began to grow and become quite a large and significant mine in terms of priorities of large mines in BC.

[00:14:18] RE: [inaudible question]

CN: It's a silver lead zinc with minor gold. And some copper ... and that staff which headquarters in Vancouver and operates this mine near Campbell River within a park. Just the fact that it's within a park is something of a specialty nowadays because it was there before the park was formed and that's created lots of problems in many ways. One of the problems was the disposal of the tailings from the mine. The tailings were dumped in the lake. That seemed like a simple and logical thing to do at the time the mine started, but as there began to be more and more environmentalists on Vancouver Island, people began to do studies on what was happening to the salmon that went upstream and into this lake. Somebody was claiming that the salmon were being killed by the lead in the tailings that was in the lake and something ought to be done about that. And this forced the company into some new techniques for them and putting up with straining dams and filters and on and on, all at great cost. Very much objected to by George Furnivall at the time but proceeded with nonetheless. And that was an interesting time, fighting with the environmentalists who were ??? tailings disposal. And my work at Westmin was largely coal, much of it in the Wabamun area of Central Alberta. Some of it in northeast BC and some industrial minerals which had to do mainly with salt lakes on the prairies, one of which was put into production and then farmed out to Miranda. Turned out to be quite profitable as a sodium sulfate operation.

I've just touched on a number of aspects of working in the early and more recent years and not really drawn any firm conclusions, except that I think If one were advising newcomers to the geological fraternity, I always felt and still feel that a rather broad training is a useful one because you can't forecast into what areas you may find yourself running in, I'd say a broad training is more useful than a specialized one.

[00:17:12] RE: [inaudible question]

CN: You really think that's right. I... I've continued to hold up a great deal of admiration for Chevron as a company because of their policy of seeking out well-trained people and running their company with either geologists or geophysicists, in terms of seeking out large oil fields, as opposed to running your company with an accountant or running your company with a landman ... I think there's always some argument as to which is the best way to run an oil company, but it's still my view that Chevron has been successful with its idea of hiring people to run their programs, who are... and have an understanding of geology and geophysics.

RE: [inaudible question]

CN: Well, they may be the only company in Calgary who have not fired any staff. And as you say they are a bit lean, always have been, and so in hard times, they haven't been obliged to lay off staff. If you're going to seek out an employer, an employer with that kind of reputation is well worth considering I would say, considering that thousands of others who have been laid off in recent times at any rate.

[00:18:47] RE: [inaudible question]

CN: Yeah, probably most proud of finding this open pit mine down in the Crowsnest Pass. It's a very big mine. It came out of a geological idea which didn't take a lot of work to support and employs a lot of people and it's been going for 40 years and still going ... it's once again …

RE: [inaudible question]

CN: Well when it started it was called the Baldy Mine and I'm not sure what it's called, its name has changed a bit over the years, but it's just north of Sparwood and it has been run by several different companies over the years but still running as a big wash plant there. And really inspired other companies to go in and do the same thing and there's several others up and down the valley from that one from that beginning. So really, because of that mine and its success, other mines have opened up and down the valley all of whom have been successful. One provided a lot of employment in quite a large area. So that was a very successful thing. We found, when I worked with Total, a gas field in northeastern BC, by means of doing both structure drilling and seismic, which was a nice combination of fitted well and made a new discovery and quite a useful gas field. That was mostly my own idea as opposed to other programs in which several other people have been involved. So, it's kind of fun to have your own idea work out. I guess those are things that I'm especially proud of as being successful.

I think the variety of experience is something I've enjoyed. You don't feel that you're getting stale if you're doing a lot of varied activity, and I think that's enjoyable. And I still am pursuing, now that I'm retired, summer activity of prospecting in BC and doing some geological work that is quite fun. Using satellite photos and doing field work. Again, that's something that's a little different than what I'd been doing as an employee and still keeping my hand in an area of activity that that's a little different and provides some outdoor field work in the summer months. I think that rounds up my comments for the day.

RE: [inaudible question]

[00:21:52] CN: I guess in terms of my year as President with CSPG, the thing I remember the most about it was the evening meetings in which there was a lot of discussion and argument about whatever the topic was. Geologists have widely differing views and it was pretty hammer and tong, those executive meetings. It was a time when AAPG was seeking to enlarge itself and wanted to take over The Alberta Society of Petroleum Geologists, and I was strongly opposed to that, and fought them off I guess as much as possible so that it became a Canadian Society and stood on its own feet and did not become simply a branch of AAPG, which was the trend that it was going towards. So, I felt I had a hand in that.

RE: What year was that?

CN: ‘68 I think. It was a year in which I took a little more interest in profit and loss than some others had done, and we had quite a large profit and put it into the treasury so that we were able to go ahead with some quite decent publications as a result of having some money in the pot. Making each activity pay for itself and make a little extra money worked out well. And I remember we were able to go ahead with Sam Nelson's publication as a result of having some money in the pot which we might not otherwise have been able to do ... I think that's about it.

RE: Well, thanks a lot Chuck. This then will conclude the interview with the Dr. C.B. Newmarch.