

## PETROLEUM INDUSTRY ORAL HISTORY PROJECT TRANSCRIPT

INTERVIEWEE: Carl Chapman

INTERVIEWER: W.J. Wood

DATE: June 4<sup>th</sup>, 1983

### Tape 1 Side 1 – 30:00

JW: Today is June 4th. 1983. And my name is Jim Wood I'm at the home of Carl Chapman in Victoria, British Columbia. Carl, first of all, I'd like to thank you for participating in the Petroleum Industry Oral History Project. And I wonder if we could start off by just finding a little bit about yourself in terms of where you were born and maybe perhaps something about your family...

CC: Well I was born in Ontario, Jim, raised on a farm near North Bay and went to school at University of Toronto taking mathematics and physics. Mathematics was pretty tough at the University level and I was kind of interested in working outside being a farm boy I suppose. So I branched into geology and took a course in physics and geology starting in second year. And graduated '39, of course I had a problem looking for a job then. And I ended up on the recommendation a geophysics professor working up in Northern Quebec in near Miranda.

JW: Who was that?

CC: Professor Gilchrist. Gilchrist was quite a character, he was a bachelor, very keen on geophysics, didn't have a real broad background in it but he specialized in certain aspects, primarily in mining. He had three places where he lived, one in Toronto and two summer homes, one in, I've forgotten where they were now, Southern Ontario. He ??? a Cadillac. They never drove The Cadillacs between places, he rode the train.

JW: That's something for a professor to have three Cadillacs.

CC: It is something, that's where his money, being a bachelor he spent nothing.

JW: That's right.

CC: And he had a great ornate fancy desk he'd acquired somewhere ??? Touza ??Wilson, you probably heard of, actually Touza was the first man that graduated in the course I took, physics and geology and I was the third. I was the only one in the course of that time. The only one for several years of matter of fact, had some parts of material all to myself. Well, anyway, I ended up working in Quebec for a summer and but the time I was ??? next to the water pail in the morning to get some water to wash with and got a letter from International Petroleum. And Jimmy Wheeler who was, I guess then the chief geologist, was a friend of Lachlan Gilchrist and he asked if I would be interested in going to Ecuador to run a magnitometer. Well anywhere that was warm sound pretty good to me. So I went to Ecuador.

JW: When was this now?

CC: This was 1939.

JW: Still.

CC: I went down in October. And I was there for two years working over most of the coastal areas of Ecuador, little bit in the mountains too, but it's a lot of country.

JJJ: Basically seismic work?

CC: No this was magnitometer work. There was reason for that, and this was very well-known area, magnitom picked areas which had any volcanic activity and wrote those out pretty well. It was the main purpose. I came back at the end of '41 just after Pearl Harbor. And I was originally supposed to go back again for a second contract through a magnitometer and gravity meter. But before that happened they cut down their activity and reduced staff and I was offered a job in western Canada on a summer crew. So I started my seismic career in spring of '42 in Alberta working out at Brooks.

JW: What were you doing in Brooks?

CC: I was assistant operator. See on some of our crews if you got to know the party chief, an operator, in those days also a computer on the crew who did the interpretation of the data. And of course there were drillers and workers ??? It was a quite interesting crew because the operator working for was Frank's Spraggins,??? for quite some time. And one of the two assistant computers was a man who headed up ??? Chemicals in Saskatchewan there, later Barney Edwards. The other one was Jack Armstrong who just retired as chairman of Imperial Oil. The surveyor retired as manager of Mobil for specific areas, took a job as president of a small oil company, think he's since retired again.

JW: So you were in Brooks then in '41 and '42, right? And so you were exempt then from service because of your geological work.

CC: Yes. I was actually but the crew went back to the States in the fall of '42 and I joined the Air Force in '43 and spent two years as a navigation instructor. And ??? again in '45 just about the time the war finished in Europe and Imperial wanted me to go back to work then. And I got the airport soon as I could I felt my time has done anyway, I wasn't getting overseas.

JW: Where were you stationed?

CC: I was stationed in Portage la Prairie most the time. I started in Quebec actually, ??? stationed at Saskatoon and then Portage. So I came back to seismic work in the spring of '45 and Imperial brought up two Carter crews then, Carter being an affiliate company in the States. One was working in the Foothills, second was working in around Wainwright, Alberta. I was on that crew., starting as a student computer and I was there for bout six months, I guess. Moved into Calgary into the office in January of '46, that's about the time that Imperial started an actual geophysical department. And they also start keeping crews around the prairies for all year round, winter and summer. And I spent about a year in the office, came back to work on the crew as computer, and then back to the office. That was later on. Edmonton and Calgary, went to Regina in 1950 as District Geophysicist.

[00:06:50] JW: Well, let's go back a little bit then. You mentioned that it was '46 then that Imperial started an actual geophysical department. That's interesting then it was shortly thereafter in '40... well that was coincident almost with their activity that led to the discovery at Leduc. Do you think there was a, was there a relationship there?

CC: Yes, there was. Let's see, my memory can get a little tricky. Imperial had almost given up working western ??? They spent many years drilling a number of wells, all dry and they're looking into what was called a Fischer-Tropsch process of making gasoline from natural gas and they looked at it pretty seriously and decided to give it one more shot. And they took out land in around Edmonton. Said, we'll try that area, there's a possibility of Mississippian pinch out, and also possibilities of finding oil in cretaceous. So that time they decided to keep crews working all year round for a while till we gave it a fair shot and they also set up a permanent geophysical department, at that time, one of the crews working in Canada, were working Carter, going back to the States in the winter, it was too cold working for us, because they felt then...

JW: Yeah, from their point of view.

CC: Their point of view. Yeah. Actually, it was that way at that time. As I can recall those days you developed paper records, which were photographing paper, say worked in developer and picture and you were working in liquids at freezing temperatures. It's pretty darn hard on the hands. Anyway, that's beside the point, but they brought up a man named Ray Walters to take charge of the ??? department. And actually they had tried about three or four people in Carter to come up and nobody wanted the job until Ray took it and it turned out to be a pretty good deal because he became exploration manager before too long. Anyway at that time I went first of all to Calgary, the office consisted of Ray, myself and the secretary and that was it. And it expanded from there, at one time, well I became Chief Geophysicist after Ray and after Frank Spraggins and I had a staff of 110 professionals and about 200 people all together with ??? big crews. That's quite a build up pretty fast.

JW: How fast was the , how long did it take to get ...?

CC: '46 to about '54.

JW: Oh yeah, 8 years. You know, you mentioned you were the third geophysical student at the University of Toronto. You were the first employee in effect for Imperial as a geophysicist to under Ray Walters.

CC: Well first one in Calgary.

JW In-house, yeah. This was a new field in effect in, pretty well.

CC: It had been going on in the States for a long time but in not Canada. And these two crews that came up in '45 and stayed where the first crews that worked in Alberta or anywhere in Canada on a year-round basis. Up until that time crews that come up starting in 1936 and worked for a short time and gone back to the States again. The first two working in Canada goes way back to '29. That was a German crew that worked in Turner Valley in the winter of all times. Didn't know any better.

JW: So you, you were set up in Calgary with Ray Walters, and I'd like to talk a little bit about him in a minute. But what we'd like to do is, then this is, is there, the events then from your point of view and as a geophysicist that led to the discovery at Leduc, what were, do you remember the activities involved, you were...

CC: Have you ever read Doug Laird's report? Probably have, it's in the Imperial Library anyway.

JW: No, I haven't yet.

CC: You should. He dug in it fairly deeply. As I recall going back to the spring of 1946 the crew worked all winter. I was in the office and the crew was working around Edmonton, they moved from ??? to Edmonton some time before and the road bans were on so we only work certain roads, and they're working what roads they could, and working long lines of data and there was a tripper?? on the crew, I was reviewing his work in Calgary. And he'd pick an anomaly, and I'd pick it a little differently and we'd do some detail as we could, check it out, and one line run ??? picked out this anomaly. And there's a story that lines weren't shot because ??? [inaudible] maybe so maybe not, anyway anomaly was there, but it's some work around, anomaly was still there, company finally brought in a contractor to ??? exploration in some detail, and a man named Labby Laberge came into the office, probably now retired too and he was working on the crew, he went to the field, and I carried on and did some more detail on it. I did the interpretation of anyone on Leduc. I drew the map which the ??? well was drilled and I'm not saying I am responsible for it but I drew a map ??? And the well was drilled on the idea that where this anomaly in the Cretaceous told us we were mapping has some possibilities there could be a Mississippi pinch job. And it turned out the well kept on down and discovered oil in the ??? and the story is of course that no, ??? second well. The next was drilled offset and found D2 tight, and the story is that the crew was trying to get approval from Calgary to shut down the well, couldn't find anyone on the weekend, kept on going and found oil in the D3., maybe right, maybe not much here.

JW: Did you have any inkling then when you were drawing this map that this was, this was going to be important or there was a good potential that...?

CC: Well it was a nice-looking anomaly and there was a reef... no idea at all.

JW: And nobody had been thinking reefs much had they?

CC: No. The only reefs known were in Norman Wells. Nobody had thought the ???. So all it was a geophysical anomaly. Now, of course this point in time they can detect reefs pretty well, in those days they couldn't do it and nobody thought of it anyway.

[00:14:08] What was Ray Walters like to work for? He was brought in as a chief geophysicist I guess...

CC: He was quite a good seismic interpreter. Very good, nice chap too. In fact, we were personal friends and his wife and my wife were personal friends, too. He died in Colombia. He was transferred to Columbia to as general manager sometime later. Couldn't tell you the year anymore now, but he caught pneumonia down there very shortly and died. It was really quite a blow to all of us. He played a great part in building up Imperial's reserves of oil, pretty good imagination.

JW: In terms of where you..

CC: He just picked good areas to explore and aggressively drilling.

JW: Right. Through Redwater and Golden Spike and ???

CC: They were they were all under his general direction.

JW: What was your role then with respect to some of these other, well in terms of building up the reserves, you were pretty well right there.

CC: Well, I'd gone to the field again for about a year and came back in about 1948 I guess, yeah '48.

JW: Where were you?

CC: I'd been working out of Edmonton and ??? and things like that, mostly Edmonton. At that time we had a, oh there was about three of us in the office I guess, as interpreters ??? direction.

JW: Do you remember the other two?

CC: Yeah. Wes Rabey who runs a company called, what was it called now... won't come to me. He had a company called Sigma for a long time, but he sold that and started an oil company. Third one was Labby Laberge, then expanded quite rapidly from there. I was I was involved in several plays. Wes Rabey went up to Redwater, no, Bud Coote came up from Colombia then, he'd been working for Carter in in Colombia. He's the one that mapped Golden Spike, and I was involved part of ??? I'm not quite sure but I was involved in some little plays around Edmonton, Bonaccord, Excelsior, which turned out to be very small fields. Then the company took a ??? the north, and I was involved mapping a prospect called Nomanville which turned out to be a very small field.

[00:16:46] JW: What was Imperial Oil like in those days before, well, basically the pre-Leduc, and that transition.

CC: It was a good company. I'm not sure it is anymore now, but it was then. Great company to work for. And Ray was a prince, and it was a small company, it was a small group and everybody was friendly. Good organization, very pleasant to work for.

JW: There were other people involved in the Leduc era '47...

CC: I've only talked about the details ???

JW: Well Tip Maroney, for example, did you know him at that time?

CC: For sure. He was brought in from Peru, was in Peru for many many years, in charge of engineering and direction I guess it was.

JW: Did you work fairly closely with these people at that time or were you pretty well involved in the seismic aspect?

CC: Well, we in exploration all worked pretty close together, geologists and geophysicists did, and ??? of course, and because the company was small we knew all the other people as well, because people like Tip was manager, he was raised to equivalent to production. But I suppose it goes without saying you knew everybody then, but I think that's no longer the case.

JW: Was Charlie Visser and Bill Friley, were they around? I wonder if you could just reminisce maybe a little bit about those two people.

CC: Well, I can't say I knew Charlie very well. He was always around and a very nice chap too, in charge of drilling so a little far away from my field. Bill Friley more so because he was brought up from Carter to take charge of the land department so it was part of exploration and so we worked very closely with the land people. So I guess that was how I knew Bill Friley well. Very seldom seen him since.

[00:18:49] JW: What was the attitude or the feeling in, within the company at that time after you realized what the implications of the Leduc discoveries were?

CC: Oh I would say it was great excitement. Because this is something ???, some real oil production. At that time oil in Turner Valley which was fairly small. That was exciting from the standpoint of being ??? and from the standpoint of working for Imperial, the company was doing all the funding of that time. And we had a sort of a hold on all the potential land which turned out to be productive. As a matter of fact, at one stage the company was rather embarrassed with having all the oil, which is rather silly in hindsight, they could have had more, and probably would have like to. But you could go to leases and reservations, they got certain amount of land, rest went back to the Crown, and you could buy that, for what now would be considered very cheap prices, but the company didn't, they were sort of reluctant to buy any more land because they had so much oil now. A rather silly idea in hindsight. I think they were worrying about the politics of it.

JW: What was land going for, do you remember at that time? Varied I suppose, but...

CC: No, I really don't, I know that when we started working on discussions ??? leasing at ten cents an acre. I think some of the land in Alberta was ??? that too. Of course land around Leduc was mostly Crown. Pretty well mostly Crown.

JW: When did Ray Walters, when he went down to Colombia, then you took over the...

CC: No, I took over the... Ray had been exploration manager before he went down. I was chief geophysicist. And Ray was replaced as exploration manager by Doug Laird, who'd been the...??? Douglas anyway is a very good geologist, I'm not sure was his capacity was at that time.

JW: So, what I'm trying to get at here is then, when you became, so you were then the chief geophysicist about 1948?

CC: I was chief geophysicist from... I came back from Regina in '52. I was chief geophysicist from '52 to about 1967 I guess, quite a while. That's was back a while, I can't put years on it anymore. I'll think about it for a while.

JW: I wonder if you could just talk about your role as chief geophysicist and those, well you mentioned Regina, for example, you were in Regina.

CC: Well after the company got up to a pretty fair size, they set up three district offices, one in Regina for Saskatchewan and Manitoba, one in Edmonton for Central Alberta, one in Peach River for Northern Alberta, and I went to Regina to start that office. I started under Gus Beck as exploration manager. Gus is dead now actually. And I came back in after about a year and a half or two years to become head interpreter for the company, assistant chief geophysicist, called me chief geophysicist. Ray had moved up to exploration manager and he been replaced for a short time by Harold Stillman as chief geophysicist and then finally by Frank Spraggins. And then Frank went off to the land department and ??? and I became chief geophysicist in '52. At that time we had about 25 crews working ??? start-up of two. And we have a pretty large staff, was getting up around a hundred people, a hundred professionals. It expanded from there a little bit and started to slide down again.

JW: What caused it to slide down, just tapered off, or?

CC: A gradual slow down in exploration activity, along with that a trend from using company crews to using contract crews. So as people left the company attrition took care of itself and no more crews formed and there were fewer crews in operation. Imperial [inaudible]

JW: What was the motivation to start phasing their in-house crews and relying on contractors?

CC: A little bit of flexibility, most of the accessible areas had been explored pretty well, or they thought they were at that time, actually in fact they were not but the company was working more and more in Northern Alberta, Northern BC and those areas are muskeg, you can logically only work well in the winter huh. You can work in summer with track crews but it's expensive and slow and data quality is not all that good. So there was a problem finding places for crews to work in the summer. The winter period is about January to 1st of April, little bit longer up farther north but not much longer. So you've got essentially three months, maybe three and a half. We'd try and find a place where the crews were nine months of the year, where you, no winters, that's a problem. So the company really cut down on its crews and relied on contractors, which they could hire for three months then cut them loose again. That's the main reason.

JW: Yeah. Did you, were you getting the same quality or the same kind of results on a contract basis as you were...

CC: If you supervised the crew closely, yes, very close to it. Not quite as good but pretty close to it.

JW: Were you in agreement that with the position that at that time, that Southern Alberta, Central Alberta had been pretty well surveyed.

CC: Yes. We really hadn't found much there. But since that time of course people have ??? gas. That's using techniques that weren't available at that time, they've been developed since.

[00:25:10] JW: Maybe, I'd be interested if you'd want to, you mentioned when you were back at Brooks back in '41 in there, you were working with Jack Armstrong. Remember what he was like at that time. He probably quite a different person then, as he turned out to be.

CC: Well Jack as you know became a Mormon when he was married, and of course being a Mormon he quit drinking and smoking. But in the days when I first knew Jack, he got pretty drunk. He's been known for some pretty wild parties. I guess one incident being in being Banff they found him in a suit of armor they had, used to have in the lobby of the Banff Springs Hotel. He was a bit of a tractor all right.

JW: That was before he got married I take it.

CC: Yes.

JW: Yeah okay. When I was talking with Aubrey before coming out here, he asked me to ask you about your, just sort of reflections on Leduc. He said, get his ideas on Leduc, and I'm not exactly sure what he meant by that...

CC: Probably he was not either.

JW: Okay.

CC: Well, I don't know Jim. Up to that time I'd worked in Baden, Saskatchewan. and a little bit, data around Wainwright, but we hadn't found any really good anomalies there for the week. So this was the first attractive moment I had seen in my side of my career. It wasn't all that big in many ways but it was, really stood out. For me was very interesting. I had no idea what it meant, nor did anybody else. That's about all I can say, and even from the detail work we had we couldn't say where they feel the line was using the data we had or that ??? had. Better knowledge has come since.

JW: So in the, when you were training as a geophysicist that, there was nothing at the University of Toronto that prepared you at that time for this kind of geology?

CC: No, Toronto's geophysics department was not really non-existent, it was one man, Lachlan Gilchrist, he was an ethics professor and it existed because he was keen on geophysics, because he'd been working it. But his knowledge was in my mine, mine geophysics ??? electromagnetic and magnetic metals, not seismic at all. And I had taken some of the very basic theory of seismic in University but not in a very great role. Even the geology department was key to our mining geology, not oil jealous at all, which are quite different. So my knowledge of oil geology such as it is has been picked up a working, not by academic background. Gee, something just occurred to me there. Oh, yes. The time I was working on a crew in Wainwright as a junior geophysicist or assistant computer they were called then, we had a visit from Carter's chief geophysicist from Tulsa.

JW: Who was that, do you remember?

### **Tape 1 Side 2 – 14:00**

JW: Okay, go ahead Carl.

CC: [this section is very muffled] Well I had been thinking about going back to school and taking at least a Masters in Geophysics ??? And I was married at that time, so ??? I talked to Wes Montgomery about it and he said, oh, you don't want to do that. ??? you've got good opportunities in ??? right now. And it



turned out I became chief geophysicist in a very short time, so that turned out pretty good, but I didn't realize that Rusty?? himself ??? graduate. He was a practical geophysicist, that's probably sound advice.

JW: That was something you could do at that time, come up without the educational whereas now I don't think you can.

CC: No, ??? you need some academic background, but still probably true, you can't learn very much of practical geophysics at university. It's improving but it's not that great. You learn more by working for a major company, ??? from a major company. You have access to training courses and resources you can't get elsewhere.

J: That seems fairly standard. I've noticed that, especially in the 40s and mid 50s up to the mid 50s, that people would come out of university into a larger company such as Imperial, and then often work there for two or three years and then head out on their own or form a smaller company.

CC: Yeah people did. A major company is a pretty good training ground.

JW: Except at that time you were almost training yourself as well as...

CC: Yes, of course I was responsible for training my staff, I was looking for ways of doing that. [inaudible]

JW: Yeah. So you mentioned the rapid growth then of Imperial and especially the geophysical department. Can you talk maybe about that for a little bit, how that grew and...?

CC: Well we were hiring anybody who looked the potential for a geophysicist, and we were hiring ??? primarily or ??? the field and people with geological backgrounds for interpreters. [inaudible] but anybody who had some geological knowledge. And we were hiring aggressively in southwestern Canada, Ontario and the Maritimes. And as we hired people, we ??? we picked up the occasional person from other companies, but [inaudible] And there were times when we lost people and times we didn't lose anybody ??? But there were some interesting cases. When I was in Regina, there was a boy working in the accounting department, who had a three-year degree in geology, which wasn't really very good and when I found out about it, I said, how would you like to transfer to ???

JW: Who was this?

CC: That was Art Mendes. He said, sure. And he is now retired ?? as one of ??? top interpreters. He was working for an Arabian company out of London and doing very well. [inaudible] That's a matter of learning as you went along and training yourself and going to training courses actually.

JW: You were working in Regina or out of Regina for a while. And I guess there was that, Smiley?? field, that what they call it?

CC: ??? I was there, working in Saskatchewan and mainly Manitoba, that was a time when Chevron, not sure what it's called now, and the Daily field, near Virdin, that was a very hot play for a while, and [inaudible]

JW: I'd be curious just as an aside, as Imperial was so active for so long, and then Chevron was the one that was in there in Southeastern, Southwestern Manitoba, at that time. Was Imperial doing any work there at that point?

CC: I think Chevron got there first.

JW: Just luck of the draw.

CC: Well Imperial made a study of ??? Saskatchewan, based on the wells that ??? had a pretty good play on. And we went in there in 1950 ??? That field was discovered in 1950 I think. And Imperial explored in southwestern Manitoba and a little farther north. But it wasn't around ??? three wells and they were all dry, pulled out and went to Saskatchewan. By that time I had left again. And then ??? very successful [inaudible]

JW: Where were they working in Northern, Alberta?

CC: Well that was mainly around Grand Prairie, Peace River and farther north. And [inaudible]

JW: When was that?

CC: It would be around 1953 or '54.

J: But there's quite...

CC: [inaudible]

JW: But there's... what was the... how come Imperial missed that up there, do you think? At that time just...

CC: Well technology wasn't good enough. They drilled a well that came very close to finding Rainbow but it wasn't in the right place. But, just, ??? wasn't good enough. After that time a new technique came out called CEP, which was a technique of using far more holes and places. It's also based on, when they take a coordinate [inaudible] and they were responsible for the discovery of Rainbow, but in those days it was not available.

JW: Was Imperial a fairly Innovative company in new techniques and so forth?

CC: Yes, and being part of an overall ??? organization, that's not a problem at all, with access to all the research done by ??? And my first attempt ??? research coordination in Carter in Tulsa, along with Humble in Houston. Both were quite large, [inaudible] some very good work. Some of the research [inaudible] That's all gone now, unfortunately.

JW: What was your, from your point of view at least the relationship with Standard in New Jersey? Your company's...

CC: [inaudible]

CC: Well, whereas, as you were involved as chief geophysicist, did you have any, was there any involvement at that level?

CC: Very loosely, if I wanted to ??? call somebody at Humble or Carter, and ??? send somebody down, it was that easy. We had communication back and forth and I was a member of research of [inaudible] all companies in the organization and ??? and which programs and improve them. [inaudible] And Imperial put in so much money ???, some owned by Imperial, some owned by Carter and some by Humble [inaudible] We were very close contacts.

JW: And how long were you the chief geophysicist with Imperial?

CC: Well the organization changed but more or less for about, from '50... '54 to about '57, so about 13 years.

JW: And you didn't retire then from Imperial times?

CC: Retired in '71.

JW: So did you then work on your own after '67 or?

CC: I became a research advisor, working on the ??? and applications and computers and so on.

JW: Still within the company?

CC: Yeah. [inaudible]

[00:10:00] JW: When you think back over your career do you, who were those people that that you felt were influential, influential and important in your life in shaping your career?

CC: I guess you could say Ray Walters. He's a ??? he moved me up into a senior position. [inaudible] One of the people I liked very much was Gus Beck but he didn't really influence me ???, a very nice chap. He'd praise you if you did a good job and if you did a poor job he gave you hell. [inaudible]

JW: What was the, sort of the highlight of your career, perhaps an event that stands out.

CC: Oh, I think that having oil come in at Leduc based on my map, that would be the highlight. I've got a few other things...I was very influential in getting Imperial into this CEP technique and ??? and getting into first of all, analog tape recording and not paper card and ??? digital [inaudible] I think I had a hand in improving technology [inaudible]

End of tape

## **Tape 2 Side 1 – 27:00**

JW: Carl, after graduating in 1939 from the University of Toronto. Your first job was with Miranda, you mentioned.

CC: No it was a company called not Miranda, but something like Miranda Minerals and Exploration. That's not quite right, but somewhere close to it, it's so long ago I've kind of forgotten.

JW: Yeah, could you just maybe perhaps talk a little bit about what you were doing then for them as in the mining business?

CC: Well in those days as you may know jobs were a little bit scarce still, I had written quite a number of applications to various companies, oil companies, mining companies and so on so forth and this job came about through a contact, through Lachlan Gilchrist who had been my professor of geophysics at Toronto, and he was approached to find somebody to run a resistivity instrument up in the mining fields near the ??? mine, near both Miranda and ???. And this consisted of laying out a couple of cables and putting, creating the ground through a, generate you cranked up, then reading the results, and from that try and find ???. And my job was to run this thing. So I had a helper and a cook and a line cutter. I think about other four of us altogether, I guess. And I was up there just after I graduated, which was I guess end of April. And I was still working there in September, without too much success, the problems with the cables getting worn and leaky from the moisture.

JW: Electrical leakages?

CC: That's right. What we really picked up was the tailings of the older Mac mine going through a stream, that's ??? that was not very much. So it was a little disappointing but it was not a bad summer except for the mosquitoes and black flies.

JW: Yeah. You mentioned then that Jim wheeler contacted you.

CC: Again, Jimmy wheeler was a friend of Lachlan Gilcrest and I had a letter from Jimmy, about September '39, I mentioned that time I was breaking ice in the water pail in the morning to get water to wash and asked if I'd be interested in ??? in Ecuador. Well, Ecuador is going to be warm and t's cold up here, I'll go.

JW: Had you, is that you was that just how it went, you were phoned up and took the job?

CC: No, I was written. I was back in the bush had no contact with a phone at all.

JW: Oh, that's right. Okay, and so there was no interview particularly.

CC: No, no, he was going by Gilchrist's recommendation and he didn't know me all that well anyway, but that was it.

JW: How did you get to Ecuador at that time?

CC: By liner, luxury liner. There was a grace line that sailed down both coasts of South America. So I sailed to New York through the Panama Canal and down the west coast, 10-day trip. It was beautiful. That ship was sunk in the landings in North Africa during the war, but it was a beautiful ship, not a big one but ten-thousand-ton capacity. The dining room roof slid open so you could see the stars and have dinner at night, swimming pool, and give us a meal, 10-day trip, all expenses paid for.

JW: Were you by yourself as, go down there to meet someone?

CC: Well there were two of us going to International Petroleum and ??? the other chap was a hired as a surveyor and we got together on the ship. Then we were sitting at a table with three other people we got to know fairly well, a Panamanian dentist and two engineers going to Chile and Peru, so we had a pretty good group.

JW: So International Petroleum, they had an office where then, in Ecuador?

CC: ???

JW: You mentioned you were going down there to use magnetometers, had you had any training in that process?

CC: Yes.

JW: So, you know what to expect and so on.

CC: I had actually run one ??? on somewhere for about three days, a little mining prospect for the same company I was working for, but I had learned the theory of magnetometer at school and knew how to use one. It's pretty simple anyway, not very difficult. Wouldn't call it professional.

JW: What was it like then in Ecuador in 1939-1940, that must have been...

CC: Well, it was and probably still is a fairly primitive country, where the rich are rich and the poor are very poor and the foreign country, perhaps have a little shack up on bamboo stilts through the roof and their possessions consists of a cooking pot and a little charcoal stove and straw mats to sleep on, might have a couple of pigs down below and a dog ?? bananas growing there and that's just about all.

JW: How did you fit into that society down there with your geological work.

CC: Well, I was traveling around the country quite a bit at first, by truck, pickup at least on the roads and by walking trails part of the time, and then during the rainy season we worked out of a boat. We lived in a houseboat on the Guayas river downstream from Guayaquil using upward waters to get around and we surveyed the rivers. And then we got further in the country gradually, used to go by a mule train. I'd be up by myself a few days at a time with, riding horseback with a mule train carrying my equipment, tents, food, supplies, small stuff, get around pretty fast. So I saw a lot of country but is all rather primitive country.

JW: So you weren't living off the land, you were supplied with...

CC: No I wasn't living off the land. We would buy, oh chickens and eggs off the land and find bananas and so on but mostly we carried canned goods, you could buy bread, of course, so it's mostly organized wouldn't have to live on the land at all.

JW: How long would you be out in the field in prior to coming back...

CC: 4 days to six weeks getting river ???

JW: And then your base camp was back at the houseboat?

CC: It was like back in town again. So on the boat, some starting point by truck or by boat. And then take off with a horseback and mule train.

JW: Were you using local help at all, or mainly just...

CC: I had a permanent staff of about 2, base station magnetometer operators and a cook and 2 senior helpers and anybody else was just casual. But a couple of jobs that ??? with a guide meter operator and that required??? in terms of relays, two at a time. So we deferred a large staff and we got one assignment, second rainy season I was there to ??? country to a town called Quevedo and follow a trail down river to a town near the mountains, Santo Domingo de los Colorador, it's an interesting place because the Indians there were very primitive. They painted their faces with red paint, stripes and ??? with red paint and they wore almost no clothes. And the first time I saw them it was like darkest Africa, but this was a pretty tough assignment because it rained every day starting about 12 o'clock at night until about ten o'clock the next morning and the ground was pretty soggy and we had trouble keeping the mule trains going on the trails, and we pretty well bogged down. And we got to Santo Domingo and needed to rest and let the mules rest and so on. So we took off to Quito up the mountain. I rented a truck to get supplies then ??? said go up to the coast, follow this this trail to the coast, about [pause in tape] and this is through trails where... nothing, no food for the mules. So they pretty well died off in the first week or so, well two weeks, I guess and we ended up in a little area where there's a field, bit of a pasture and a river where we were, that's where we'd go. So some of our men had worked with rafts. So they said we can build rafts and go downstream to the coast, then when where we're going. No maps at all, and the men cut down great big ???, they're about so big, half a meter across, little bigger and built two rafts, tied together with vines and we started off down the river, and we picked up a couple of locals who knew the water but they went down with us part way, that's where they're going to go, they wouldn't go any farther. And started with the... we were going under branches and ??? just enough room to duck down and avoid the branches. Once we get past there of course it was pretty smooth sailing but then we went ??? and went through rapids and it was risky but these rafts were pretty stable. We figured out we averaged about 6 kilometers an hour and in terms of speed and the current, which is pretty fast, but the last couple days it got pretty ??? the river was broad, about a kilometer wide and you could jump off and go for a swim, ??? too much but alligators... then we got down to the town of Esmeraldas. We had to get these rafts onto shore because you can't steer a raft very well, just have an oar to steer by. Anyway, we made it, and we sold the rafts [inaudible]

JW: That was quite an experience.

CC: Yeah, it sure was.

JW: Did you pick up Spanish when you were there?

CC: Had to, not good Spanish, I was working with the workmen who didn't really speak good Spanish themselves. But yes, I got by in Spanish.

JW: Was your work down... oh, okay. First of all, you mentioned you were using the gravity meter for part of the time.

CC: My associate was ??? myself.

JW: Yeah, there were problems, there was kind of a difficult environment in which to use one of those, was it, in terms of...

CC: No, except you had to carry it. And set up to ride in trucks if you go on roads, but most of our work was on trails and it had to be carried by two men. And carried carefully. So we used eight men to carry it, two at a time. They had to rest every 10 minutes or so.

J: That's kind of an ordeal too wasn't it. Did your experience down there, I know that you were down there ??? lots of people were down in South America prior to coming to western Canada.

CC: See Imperial had operations in Colombia, Peru, Ecuador and in Venezuela.

JW: Was that good training prior to coming to western Canada, do you think? Was there any relevance?

CC: It's good experience. I think it taught me to be somewhat self-sufficient, how to get along with people and get along in a different environment. The actual technical training wasn't really worthwhile, if I was doing the job, later on I'd have had a technician do it, and ??? magnetometer can be read by a technician quite easily. It's no problem.

JW: But in terms of surviving and...

CC: It might have helped me later on in running a department, I knew how to hire people and how to organize them, that was worthwhile.

[00:12:15] JW: After Pearl Harbor then and then in 1942 you came back and worked for Brooks or worked in Brooks, who offered you the job there?

CC: Well, when I left Ecuador I was asked if I would go back again. And I said, yes it will, I like it. So I started to go back to Ecuador in the early winter of '42 because ??? I left December of '41 and after I was back a while had a letter from International Petroleum saying they were cutting back their operations and didn't need me anymore and would I like to work in western Canada. And I said sure and I ended up going out to Brooks and working there. I worked on the quarter rail for a while waiting for the ??? to come from the States. It arrived about the middle of May. I'd been there since sometime in March.

JW: Were you living in, did they have a camp or you were in motels?

CC: Not we stayed in motels and hotels.

JW: So and then you...

CC: We were working out of town. There was a, wasn't a very primitive life at all.

JW: Did you enjoy the change or...

CC: Well, yes, I did. It was a, well by the ??? hard work because we left town about seven the morning and got back at seven o'clock at night, six days a week, but I was used to that anyway, that's the way it worked in South America, where there was seven days a week. So it made no difference. And yeah, it was fun.

JW: Maybe you, could you add a little bit more about life on a field crew in the early 40s.

CC: Well, it's not like it is now at all. Now, the crews are almost, occasionally in town, usually in camps and a lot of work of course up in the bush. Good camps and excellent food and so on but in those days we lived in town. We were paying allow us to live as best we could, buy our own meals, ??? accommodation and...

JW: What kind of allowance were you given?

CC: \$60 a month.

JW: Was that adequate?

CC: It was adequate, just about right actually. I think in those days they worked on, were paid \$60 ???, that's the salary I think. The guys making about \$175 or \$200...

JW: You were at that time at that time?

CC: At that time yeah.

JW: That's pretty good.

CC: Well, I guess it was [inaudible]. I think in those days they, one difference was we were not very public relations conscious, crews are now very, very careful about not offending anybody and we didn't even think about that sort of thing. The drilling crews would, if they were cold at night and they're drilling a well, doing a core hole or a shot hole, it would take quite a while, now they drill a hole in maybe half an hour and hour, in those days it was three or four hours. If they were cold, they'd tear down some fence rails and light a fire to keep warm. They didn't care who it belonged to. And it was pretty stupid in hindsight, but that's the way things were done. And we used to stop for lunch on the crew, now ??? people take sandwiches and eat them as they work. We'd stop for half an hour, light a fire, make coffee and we always had some boxes that ??? came in. We'd light a fire with that, got a call one day that wind came up and fire got away on us, started pretty far. And it went over 10 miles before we got it out. We got all the people neighborhood out there with trucks and barrels of water and bags and putting it out, and there were no repercussions. Now if that was done there would be tremendous damage claims, ??? looting prize crops, stealing cattle and everything. What happens now in those days only happened, we'd just ???

JW: So there was pretty good rapport with the landowners, even if you were my only using it casually.



CC: Yeah. I think a lot of the problems that came later, the oil crews brought on themselves, through stupidity and just bad public relations. But it's probably also matter of numbers, number of people working, volume of work. When I was working '42, say you were a geophysicist, nobody knew what it was.

JW: I found it interesting when in a little bit a couple of years moving on in 1946, Imperial was about to give up its search for oil at Leduc, and in fact was the last well or was going to be.

CC: No, that's not quite right. It really was the last play. Have you read Aubrey's Kerr's little article in the magazine?

JW: Yeah.

CC: Yes, he mentioned the whole thing went back to a meeting in Toronto with a number of senior exploration people from Jersey and Imperial. They persuaded the Board to give it one last try, to pick out some land in the Edmonton Basin and play the area. There were no specified number of wells, there's Wilsonville, oh, at least three wells to basement, possibly more, that was never really laid out. So Leduc was the first well there yes but wasn't the only one necessarily.

JW: But had, Imperial at that time was looking at converting natural, or making natural gasoline, and then had Leduc not panned out I suppose they would have tapered off their western...

CC: I would guess they would have given it two more tries probably, at least three wells, I think. They brought up Ray Walters as the chief geophysicist and they set up a staff to explore so they were geared up for it, but they wouldn't carry on very long. If Leduc and say one or two more wells had shown no signs of reservoir or no source, they would have packed it up I'm sure.

JW: How was it then that that was going on the one hand and people are getting pretty depressed and perhaps even fed up, and on the other hand, you went down to Calgary to start a geophysical department, obviously with a Western Canadian focus that just seems to...

CC: Well people in exploration were still optimistic I guess. The Board of Directors looking at it from a financial standpoint was, where people were concerned. They had seen all this money go down the drain, explorations, no results for it at all, so they weren't very happy about carrying on.

JW: Okay, so it was the exploration department then that was... they still had...

CC: The interesting thing was, when they moved into the Edmonton area, we ran one line between two wells where we could tie in more or less. One was at Bruderheim, northeast of Edmonton, the other was Alder Flats, that was in the Foothills, on the present Pembina field actually. And that line went across the Redwater field, across the Leduc field, that's the line that showed best, Redwater showed also, went across Bonney Glen, which is the Texaco discovery, which you would recognize, it also went across part of the Pembina field, which of course wasn't showing ??? anyway in those days. So that's, one line ran across three or possibly four major fields by sheer coincidence.

JW: you mentioned part of that time you were working up in the Wainwright area and...a little bit the other day.

CC: Well we moved out of Saskatchewan at the end of '45, I guess and started working the Wainwright area in the winter of, January '46, perhaps in December of '45, and I think I mentioned this was the first crew in Alberta to work through the winter. Up until that time the crews worked in the summer. There actually was a reflection to the work in Turner Valley back in '29 in the winter and crews working Normal Wells in the winter only, that's a muskeg area. But this crew was the first one to stay all winter in Alberta. So we worked in Wainwright, Wainwright-Provost area, then move to the Edmonton area in the spring.

JW: You mentioned that it got a little hard on the hands after working in the chemicals in the winter.

CC: Well in the winter it does.

JW: Yeah. What, I wonder if you could talk a little bit more about that field situation especially in Norman Wells.

CC: Okay. Well, of course in these days the records are taken on magnetic tape, it's a digital tape. So it just goes on the machine and comes off. You got a record printed at the same time, take a look at it. it's okay, just carry on. On the marine crews you don't even look at it. You just shoot and record and look at the occasional one. But back in, when I started there's no magnetic tape, records were on photographic paper. So you had a camera of a sort, little lines on the paper which are drawn by light reflecting off a mirror on the galvanometer, which is deflected by the electric current. So you got a ??? trace down this record. In those days, there was only 12, later on became 24 and 48. But in my day it was 12. And this photographic paper had to be developed. Well now when you develop photographic paper you do so normally at a temperature about 65 Fahrenheit. Then you fix it and wash it. When the weather gets cold, the inside of the recording truck not being heated, you use a blow torch to heat up the developing tank. It's a problem getting up to much higher than 65 and if it gets too cold ??? again. You get your hands on this developer, take the paper out in the dark, put in the fixture and your hands are wet with chemicals. And you go outside putting up a ??? that sort and your hands are never dry, so they crack and you get very uncomfortable. And you wear gloves rubber gloves, that only helps to an extent. It's kind of hard to work with rubber gloves on.

JM: Yeah, it would be in a vat and so forth.

CC: This was an occupational hazard.

JW: So are you... there any other things that are, you know, that was the first winter crew, did you have to adapt differently for a winter condition at all?

CC: Well, I was working in the office then so it didn't make much difference. I'd worked in the, '42 in the fall when it got pretty cold, but in '46 I was in the office doing interpretation. So I was beyond that stage.

[00:23:15] JW: You mentioned the other day as well that Imperial opted out of further land purchases, they were feeling that perhaps they had enough at that time. Was there, was that partly a function of government or industry pressure from the outside or was that an internal decision?

CC: I don't know, I think was probably internal, that was in respect to the Crown lands. They would take out, there was blocks of reservation lands, which they converted to lease. But in the Edmonton area

there was some freehold, I would say picked up, and as they went to lease Redwater you could buy back the other blocks as a Crown Reserve, I guess it was, by bidding on them, but Imperial felt they had so much land it was reluctant to pick up anymore. they felt a bit embarrassed by having so much oil, I guess. I think it was partly internal decision to avoid any static from press, the government or what have you. They felt they shouldn't pick up any more.

JW: Do you think you missed any valuable plays as a result?

CC: Oh yes. Not plays but in valuable oil land. I think in hindsight it was probably a mistake. I think management probably felt the same way, too.

JW: You are in Regina for a while as running the office...

CC: I was the district geophysicist there. We had an exploration manager, a district geophysicist, a geologist a district landman and a district scout, plus the staff.

JW: What year was that again?

CC: Went down there in 1950.

JW: Did you notice any significant difference in government attitudes, Saskatchewan versus Alberta at that time?

CC: Well, one of the reasons they pulled out of Saskatchewan in '44 I guess it was, '45, was that it was about the time the NDP came into power. And they were making noise about expropriation of oil companies and so on and so forth, and it was no longer very favorable to work there. By the time they went back in '50, 1950 the political situation was more favorable again.

JW: So there were no differences particularly, that you could work as freely there as anywhere else at that time. Okay.

**Tape 2 Side 2 – 12:00** *(Note: interview was conducted outside so some of the dialogue is inaudible)*

JW: Imperial began phasing out their own seismic crews, you mentioned the other day, their in-house crews and relied on contractors. How did this affect your job in the office? You had only then people out for, at the maximum four months a year.

CC: Well, I guess in a way it simplified things because it eliminated a lot of personal personnel problems. On the other hand it was always a problem getting a good crew for a short period. If you could keep that crew working for a 12-month period somewhere, it's a better crew and I think sometimes we had tried that but we couldn't do it very effectively because we didn't have enough places to put crews in the summer. So you hire a crew for the winter, you'd have to supervise it very very carefully. So it put more restraint on the supervisory staff there and came to good operation. I've never relied too highly on the context of own?? supervision, we could provide ????. So the crews when I was ??? were company crews, but they did fairly well.

JW: But you were able to keep busy from their data, for the entire...

CC: Well, the thing is that you do work in the winter and do other work and your staff carries on the summer doing interpretation. It keeps busy all year round. Then as the crew level started going down we started to pick ??? by trade for the companies, so we'd take as much data by trade as we did on our own ??? I think of course at the time it would probably be bigger still. So interpretation ??? get busy.

JW: So you had pretty good communication relations with other companies.

CC: Oh, yeah.

JW: In terms of employees and so forth, you know, during the past few years, especially in the oil boom recently in Calgary there has been a lot of headhunting going on.

CC There isn't now [inaudible]

JW: Well, was that common at all in the 40s, 50s?

CC: You mean to hire out from other companies. Oh sure. I don't think Imperial did very much hiring ??? unless somebody approached us. We didn't make it a practice of looking outside. We preferred to hire students from University and train them ourselves. That was our first choice.

JW: So then there was more companies trying to get your employees.

CC: That was the case. And I think that is the history, majors are good training grounds and smaller companies ??? the majors. It's a logical approach. I don't think we were too keen on another company's people but if a company came to us and [inaudible].

JW: Will you up at all at Zama Lake?

CC: Had crews there yes.

JW: Had you been up there yourself?

CC: Oh, yeah.

JW: That's a pretty remote area.

CC: [inaudible]

JW: Well when you went in there, you know, '53, '54...

CC: Well when I first started working there, we were working with rather primitive equipment. And the reason ??? you'd need an Army, rather poor by later standards, couldn't get around very well and couldn't carry big enough drills to do a very good job. But I recall one year, we put in all the supplies for summer operation during the winter or late spring at least and stored them so wouldn't have a problem getting supply in to the muskeg. So we put in dynamite caps and fuel, and a fair amount of food, and I was up in the summer when, I've forgotten what year it was now, but I looked at one camp that was set up and the food was stored above ground not high enough, and the bears got in it. They made a horrible

mess. They'd just torn labels off, punctured cans, only thing that was left was a pile. Only thing that was ??? was the coffee. Guess the bears don't like coffee. It was a disaster. Later on most of the work was only done in the winter. ??? get around better in the winter than the summer.

JW: So your crews then, they were still supplied with helicopters ???

CC: No, that came in shortly after I guess. I think the first supplies were by plane to lakes and so on...

JW: On floats and then...

CC: And carried in [inaudible]

JW: Did you have a pretty good field communications at that time, radios and so forth, as you do now?

CC: Not as good of course, but the communication was from ??? district office in Edmonton to the crews. Not from Calgary.

JW: You mentioned that you had a pretty good Research Department within the company. and other companies, affiliates of Imperial, were research, or even you shared your information and so forth. What happened to change that, was the motivation that played all that out?

CC: Well, I think worked on the theory at one time you could do very good research in small organizations with the right people, and in many respects even better. And the Imperial research could be geared toward Imperial's problem. But as the centralized, ??? if you like, done in Tulsa or Houston, it's probably geared more toward the problems of Humble Oil and Carter Oil in Tulsa. [inaudible] But at one time it was other company operating in most of the States, whereas Humble operated in Texas and California and Louisiana. I think as time went on management decided that it was cheaper to centralize research, that after I'd gone by the way. I'd left ??? I don't know ??? but I assume they thought it was cheaper to put the research in one place. Decided to put the research in one the States rather than Canada. [inaudible]

JW: Plus you weren't getting applications...

CC: No, I don't think so. I was gone so I really couldn't comment on that ???

JW: In '67 your position changed within Imperial, was this part of a general reorganization within the company?

CC: Reorganization took place all the time. I'm not quite sure [inaudible]

End of interview