

PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: Jack Browning

INTERVIEWER: Susan Birley

DATE: July 1983

SB: It's July 11, 1983, this is Susan Birley interviewing John Browning at his office in Calgary. Mr. Browning I wonder if we could start with basic biographical information, where you were born and raised.

JB: I was born in Saskatoon, August 10, 1917. My father was a farmer out at Springwater, Saskatchewan. He had originally been a mechanic for the Canadian National Railway. I knew very little about him, he died when I was three years of age, my sister was born two months after he died and we were raised by my mother, who was the elevator operator in the Canada building in Saskatoon for some 27 years. Like all people we had a pretty hard time, my mother had very limited education, she came from Scotland which is where I get my middle name McIntosh, that was her name. And we lived for the entire time, right through the time I got through university, in Saskatoon. Like most people that were under our conditions, we had to work very hard and I started selling magazines when I was eight years of age and have bought every stitch of clothes I ever had from that date on. I went on to delivering newspapers and then in the summer time I would work in Green's Drugstore in Saskatoon, now torn down and on Saturday's I would work in the butcher store. During the Christmas season I worked in the Avitwar??? killing turkeys for Christmas time and had a number of other jobs that I did during that period of time. Consequently since I lived in Saskatoon I was able to go to the University of Saskatchewan. As I mentioned my mother had

very limited education and because of this she was adamant that I was going to get a university education. I went into geology, not for any particular reason but a friend of hers said that he had a good friend who was a geologist and thought geologists were wonderful and that was my one recommendation. I actually didn't even know very much about geology when I started other than it was the study of rocks. The funny part was that a person that graduated with me in grade 12 said that he was going into geology and that confirmed my mind on the matter. As it turned out he did not go in for geology but I did. Two summers, 1938 and 39, I worked on the Geological Survey, the first year with Dr. Mac Keith at Lac La Ronge, Saskatchewan and the second year, one of the most amazing experiences in my life. I worked with Dr. John

Toosewilson???, the father of sea floor spreading and plate tectonics and probably one of the most influential geophysicists and geologist in the world today. I lived in a tent with him for about 3 ½ months, saw him every day, discussed geology every night and probably learned more geology from him than I did from any other person in my life except for my university professors. When I went to university we were a very, very small group at university and therefore it was a very personal affair. As I recollect the

University of Saskatchewan only had 900 students all told at the university in the years that I was there. Of course this was in the Depression from 1935 to 1939. Therefore we developed an intimacy with our professors, Dr. James Moddsley???, Jim Moddsley and Professor Edmunds, Harry Edmunds. And we actually used to go to their house on Sunday nights and sit around toasting marshmallows, that was about all we could afford in those days. So it was very, very interesting years and it led to an intimacy and an education which far exceeds what the average person can get today in the crowded universities that we have and especially when you only have a Bachelor's degree.

#027 SB: During the summers you working for these people, what were they associated with?

JB: This was mapping in Central Saskatchewan. Lac La Ronge actually sits right on the

mid-point, about 54 degrees, thirty minutes latitude, which is the centre point of the provinces. We usually think of it being away, way north but it is not. This was a detailed mapping area connected with the gold mines and the trip with John Toosewilson was mapping north of Great Slave Lake, between Great Slave and Great Bear Lake and this also was connected with gold mining. You must remember that when we went to university there was no such thing as oil talk and as I recollect we had about 4 or 5 lectures on the oil industry in all the time that I was at university. And consequently we had very limited access to it. We did make one field trip I remember, and we came to a little place that looked just like a buffalo wallow and there was just a small cut out area on the surface of the ground and Professor Edmunds got down on his hands and knees and said to us, this is the bearpaw formation. And I said, you mean that little bit of dirt and he was so insulted I thought I was going to fail my class. We had a lot of fun at university. It was a different kind of atmosphere entirely to what you have today. And since we were all broke and had no money, we used to spend most of our time at the lab. It was not at all unusual to find people in the geological lab at 11:00, 11:30 at night.

#043 SB: Did the university sponsor most of these field trips?

JB: Oh no. This was working for the Geological Survey and this was very, very hard work. You must remember in those days, we paddled our way around the lakes, we had no outboard motors. We had very limited food, all of our food was dehydrated because we had to carry it and only once in the entire summer did we have any fresh food flown into us. And when it was flown into us, we had corn on the cob and celery and a couple of other things. We didn't have any fresh meat because we always had lots of meat, there was lots of game around. We rarely killed anything big but there was all kinds of fish. We would start fishing when we were about 100 feet away from shore and always be able to catch a good sized trout, anywhere from 5 - 20 pound. And of

course, we ate very heavy meals because we were working very hard, it was extremely hard work. And then we would. . . consequently when we had a fish that size, we couldn't even eat all of that. I remember one time we threw the rest up on the shore and two seagulls started eating it and they ate so much that they couldn't take off. We went over and picked them up. . . real gluttons. One thing I might mention too, about the kind of work that we did. Working with John Toosewilson was a real experience. He is one of the most highly educated men I've ever known but he also was a great adventurer and wanted to do things that other people had never done. These stories I don't believe have ever been told since there was only John Toosewilson and myself there. I remember on one occasion when he kept looking at the sky and saying, you know, it looks like we're going to have a storm doesn't it. There wasn't a cloud in the sky and I kept saying, no I don't think so. And he said, you know, if we don't get this lake done, we're not going to be able to get back and get the plane and get our mail on Thursday. And I said, yes, that's true but I don't think we're going to have a storm. Finally he pulled up on the shore and said, well, we'll run a traverse from here over to here. So we ran the traverse. . . traverse is just simply walking across the country. We had oblique aerial photographs, they weren't of the best quality in those days, taken with old Sisken??? aircraft, of the Royal Canadian Air Force, the only job they had in Canada prior to the war. This was 1939, just prior to World War II breaking out. And when we made the travers and we got back to the shore again, he said, there, I knew I'd do it, I said do what. He said, well, I wanted always to make a traverse by the midnight sun and we did it. If he'd have told me what he wanted we'd have done it anyway but it always seemed amazing. I'll always remember one other time when. . . he was a great fan of Franklin and had read tremendous amounts of his work. One afternoon he said to me, when was the last time you had a bath. This was getting on to early September now and we already had ice out from the shore and had to break ice with an axe in order to put the canoes in the water in the morning. The ice usually

melted by late afternoon but it always froze over at night, especially if it was a calm night. And I told him I hadn't had a bath for two weeks. He said, you stink and I said yup, you're right and he said, we're going to go swimming. I argued to beat the band, I was not going to dive in that water. Anyway he finally convinced me we were going to go swimming and to shut him up I built an enormous bonfire, rigged up a tarp and broke the ice with an axe and we dived in the water and we swam around for a few minutes and crawled out freezing, almost blue. He dipped the thermometer in the water and said, my gosh, do you realize that water is only forty degrees. And I said, oh is that all it is. He said, yes, you know, when Sir James Richardson swam the Coppermine River when they had all that trouble, the water was 38 degrees, you know, I think I could swim the Coppermine River. That was the sort of man that John Toosewilson was and it was a great experience being with him.

#082 SB: Were there any other people that you worked with in earlier field parties that you later encountered in the petroleum industry?

JB: Oh yes. Norm Soul??? worked with me and Norm was a consultant here in town for many years, he's retired now. And on the same party with John Toosewilson, we only got together about once every 3 weeks, was Don Allen, that's the son of Dr. John A. Allen, who was professor at the university for many years and whom I got to know very well. Don has recently retired, I think about 2 years ago, after working almost his entire career, if not his entire career for Chevron.

SB: And so when did you complete your BA?

JB: Well that is a rather strange story. I'd been in the Armed Forces. . .also to make money, we used to get paid \$5 a year I think it was in the non-permanent active militia and I was in the Saskatoon Light Infantry. As a matter of fact I was a corporal, I joined up in 1932 with the rank of boy soldier, I don't know whether they even have that rank nowadays. So I had many papers in the Armed Forces, rifles, vicars machine

gun, Lewis machine gun, papers and also signals. And so when I came out of the bush in 1939, war had already been declared, turned up in my uniform at the Saskatoon Light Infantry and said, here I am to serve my country and they said, not you, you're a graduate of university, you've got to be an officer and we don't need any officers in the Saskatoon Light Infantry. So I went back to university and spent one year and took the entire four years of COTC in one year. That was about all I did. I took a couple of courses in other things and I did instruct at university, I instructed in university for some 3 years. And so when I got out I now had papers in divisional signals but they had passed an act called the War Time Bureau of Technical Personnel and I was assigned to South America to find oil on the west coast of South America in Ecuador. The purpose of it being of course, so they did not have to ship oil through the Panama Canal and this was supposed to be the saviour of mankind. As a matter of fact the thing was a total failure and we never did find a barrel of oil but that's neither here nor there. However I got sent down to South America in 1940 and arrived in

Ecuador. An amazing contrast to everything I'd ever done in my life and ended up as a plain table operator on a survey with one of the world's greatest botanists and not much of a geologist, a fellow called Otto Haught. He was from West Virginia. Otto was a collector of plants and had many, many species named after him, peperonay hotti??? and things of this nature and he collected for many of the museums around the world. He collected 5 samples of each plant and many of the things of course, in those days were brand new. And he used to dry them every night over a Coleman lamp. We lived in native houses up on stilts made of split bamboo, we used to sleep under mosquito nets of course, in order to prevent getting malaria as much as we could. We had all kinds of problems. Our food was the local food pretty much although we did have some imported food and depending upon whether it was the dry season or the rainy season we would get pretty good food in the dry season because we had trucks that could get in. During the rainy season there was no movement of anything except

mules. Consequently we had very little in the way of canned goods. But the native foods were pretty good, we were never hungry, except when we were way out in the bush, in which case we did have problems with our diet. As a matter of fact, one of the most serious problems was we had quite a protein deficiency and this was a pretty serious affair as it turned out. It did affect my eyes for example. The retinas in my eyes were pretty badly damaged but other than that it was a good life. It was a very difficult life. We were the last group of geologists to work in the world before aerial photography, the reason that we had no photography was because of the almost constant cloud cover over the area. And while we did have airplanes down there trying to take pictures and we got some pictures at 1-18,000 which were almost unuseable scale for the most part, we were without photography. There were no maps, the only map there was of Ecuador in those days was a map that was drawn by Dr. Theodore Wolf, who was a Jesuit priest. And he did a lot of mapping, he wrote . . . I believe it was the first geological textbook on Ecuador, called the Geology and Geography of Ecuador and as I recollect it was published in 1892. The first town that I surveyed in was on a different river and was 15 kilometres away from where Dr. Theodore Wolf thought it was but then you've got to remember that he did all his work by pace and compass and we had a pretty good triangulation system and tied together with plane table work so our maps were quite accurate.

#136 SB: Did the heavy vegetation make it difficult to do aerial photography as well?

JB: No, heavy vegetation doesn't affect aerial photography unless the country is very flat. As long as you've got ridges. What we're looking for is the geography of it and that is where the rivers and things of that nature are and to make more accurate maps up and also to see the geology and this mainly shows up, in the photography we were doing with little hand stereoscopes, it shows up as ridges and so the ridges do show up through even fairly heavy vegetation. However the area we were working in, the coastal area of Ecuador is rather a strange area, it goes all the way from parts of

it that have several hundred inches of rain a year, where they've got height of land or where you're getting right up against the front of the Andes to where, down on the Santa Lana Peninsula, it's a desert. I worked in both conditions, where it was very desertic to where it rained very heavily. As a matter of fact, one of our big problems in one area we worked in called Eyampi???, which is right on the coast but is a very high point, about 800 metres high, our biggest single problem was keeping out plane table sheets glued together. They just simply disintegrated. Plane table sheets in those days, and I suppose still, I haven't seen one in a long time, were 2 pieces of thin cardboard laminated with a linen cloth in between and the glue would dissolve in the heavy rain and consequently we would have to glue them back together again. That trip I made with a fellow called Jack Sorre??? and I've lost complete track of Jack. He's a Canadian engineer and he was plane table operator on that trip and one of our most serious problems on that trip was the fact that. . . we were there during the dry season and we were working along river beds that were completely dry, there was a heavy mist fell all the time, it was what we called garrua??? and this garrua simply got everything soaking wet and everything stayed wet. We used to heat the sheets over top of Coleman lamps before we went to bed at night and then wake up in the morning freezing. The worst part though was that with this, the ground was wet, in spite of the fact that the riverbed itself was dry, the ground was wet and the sand would work into the men's feet and into our feet too and we'd develop ulceration of the feet. And this is a very serious problem. The doctors in . . .and it was a Canadian doctor, I've forgotten his name long since. . .just couldn't seem to cure this. They'd bring us into the hospital and bandage our feet and little by little they'd get better and we'd go back out. Then with my vast Canadian army experience I suddenly remembered that in the Armed Forces, when we first got out there and started marching, our feet were very soft and they made us soak our feet in a solution of potassium permanganate. This oxidizes the skin, they turn absolutely brown and they get almost as hard as leather. So I

got a couple of pounds of potassium permanganate, mixed up a solution, had every man soak his feet every night and we had no trouble with the ulceration. You must remember that we were out there, we had no medical facilities, we carried a very good first aid kit and wherever we went there was a tremendous amount of disease and problems. And I used to treat every man and his dog. I've sowed up quite a few people that were cut with machetes and treated an awful lot malaria, treated probably 50 snake bites in my life and I got a reputation of being the doctor in the area. So that every time anybody was sick they would haul them over to me and I would dispense malaria tablets or something or other. My most famous case was a case where a man got very badly cut right down through the collarbone. You could look in and see his lungs there and of course the sub-clavian artery was cut and he was spurting blood all over the place when they carried him into the little shack that I was living in and I said, for goodness sakes, get him out on the veranda, he's getting blood all over the place. I said, there's nothing I can do with him, he'll be dead in 30 seconds. Well I think he died in about 32 seconds and everybody thought it was just marvelous, how do you like that, the doctor even knew when he was going to die exactly, marvelous eh. So my reputation even went up in my failures.

#188 SB: You had a dual career as a . . .

JB: No but you absolutely had to do these things because the lives of your men depended upon it. We had a lot of coffee plantations in one of the areas we were working in and they divided the land with hedge rows of a spiny plant called pienuala???, it's sort of like a century plant and like a century plant it would spread and they would get in there and they would cut these things out with machetes to keep them narrowed down to where they just formed a single divider line. Well these were the places where snakes would collect and we had two very dangerous snakes in the area. One was really rare and that was the bushmaster, the other was a fair de

lance??? which has X's down its back and is called a neckies??? for that reason and people getting bit by snakes in these pienuala hedges were quite common and therefore, as long as they got bitten on the hand, it was fairly easy to treat because we did have good snake kits, so I could treat those quite easily. The only trouble you had was if somebody got bitten on the face or some place like that where the blood carried it very quickly into the inside of the body and those cases, quite often they would die. With a bushmaster, it is a nerve poison that it has and the old saying is get down on your knees and pray, you only have a minute to live. So there was no way we could treat those. But as I say I only saw one bushmaster snake bite in my life so thank goodness they were rare.

#208 SB: When you were first transferred to South America were you hired by the Army or was it through. . .?

JB: No. I went down there with a company called International Petroleum Co. which was actually owned at that time by Imperial Oil, at least they owned about 50% of it. Imperial Oil at that time, operated in Peru, Ecuador, Columbia, the company in Peru and Ecuador was called International Petroleum, the company in Columbia was called tropical Oil Co. and they owned a large interest in the Many Grande??? Oil Co. in Venezuela. Consequently there were many Canadians sent to South America and this became the training ground for where we went from there for the Canadian that were needed after the discovery of Leduc and then subsequently Redwater. Leduc was a tremendous discovery, Redwater was sort of the frosting on the cake. We realized that Leduc was not an isolated occurrence and that the oil industry in Western Canada was going to become very big. At that point in time, there were two things happened simultaneously. Imperial Oil realized they were going to need a large sum of money and therefore they had to sell their properties to Standard Oil, New Jersey, who owned the balance of them in order to raise money to develop Leduc and Redwater

and when that happened they suddenly realized how much they needed technical help back in Canada and so many of the Canadians, they formed the backbone almost of the industry, came back from South America. These included drilling hands, production engineers, and geologists. Very largely since we had very limited production in some parts of. . . in the part that I was working in, many of the people who came back were geologists.

#231 SB: What was the size of the operation that you were working on for International Petroleum, just say your field party?

JB: Our field parties were very small as far as foreigners were concerned. They usually composed of two plane table operators and a geologist. And depending on where we were and how much bush there was to cut, we would have anywhere from 20 or 30 workmen to as many as 50 or 60. In my particular case I got loaded down with all the paper work and everything else for the organization which was very advantageous. I came back in 1943 and joined up in the Canadian Armed Forces which was a loss of time for me and a loss of money and anything else for the Canadian Armed Forces. I joined up in the Army first and because of my vast surveying knowledge I was taken into the artillery where I was guaranteed I would be an officer. I became a cadet as the rank was called and went the usual route and finally ended up at Shiloh firing 25 pounder guns. Then I found out that they needed surveyors like they needed a hole in the head. I don't know how many they actually had in the Canadian Army but I know they had a supply of 300 times as many as they needed and about that time, the Air Force was in very bad shape, so they used to come in and say to us every morning, why don't you join the Air Force, don't you want to fight for your country, you're not needed in the Army. So I transferred to the Air Force, gave up my beautiful rank of cadet and became an AC2, acey-deucey and finally ended up as a navigator and graduated as a navigator. When I joined up there was two things

happened simultaneously, we shot down the German Air Force, so that we weren't losing very many planes, that was #1 and #2, we had a little thing called D-day, which

practically wiped out the Canadian Army. So they used to come in every morning and say to us, what's the matter, don't you want to fight for your country, why don't you join the Army and I said, well I've been there once already, I think I'll stay where I am. Consequently I wasted better than 2 years of my life and in 1945 went back to South America, back to Ecuador and took my wife back as a bride. Well that's not quite true, let me put it this way. In those days things were entirely different than they are now, we got very limited time off for time in the field and we'd be gone out in the field anywhere . . . depending on whether it was the rainy season or the dry season. . .we'd be gone anywhere from a few weeks to a few months. In spite of the fact of my experience in South America, we were not allowed to take our wives down to South America for 4 months. Consequently my wife did not arrive until November, which was a good thing because she was able to buy some clothes and stuff like that before she came down. You've got to remember, when I got out of the Armed Forces, I was pretty broke. So consequently she arrived down there and I took her out in the field with me. At that time I was a geologist on a core hole rig, a Phaling??? 1,500. So she was not allowed to live in the camp with me so we had a house in town, I use the word house. . . . it had a dirt floor, it had a thatched roof, it had no electricity, no water, it was composed of one room. When we moved in, we got there in the dead of night, I had found an iron bedstead somewhere, I'm not sure where, with a mattress, set it up in the middle of the room, put a revolver underneath the pillow, threw a hunting knife in the floor beside the thing, told her not to step on the floor or she'd get niglas???, they're sort of a wormy like affair that you get in your feet and you can also get quite a number of other parasites through your feet. So don't step on the floor in your bare feet, don't lean against the wall or you're liable to get scorpions on you, if you here a noise up in the thatched roof, don't worry about it, it's just rats and they won't bother you. If

you have to go to the john, just go out in the back , it's dark, nobody will see you, if something hits you in the rear end it's just a pig, don't worry about it and go to sleep. Consequently I've never seen anybody sleep as close to her husband in all my life as she did. And that was the way that we spent the first part of our married life. It was entirely different, she spoke no Spanish, it was a very difficult life for here. Finally when we went in at Christmas time, we got a very poor apartment and finally managed to get an apartment off a man who was returning home, Jay Marks, who was a palaeontologist out of Denver now. And we bought Jay and Consuela's furniture and finally had a home of our own. But it was a very rough life. As I mentioned we got no time off when we came into town and it was rather interesting from that standpoint. I remember one time, Ben Swick???, who incidentally was an American but was in Canada and was President of Husky Oil back in the early 50's as I recollect and later went with Chemical Trust out of New York now Chemical New York Trust and was their advisor on the industry.

End of tape.

Tape 1 Side 2

#029 JB: [in mid-sentence]. . . .so I got into town and I got in I flew in from the town of

Manta and I arrived in town about 11:00. I hadn't seen my wife for about 3 months so I went home to see her. When I got back at 2:00, our office hours. . .we had a siesta hour, as is typical in South America, when I got back at 2:00, there was a note on the desk to see Mr. Swick. I went up to and he said, where the hee you bee. And I said, what do you mean, he said, well I know your plane got in at 11:00, where did you go. I said, I went home to see my wife, why. He said, well you know damn well what our office hours are, you had no business seeing your wife during office hours. So we weren't even allowed one hour to go see our wife after we'd been gone from home for 3 or 4 months. Sure different from today, when they fly you home from the Middle East and fly you back once in awhile rather than have your wife over there.

#036 SB: You mentioned that when you first started in geology there wasn't really much

knowledge about petroleum. When you were in South America did you learn about it just through trial and error or were there many guidelines in petroleum theory?

JB: Oh yes. While we didn't know much about it in Canada and our universities taught very little about it, I think the University of Alberta had a little more than the University of Saskatchewan did. While that was perfectly true you must remember that many of the schools in the United States did teach it and therefore a lot of our senior people were either people that had grown up in the industry in South America. The oil industry in

South America is very old. For example Tropical Oil was bought by Imperial Oil from Bennerman and Trees??? in 1920 as I recollect. I believe the discovery was 1918 or 1919 of the Impotus??? field which later became the Impotus LaSera??? field as it expanded. And so consequently there were many people, Jimmy Wheeler for example, who was the Chief Geologist of International Petroleum did a lot of the original mapping around Impotus, La Sera. So that there were trained people down there and there were a number of Americans down there. As I mentioned the fellow that I worked with, who was not much of a geologist, he was a much better botanist than he was a geologist, and consequently most of the geology I learned, I learned the hard way by doing it myself. But we had some very famous geologists down there who were well known. Dr. Landis???, he was called Doc Landis, his actual name was Robert and he was the head of research for Imperial Oil for many years, he is now dead, he was one of the Party Chiefs down there and Doc Landis was and is one of the most brilliant geologists in the world and did a very fine job of mapping, it was just unfortunate I didn't have the opportunity of working with people like that. There were other people, Canadians, Rusty Bell, who went on and became Chief Geologist in Lima, Peru for International, he was well known, he was another one of the Party Chiefs. But the young fellows like myself, we just went down there and started working. Then a lot of people came in from Trinidad into Columbia. I got transferred to Columbia in 1946, into Bogota and worked down on the coast in Atlantico and Believer???, in those two provinces in Columbia. And by this time, I had been a Party Chief in Ecuador and so I was a party Chief over there and by this time I was a fully qualified geologist and knew how to map. Very complicated areas, much more complicated than the geology of Western Canada because the tertiary geology down there involves a number of unconformities and the structure is very complicated. Consequently it was not an easy area to work. On the contrary the coastal Ecuador, the big problem there was the fact that the geology was relatively simple, so that we didn't have the complexities. And I think

that's probably the reason except for the Santa Lana Peninsula, which is a very unique geological occurrence there was no oil found until they found oil in the Aurientie??? We did not work in the Aurientie very much, the simple reason was, while we did some mapping over there, it was mainly regional, but the cost of getting the oil out from there was simply prohibitive and it wasn't until oil was found in very large quantities in the Aurientie, largely by Texaco-Gulf that we managed to build pipelines across the Andes. So we did very little work there. Our work was concentrated along the coast lines since that was going to be the easy way to get oil out. All of these countries, not Ecuador, but Peru and Columbia were self-sufficient in oil and exporters of oil. And the oil was shipped out through the Trans-Andean pipeline from the Impotus, La Sera field.

#075 SB: Did you notice any effects of the war on exploration activity in South America or did it really influence things that much?

JB: We didn't notice it before the war, of course we were down there for the reason of . . . as I mentioned the War Time Bureau of Technical Personnel sent us down there. And the Canadian and American governments paid a large part. . . . you talk about a subsidization program, I've long since forgotten what it was but I think we were only paying 5 cents on the dollar and 95 cents was being subsidized. It was part of the war effort, it was like the Canol project in Canada and a lot of other projects around the world, these were considered of importance to the war effort and were paid for for that reason. After the war the exploration stepped up tremendously all over the world and South America was no exception. However we gave up on Ecuador in I think it was 1947, it was a short time after I left there. I left there in '46 but it picked up tremendously in Columbia and we started working the Aurientie very extensively in those years. Particularly in Peru, there was a lot of work done in the Aurientie because there was a small oil field there called the Gaunzo Sou??? field, the Blue Goose. Consequently people were very interested in that area. But as I mentioned people

started drifting home in the '48-'49 period and consequently they came home in great numbers. I mentioned Doc Landis came home, Barney Clair??? came home, there were a number of geophysicists, Carl Chapman, Sy. . . I drew a blank on his name, I'll think of it in a minute. Bob Lill???, there were all kinds of them came home, others though transferred. . . oil was found in Libya at that time and consequently there were a number of people went to Libya. And this became sort of a happy hunting ground and of course, tremendously large reserves were found in there. The one thing we continually forget is that our reserves in Western Canada by world standards, are rather on the small and modest scale. And they're also very expensive reserves. That is the well's do not produce enough that our lifting costs are very low. When you compare it with the Middle East, our costs are extremely high per barrel. Now that doesn't make them uneconomic and also there are reserves and so consequently they are of very great importance to this country from a standpoint of it's economy, from a standpoint that it could make us self-sufficient in oil. But I won't get into what I think of the government at this time, maybe later.

#102 SB: Was there much trouble getting good technical equipment when you were in South American or were you able to get it in?

JB: Well, you've got to remember that our technical equipment back in the forties was very primitive. Our seismic crews, it was all paper, there were no computers. Many geological tool was a plane table and a Brunswick compass. So consequently you could carry those around pretty doggone easy. We had no high-faluting fancy equipment. When we got to Columbia we did have aerial photographs and they were a tremendous help. They cut down on mapping, on the amount of time we spent running plane table stations, we just ran plane table control. Whereas in Ecuador we simply didn't have the maps, we actually used to survey in the outcrops in the good old fashioned way that plane tables were used for originally. So our whole concept

changed with moving to Columbia. But there once again equipment was very simple. We had a little pocket stereoscope and that was all we had. And a drafting pen, so it was not a question of equipment and seismic as I mentioned was very primitive. We used an awful lot of gravity meter and that did a tremendous amount of work. Our biggest single problem was accurate surveying. And it is of interest I believe, to this day, that the man who solved the gravity pull on the Andes, which affected all of our star shots and all of our astronavigation was Bob Thistlethwaite???. I always liked that name. He went on to become head of surveying for the Canadian government and largely gained his experience through International Petroleum in Ecuador.

#121 SB: Did you transfer with Imperial or with International Petroleum?

JB: No, I was working with Tropical Oil Co. and I'd had a number of run-ins with my bosses down there and I was getting more than a little disenchanted. At that time, I don't know why, the boss that we had down there did not hold Canadians in very high esteem and he was continually needling me about being a Canadian and so I decided that I was going to quit. So we had at that time down there, a short time before this, we had a fellow who was in charge of sub-surface geology, Dr. A. W. Knoss???, Art Knoss and he had working with him a other Canadian who was very famous. . .I can't think of his last name, he came back and went to work largely in Saskatchewan and did a marvelous job over in Saskatchewan. But Art Knoss, when I quit. . .I quit and if I'd been a drunk they'd have paid my way home but since I quit down there and hadn't fulfilled my contract, I had to pay my own way home. Consequently, since I'd only been down there 3 years and you've got to remember that when I went to South America first I was earning \$200 a month which was an astronomical salary in 1940 for a person from Western Canada but when the war was over I was still only earning a little over \$500 a month and the junior geologists were coming down, times haven't changed, were earning as much money as I

was. Consequently we had not been able to save a great deal of money and I had just come back off a 3 month vacation and so I had to pay my own way home. As luck would have it when I was leaving the office they gave me a letter which I did not read until after I had gotten back into Barentilia???, I was at the head office in Bogota, and I was living in Barentilia on the coast at that time. And the letter was from Art Knoss offering me a job in Western Canada as Division Geologist which was in effect Chief Geologist for Bear Oil and Pacific Petroleum at more money than I was making in South America. So it was an easy switch home. Frank McMahon was a wonderful fellow to me in many respects and I remember one thing, when I got he said, did you make lots of money in South American, I said, no I'm broke. He said, well I can't pay your way home from south America but I can pay for it from Miami, so he paid for all of our expenses, myself and my family, from Miami. So it was a real interesting thing and I was pretty thankful to Art Knoss and it was a very good job.

Tape ended at #150

Tape 2 Side 1

SB: It's June 12th, 1983, this is the second interview with John Browning. Mr. Browning, I wonder if we could go back to South America for a minute. Were you involved or did the political environment affect your activities in South America at all?

JB: Not when we were out in the field. I had one stupid thing that happened to me one day. We always went armed because there were an awful lot of banditos, bandits around the country. And I used to ride around in a truck, whenever I was riding in a truck with a small automatic or a revolver, whichever one I had at that time, underneath my

knee where I could reach it easily. I pulled into the little town of Hippihoppa??? and I'd forgotten there was an election on. I was stopped at a police control, which is very normal and the fellow said what is that pointing to the revolver and all of a sudden I remembered that you were not allowed to have any armaments during an election day. So I ended up in jail, the only time I was actually in jail. We had a number of our people arrested. We had lots of trouble with them over the years. I think the funniest story about people being arrested was New Year's Day, 1941. We were down to the Emelec., which stood for Empress Electric. The electric light company had a swimming pool which we were allowed to go to and this was a real treat for us in the tropics. And we were all down at the swimming pool and we took a bunch of liquor down with us. Drinking was a bad habit in the oil business, still is but much worse in the early days. Several of the boys got pretty doggone drunk. We got in two different taxis going back and when we got in the taxis suddenly these fellows saw all these people, they had these little pin hole cameras where they take your picture for . . . oh, as little as 3 cents, one cent, whatever it was, very small amount of money. And so they stopped in this park and then they saw Simone Bolivar??? sitting up there on his horse. Now Simone Bolivar of course, is the national hero of northern South America and next to Sucre???, the man that the money is named after in Ecuador, he is probably the most important historical figure in Ecuador in history. So they decided it would be a great idea if they all got up on the horse with Simone Bolivar and had their picture taken. So here they were, all of them climbing up on the horse and they're sitting there getting their picture taken, there's four of them and they were going to call it five men on a horse. And along came the police, desecration of national monuments, so they got hauled into jail, then they got let out and were told they had to report back the next morning. They told them that the fine would be very heavy. We had no idea how much very heavy was so we collected all the money we had and this was over a weekend. And I've forgot, we got several thousand sucres out of the whole gang

of us, which is about 25 people and I think we had probably 4 or 5 thousand sucrees.

#028 SB: How much would that be?

JB: It was about 22 to a dollar in those days. Last time I was there which was just last Christmas it was somewhere in the order of 65 - 70 to the dollar. This is the U.S. dollar and so 22 to the dollar, we'd probably managed to rake up a couple of hundred dollars, which was a fantastic sum of money to us coming out of the Depression. So we chose the man, the spokesman who was the best out of our group, which was Joe Bartel, he was a Cajun from Louisiana and spoke Spanish with some accuracy. So the four of them went down to the judge and the judge gave them a tongue lashing about desecration of national monuments and all this sort of thing and then he turned to them and said, I therefore fine you 200 sucrees, which was less than \$10. Well poor old Joe, he was so dumbfounded when he expected to be fined at least 10 times that amount and was worried stiff that he wouldn't have enough money and would have to go to jail during this interim period that he said, hey, what and the judge looked all flustered and turned to him and said, okay make it 50 sucrees. So that shows you the value of money down there and what happened. The police were very rough. On one occasion I did get caught by the police in what they considered was a flagrant affair. I didn't consider it particularly flagrant, as a matter of fact, I was an innocent bystander in a bad fight. And they had a plain clothes group down there which was called the Poskisa???, which had no law unto them and they beat the living daylight out of me until I finally got my breath. By this time I spoke Spanish well and I turned to them and said, who's the head man here and so this man said, I'm Atteniente???, I'm in charge of this, I'm a Lieutenant and so I said to him, look

this is rather stupid, here we are driving around in the car while your people beat me with a rifle when we could go have a drink, why don't we go have a drink. So he'd allowed that was a good idea so then we had another drink. I should point out to you we were drinking a native rum called Puru???, which means I guess pure. I'm not sure what it was pure. It wasn't pure alcohol, it was very cheap stuff. As a matter of fact a Coca-cola bottle, six ounces of it used to cost us somewhere less than 4 cents. So I had about 6 or 8 of these people and we drank bottle after bottle of this stuff and then had a roast beef sandwich and then had another roast beef sandwich and by that time I told them, well here, I've got to go home now, here's some money, you stay here. Oh no sir, you're such a fine gentleman, we will drive you home. So they drove me home in style. But that was the only time I ever took a beating from the police. As far as revolutions were concerned, they did not affect us very much in Ecuador. In Ecuador revolutions were very short. Sometimes there were people killed but not very many. The worst case we had was the famous Bogota riot in June 1948. What happened in this was a very major riot, not a revolution. There was no attempt to overthrow the government. What was going on at that particular time was the Latin American Congress was meeting in Bogota in Columbia where we were living at the time. The object of the Congress was, under U.S. lead and General Marshall, Secretary of State was the number one man for the United States group down there, was to outlaw communism. In order to make sure that this did not happen the communists decided to disrupt the whole meeting and cause so much trouble that it would all be canceled. The first thing that happened was they caused a major affair in the province of Santander???, which is right over on the Venezuelan border and most of the troops in Bogota were flown over there to handle that matter. The Columbian army, I should explain, at that time, was not very large. It's much larger today. Then when this happened, they murder Jore Ellisio Guytan???. Now the strange part about it was Jore Ellisio Guytan was the head of the Liberal party which was the opposition party and

was really the demi-god of the poor people of the country. He was very socially oriented, the Conservatives that were in were very right wing oriented. And he was murdered. But Jore Ellisio Guytan was a man who always did things very punctually, he would go to lunch at noon and never miss, but this day for some unknown reason he didn't leave until about 15 or 20 minutes after twelve. And so he was murdered when he came out of his office. But the signal was all over Bogota that it would start exactly at noon. So the first thing that happened was they burnt down the newspaper office which was owned by the Conservative government. The second thing that happened after Jore Ellisio Guytan was murdered was they had a group of people already staged there and they turned around and murdered the man who had murdered Jore Ellisio Guytan, in other words they wiped out all evidence. Then they started burning everything in the downtown area. We were in the office at the time it happened and we started walking home and by the time we got home which was a matter of some 25 city blocks roughly, half the town seemed to be on fire. By the Saturday of that week, there had been 500 people killed in Bogota alone. The streets were a shambles. The United States government, according to gossip, never proven and I don't know whether it's right or not, flew in marines from the Panama Canal and held the airport and then they started flying back in the army. By Friday they had flown in a large part of the army and the firing downtown was fantastic. You of course, were scared to death to go out on the streets. All the streets were occupied and one little incident out of that thing. We had just bought two new decks of playing cards, these were the first plastic playing cards. And they were guaranteed for 500 rubbers of bridge. Well, I'll guarantee you they last longer than that because the Shapu's???, who was with Imperial Oil as a geophysicist and then in the last years of his life. . . he's still alive, I shouldn't say that. . . his last years of life with Imperial Oil, he was in charge of their public relations and governmental work in Manitoba and Saskatchewan. Urban??? and Charlotte Shapu were well known people and very good friends of ours in Bogota. The Shapu's

moved over with us and brought all their food with them and so here we were, we were locked up in our house, and our house was on the ground floor of one of the main streets, the Avenida Caracas??? in Bogota. So one day, we heard this tank coming down the street, you could hear the whine of it, anybody who's heard a tank recognizes a tank. And just when it got in front of our house we heard a bullet ricochet off the tank. And he just lowered his turret, he had this 37 mm. cannon and he just started traversing around in a circle. You could hear the whine of the traverse and you could hear the gun going boom, boom, boom, boom. My wife and I were sleeping on the floor in the front room in front of the fire place and we just lay there on the floor and about the time we figured he was about level with our window all of a sudden he stopped and the whine picked up and he drove off down the street and that was the end of that. On the Saturday morning it was all over and of course, we were sure that this had made the headlines all over the world because it was a very important thing, especially connected with the conference. So we walked downtown, the conditions were just catastrophic downtown. I don't know how much damage was done but building after building after building. They just rolled gasoline drums into the building, take the bung out of the gasoline drum, light it on fire and just torch the whole building. So even major buildings were a real mess downtown. When we got downtown, the purpose in going downtown was to send a telegram to our parents to tell them we were all right and when we got downtown of course, the telegraph office was closed so we didn't get to do that. When we were coming back the rebels were up on the side of the hill, represented by the police force of all things and down below in the Army barracks which used to be at the corner of 26th and Avenida Caracas and 7th, they all sort of intersect there. It's where the Tecondama??? Hotel is now. They started shooting at one another and here we were caught in the middle. And we crept along the wall and there was one dead person lying there and we saw this Red Cross place and the first question they asked us, are you wounded and we

said, no, well, they said, go out and get wounded because you're not allowed in here unless you're wounded. We crawled up along the side of the hill and we finally managed to get by, there was another person lying dying or dead in the ditch and people screaming and crying and everybody yelling in their houses and the machine guns and everything else going off. Pretty hair raising. We finally worked out way down and of all the strange things, we ended up right in front of the house where George Marshall was staying. Well, they had more troops there, both Marines, because the Embassy always has Marines. This was not the Embassy incidentally. But they always had Marines wherever people like that were staying and a bunch of army people from the Columbian Army. Boy we really got searched and everything else. Peace was restored to a degree but that went on and it's still going on in Columbia all these years later to a large degree. I'll give you an example of how bad it got, you were not allowed to blow your horn. If you blew your horn they would shoot you on the spot. Any noise making, any incitement of any kind was not tolerated and they had troops everywhere fully armed, in full battle outfits. They food was strictly rationed. You were given four packages of food if you worked your way to the head of the line. One was a package of oatmeal, one was a package of cocoa, one was a package of sugar and the other was a package of rice. And there would be about a pound of each and you just put your money through the grill and they would hand these back out to you. And there were orders came out, they whole head front page of the paper said just a few words, it said, the army is in complete control, they will do the following, they will speak to you in a quiet voice, they will speak to you in a commanding voice, they will shoot to kill. And that was all the front page of the paper said. I went down to get in line for food and worked my way fairly near the front of the line, say I was about 50 - 100 in line and this fellow crowded into the queue ahead of us. The army man came up to him and said, get to the back of the line please and the fellow smiled at him and he said, I said, get to the back of the line. The fellow never moved and he shot him right

through the head. You could have had first place in line right at that moment. You never saw so many people running in different directions in all your life. I was leading the parade I might add. This horrible affair went on where the Liberals were against the Conservatives and then it broke down to where, people, it became a way of life with them. And out in the country the banditos literally took over the countryside. And finally to stop it they had to take troops from the Columbian army and they took them to Panama and they taught them in guerilla warfare. And they used horrible tactics to kill off these banditos, but peace has been restored although you will still find problems scattered throughout the country. A good friend of ours, Elis Morales??? for example was flying along in a helicopter out over the Amazon jungle, the Aurientes of Ecuador it's called, and somebody fired a shotgun at him and blew off part of the muscle in his leg. He nearly died from loss of blood before they got him to a hospital. The co-pilot that was sitting alongside of him was killed in this thing and this was not too many years ago so it went on. We had a lot of trouble with our crew, this was much later when I was with Tenneco???, we had a lot of trouble with our crew, our field crews that we put out in the field. And on one occasion, one whole group were captured by the banditos. This was an American called Brian Barrow??? in charge of it. By sheer coincidence Brian had been brought up in South America and spoke Spanish fluently and they were going to kill them all and the head of the banditos came to him and said, you speak Spanish, and he said yes. He said, where did you learn Spanish, he said, I was educated in Columbia, you're a Columbian, no, my father worked for Tropical Oil Co. He said oh, what was his name, he said his name was Barrow and he said, oh, I worked for your father. And because he had worked for Brian's father, Brian's father when I was there was Chief Geologist of Tropical Oil Co. and because he had worked in the field with Brian's father he let the whole works of them go. That's the closest we came to having a whole group killed off. Although there were seismic crews killed off. There were other groups that were killed off. It was a pretty hairy affair after

1948. From 1948 to about 1965 was a very dangerous period to be in Columbia. But that was the only really serious altercation we had. And I've got to admit it was very terrifying and we really worried about whether we were going to come out of it alive or not.

#168 SB: It sounds like quite an experience. You mentioned that people were getting experience in South America. What about drillers on the rigs, do you know any that worked in South America and then came up to Canada?

JB: Drillers were an opposite case to a very large degree. You've got to remember when I said we didn't have much geology, we did have a few geologists. There was a little action going on around Brooks, largely with Chevron, in those days California Standard and Turner Valley was being developed and there were a number of wildcats drilling around the country. Now the one thing that Canada did have was really good drilling crews. And since South America paid an awful lot more than you could earn as a driller, many of our tool pushers and other people that came to South America, came out of Turner Valley. The Kelly brother for example, who worked with Imperial Oil and I believe one of them became head of drilling for Imperial Oil later on when he came back from South America, were a case in point. There were quite a number of others but I don't really remember their names. Our drilling crews were much different to our geological crews and out seismic crews in that they were all very experienced people. We'd had major operations, I'm talking about International Petroleum and it's subsidiaries. We'd had very major operations ever since back in the early 1900's in south America. So that there were a number of really well trained drillers in Peru, there were a number of well trained drillers in Columbia and as I say, there was a good stock of well trained drillers in Canada. So that our drilling people really came down there as really experienced hands and it was entirely different to the exploration groups who had literally no experience. When I look back and think of

some of the mistakes that were made and some of the things that were done. It's amazing the difference. We did have one or two highly qualified men. I mentioned Dr. R. W. Landis yesterday and I mentioned Bob Milner although I couldn't remember his name yesterday. They were experienced people when they arrived there but they were the exceptions even our palaeontologist started out working the paleontology from scratch. There was so little known in those days.

#195 SB: You mentioned after you got back to Canada, you started working for Pacific or actually it was Bear Oil that you were hired for?

JB: That's rather a strange weird story. Frank McMahon was probably the greatest promoter that Western Canada ever had, I think that's a pretty safe statement to say about Frank. His brother George worked with him. George was a very fine gentleman, he wasn't the promoter, he was a little better organizer I think than Frank and then they had Pat Boucher, who was the secretary of the company and who was in charge of the office, did all the office work. They had Len Yule???, who later was the treasurer of the company. And that was the nucleus that was in the Calgary office. Now our office was in Edmonton. What had happened very simply was Ted Link had dreamt up an idea that all of the oil that was in the Tarsands had escaped out of reefs similar to . . . out of the Devonian I should say, out of reefs that were similar to the newly discovered Leduc reef and Redwater. Primarily his example was Leduc at that time. And as geologists understand, there is a truncation, that is, these beds dip at a steeper dip in the Devonian than they do in the overlying Cretaceous, in which the Tarsands are found. Now this dip causes the oil to go up dip, that is towards McMurray, towards the Tarsands and his idea was that all this oil had migrated up dip and had come out of the Devonian and therefore was trapped in the Tarsands. Now surely to goodness somewhere between Redwater and McMurray there had to be other traps formed.

So Bear Oil was formed which was a combination of Sun Ray, Santa Fe, which was a Getty company and a couple or three other companies from the United States. And they were the ones who put up the money to explore this vast area. We took up all the easy area, which meant that our leases, our permits, our concessions, whatever they were called actually ran along the Athabasca River. So they were easy to get to. We went in there with big diamond drills from Boil Bothers??? and we drilled a series of core holes all the way along the river starting at Athabasca and going all the way north of McMurray. I've forgotten how many wells were drilled but we went at that for a couple of years and we didn't find any oil. We got the best bunch of diamond cores you ever saw in your life and these became the pride and joy and it was rather strange. . . nomenclature in those days was very simple. We started naming the Devonian from the top down and so we named it D1, D2, D3, D4, D5 and D6. D4, D5, and D6 actually came out of the cores that we got up along the Athabasca River. It's rather interesting to look back and think that Swan Hills and lot of these fields were proofed in later years out of the formation that were first described from these cores. They had been described on surface but they weren't well known, the correlation wasn't good, it wasn't correlated back in. As a matter of fact, the correlations were rather sloppy in those days and then we took out a bunch of acreage that extended up along Lesser Slave Lake. This had nothing to do with Ted Link's original idea, just an expansion of the whole thing and we took out a whole bunch of acreage on further north. And we started drilling over in that area and Pacific in its own name took out some acreage around Valleyview. I remember the first well that was drilled at Valleyview, we tried to correlate it and we didn't have the foggiest idea what we were drilling into for the simple reason that we'd never seen good thick Jurassic sections or Triassic sections until we started drilling in these areas and we couldn't correlate the Cretaceous at all with what we were seeing down on the plains area. After we passed through the Viking we were just simply lost and we never did figure

it out till about 2 years later. This was really the funding father of Pacific, the Bear Oil project. Bear Oil paid all of the overhead and everything else. As I mentioned our office was in Edmonton. The head man for that was Lorne Faulkner???, now dead and Lorne's last big experience had been the Canol project and especially the work at Norman Wells and he's had a very responsible job, I've forgotten what his title was at Norman Wells but he had a very responsible job. Art Knoss, who I mentioned earlier, who hired me, was in charge of the exploration and he hired me as his Chief

Geologist. And then we had a number of other people that really were a strange group in a lot of respects. The oil business in those days was completely without knowledge. It's rather strange to look back on it. I don't suppose many of us like to admit how little we really knew about what we were doing but it is a fact of life. So we had this office and we had quite a number of geologists and we had quite a number of employees. It was the crumbiest office you ever say in all your life. All we had was dry wall partitions in a warehouse and it was the old Bolten??? Printer building which is just off Jasper, down around about 96th or 97th. I walked by it the other day, I walked by the place and it's all been torn down. Many of the other old buildings are still around there. The development is moving in that direction but it's still a very junky area down through there. This was not exactly what you would call a prize office but then it wasn't really a prize group. And we had everything under the sun working for us. Let me give you a couple of stories that will show you just how backwards some of our people were. I used to ride around in a car all the time, I'm freezing to death, I got back in late May or early June and I remember just before July 1st, I went into a store that was on 8th Avenue, it wasn't the Army and Navy store but it was down near the old Corona Hotel and I said to them, I want to buy a parka. Well, he said, we have to get it from downstairs and I said, fine, I'll wait and he said, you're smart buying it this time of year, you make a tremendous saving on it at this price, which was a very reasonable price. And he said, what are you going to do, store it. I said, hell no, I'm

going to wear it, I'm freezing to death and I was riding around in a car with the heater on on July 1st with a parka on. I guess we can attribute that, we always used to say your blood thinned out when you were in South America, I'm sure it didn't but I sure felt how miserable and cold it was in Canada after working in the tropics. I used to ride around in the car all the time going from well to well, I was responsible for all the sub-surface geology, all the seismic work and we had several seismic crews running. We did an awful lot of gravity work which was interpreted by other people and just laid on my desk but we had I think it was, 13 wells drilling at that time scattered all the way from Trochu, all the way north to the well I mentioned up along the Athabasca. The first six weeks I worked for the company I drove 16,000 miles and I forget how many tens of hours I put in the company aircraft just visiting location. Rarely went to sleep, my wife wasn't with me, she was out on the farm visiting her mother because we had no place to live and I certainly didn't have time to look for a place to live. And so I'd drive around and around and around and I'd have points where I'd phone people, we had no such things as telephones in cars or anything like that, those are the luxuries of life today. And so I would stop at a pay station and I would phone another pay station and these people would be there. I phoned this one pay station, we had a well drilling at Fort Saskatchewan and on that day I remember very clearly, I just come out of a well that we were drilling at Calahoo??? which is just immediately west of Morinville and I came out on the road and I drove up as far as Vimy and my time had come to phone this person. . . .

End of tape.

Tape 2 Side 2

#029 JB: So I stopped at the pay station and I phoned the fellow who was sitting on the well

at Fort Saskatchewan and he answered the phone and I said, well how are things going. I've even forgotten the fellow's name, it's not important to this story. He said, well, we're drilling ahead and I said, what are you drilling in, he said, this real funny stuff, I said, what do you mean, he said, well, it's sort of pink marbles and blue marbles and yellow marbles and brown marbles. I said, what, he said, it's pink marbles and blue marbles and yellow marbles and brown marbles. I said I don't know what you're talking about, look I'm at Vimy, it won't take me very long to get there, you shut the rig down there, put it on the bank and I'll be there as quickly as I can. So I drove up and looked at it through a microscope at the sample and I said, hell man those are chert??? pebbles, don't you know chert pebbles when you

see them, that's the top of the Viking, you're supposed to be testing this. No he said, I didn't know those were chert pebbles, I said, what kind of geologist are you anyway. And he said, did you think I was a geologist, I said yes, sort of, what are you. He said, I'm a 2nd year psychiatry student at the University of Alberta, I just took this job for the summer. Don't laugh, that was typical of the people we had on wells. Now most of the people we had on wells. . . . incidentally that was a strange day. We missed the Viking formation on three Imperial farm outs in one day that day, all of which are supposed to be tested. Shows our efficiency. It was rather interesting, one of those wells was Pacific Nestle??? #1 and the man who was sitting on that well was John O. O'Brien, later to become President of CDC, Canadian Development Corporation. Jack was hired into the oil business by me in 1949 right out of university and he walked into the office and I said to him, you know how to drive a car, yes, I'll show you on a map where you're going, you go up and sit on the well and I'll try to get there as soon as I can and tell you what you're supposed to do. We were that busy, I just didn't have time. Poor old Jack went and sat out on the well and I told him a little about collecting samples. The fact of life is that he missed the Viking, he didn't even know what he was doing. The other well was Pacific Calahoo??? and that was being attended by a fellow called Neil Edwards who went into farming. Neil was a good geologist but he liked farming a lot better than he liked geology. So it was a real mixed bag of people and other people that were sitting on wells at that time included Don Cook who is a well known oil man in Calgary today and John Downing who is very well known as well. I started a program in South American many years ago to train technologists. We didn't call them technologist, that's a fancy two-bit word nowadays. But what I did was I started training people to run plane table because there's no sense in paying big wages and bringing people down from Canada and the United States to run plane tables. I could teach the local people to run plane table and they did a

very good job. I took a man whose sole job when I first met him was marking trees, marking the stations on the trees or on the side of a building with a crayon, the number of the station so that we could tie into it at a later date. And he could letter very well. He had limited education. I trained him to be my draftsman and he became a very first class draftsman, his name was Segundo Hokamie? and we went from there to where I started teaching him mathematics at night. And from there to where I taught him to run a plane table and he became one of the best plane table operators I ever saw. He was so good as a matter of fact, that he went into the geophysical department and they started teaching him how to do computing, primarily on gravity meter and he ended up as a computer on gravity meter surveys. And we had this kind of people. Now I saw no reason why we should be wasting geologists sitting on wells for the most part. Now don't get me wrong, I think on wildcats they're essential but an awful lot of it is mechanical and a lot of it can be trained to any person with a good degree of intelligence. One of the first ones we trained and he's still doing the job today was Louis Pike??? and he became an expert on this sort of thing. There were a number of others I've lost track of, Peter DeVries, I remember him by name. And then there were several other people that we trained and so finally we replaced geologist with these technical experts. We didn't give them a name, we called them well site geologists, which you're not allowed to do today by an act of APEGGA. So it was an entirely different world as far as that was concerned. A big job in Pacific, aside from the Bear project which of course, was the money maker, that was the one that paid our overhead and everything else, was buying acreage in Crown sales at Redwater. I look back and I laugh my head off at the great scientific work that went into that. We went out there and we'd shoot it and we'd get all those great paper records that we got in those days and we'd work our tail off on these things. And we had Lou Costello joined our company about this time, and he is an expert geophysicist.

Last time I heard from Lou, he was working for Mobil Oil and last time I heard from him, he was in the Denver area. And Lou started putting the geophysics together, I started putting the geology together. Strange thing, all of us thought we knew more about the geology of the ??? field than any other company in the business. In later years when we started comparing notes we found that everybody had about the same interpretation. So there was no person that really had any leg up on the other company in bidding on these sales. But I had taken the stratigraphy of Redwater and torn it apart and put together the complete picture of the stratigraphy and it's effect, that is of the D3, of the Leduc reef and put together it's effect on porosity and permeability and on productivity. And we had gone all the way from what we called on the front legs of the reef, the Classic Pragmetal??? Zone and we thought we were real smart. We were mapping the certain channels on the frontal edge of it and then we went through the core of the reef and we had empirically and from a lot of other things we had figured out how to calculate the porosity more or less in that area. And then we had the lagoonal facies at the back and knew the thickness of the tight zone and all these sort of things were pretty well known to us and we got our elevations to some degree off seismic but as the field developed we got more and more information off of the logs which we were able to swap with other companies. It was rather interesting, I was able to get tremendous information from other companies by swapping the core data off the Bear project. So that the biggest single thing that we got out of the Bear project was the ability to trade that data for astronomical quantities of information. Imperial Oil would give their eye teeth to look at all that core. We had thousands and thousand of feet of core and it was the only complete cored section in Western Canada so it was a very valuable trade tool. Well, to make a long story short what we would do is we would take these data and then we'd put a safety factor into it and then we would calculate the reserves and then we'd put a safety factor into

that. And after we had the reserves then we turned around and decided what we were going to bid for the block and then we put a safety factor into that. When you multiplied all the safety factors all together, actually all the scientific work that went into it was sort of a bunch of garbage. We really were playing the darn thing by rule of thumb because the one thing that. . .while we knew the geology pretty well, we didn't know anything about the reservoir engineering of this thing at all. We had no idea in those days it would go into water flats, we knew that the D4 which underlay it was extensive, was a very large body of water and sure we weren't idiots. We could take a look at it and say, just the water expansion in that ought to cause some water drive???. How much we didn't know so we couldn't quantify this. When we calculated the reserves we put more safety factors than you could shake a stick at. And of course, what we were really doing was spending a ludicrous sum of money for the acreage at Redwater, looking back on it. Now the strange part about the story was that like a lot of things that are happening in the oil industry today, Pacific was bidding with other people's money and therefore we could afford to bid more than anybody else so we took our safety factors a little less lightly than the other people did. And we were very successful out there. Well, Frank McMahon didn't have any money for these bids, I say we were bidding other people's money, this was after the fact. What we would do then was we would turn around and we would sell a half interest fro the drilling of the wells, I've forgotten the deal so don't take this literally, but we'd sell a half interest in the well for the drilling of the wells and for giving us our money back out of the bid so what we ended up with was a certain percentage of the well absolutely free. Well the competition was tremendously keen to get in on this play. We started a number of companies, Calavan??? Oil and Gas which was later bought out by Fina??? which was Max Bell's company. We did all the work for them and we did it for an interest etc. etc. and Max Bell had lots of money of his own but he also had a lot of very

important friends who also put up money so Calavan was a very important partner of ours. Bailey Sullabranan??? bought their first production in Western Canada from Frank McMahon, guess where. At dear old Redwater at an exorbitant price compared to what we had paid for it. But it was their entry into the thing. Fina??? brought their first production in Canada and got started here this way. And there were a number of other companies whose names I have long since forgot. And then we did work for quite a number of other companies, little companies, Liberal Oil Co. was one that I remember we did a lot of work for, the Barron brothers, lawyers and they were very fine people. But what we literally did was we financed this whole thing out of this sort of affair. I'll tell you one quick story and then we'll quit for today. We were broke in that company, it was really strange, we had no money. We used to get our paycheques on a Friday afternoon and Pat Boucher would say, don't cash them until Tuesday, there's no money in the bank. That will give you an idea what a shoestring we were operating on in that company. So those are some of the stories but it doesn't cover the operation and we'll start on that next time.

End of tape.

Tape 3 Side 1

SB: It's July 13th, 1983. This is the third interview with John Browning. Mr. Browning, I wonder if you'd like to continue on with your work with Pacific?

JB: Yes. Out of all this grew a very sound company. You might get the wrong impression. All the other companies including Imperial Oil were in exactly the same spot that Pacific was in except that they had more money, in that their technology

and everything else was very primitive in those days. It was just that the industry was getting it's feet wet and hadn't learned very much yet. Out of it developed a number of people who became the leaders in our business. For example, Charlie Stelk??? at the University of Alberta has rightly been given credit for a large amount of the work that was done in the Peace River. This work was done by Pacific Petroleum. Pacific started surveys through the northern country and Charlie Stelk and Sam Mahan ran one of these surveys in and around Fort St. John and down through that area. John Andrechuk??? did some work up on the upper part of the Athabasca River, actually from the town of Athabasca straight on through right to the pre-Cambrian Shield. And Pierre Cote??? who was with Imperial Oil for many years and later went to France and worked for them in the Bordeaux area did the surveys along the Peace River, on the lower Peace and primarily the parts around Vermillion Shoots. These surveys were landmarks practically in the work that we were doing and tied in to all of our sub-surface work and became a very important part. We actually were the people that did the most work in the Peace river country. There were some wells drilled by Imperial Oil, they deserve credit for those but the big discoveries were made by Pacific Petroleum. It's rather strange looking back on some of those discoveries in that the things that really started it were probably the poorest wells that were drilled in the area. And it was rather a strange thing that the first well that was drilled, the PRNG #1 which was drilled on Taylor Flats right outside of Fort St. John, the location was picked, not on any great geological knowledge but on the fact that it was an easy place to put a rig. Down on the flats. We actually drilled the well and it took a long time to drill it because bits were not of the best material in those days and the Charlie Lake formation as it is now called, we didn't have a name for it, was very difficult drilling with the bits and it took a long time to get through. We finally ended up in the perma Pennsylvanian with a very . . . what would be considered today . . . a very small show but it was sufficient. It was worth testing. We ran pipe on the well and Frank McMahon, the great promoter

arranged to have everybody up there for the test. It was a good thing that we got some sort of a show. We filled the well. . . we trucked Redwater crude up to the well and dumped that in the hole and then we shot into this and we had enough pressure in the well, knew we had enough pressure from drill stem testing that we. . . actually that it would lift this oil out. As it came out flairs were lit and we had all the politicians in the world up there and pictures were taken with this flare in the background, all these politicians lined up there. Well of course as soon as the Redwater crude was all blown out of the hole, they shut it off. Because there was no oil there, actually it was a gas well but the newspapers didn't know that and they came out with glowing headlines. I did a lot of the calculations on that thing, I knew it was exactly there. I didn't buy PRNG stock, everybody else in the world seemed to have bought PRNG stock and with all this publicity it went from somewhere around \$1 to \$5 in a couple of days and guess who didn't own a share, me. I didn't have one single share because I knew the well was really no good anyhow. But it was a valuable indicator on what could be found in the Peace River country. And from there we started drilling the other Peace River wells which did find a certain amount of gas. It wasn't monumental but it was enough and it was convincing enough that the West Coast Transmission project took place and Frank McMahon became the founder of building the pipeline for gas to the West Coast. This project was really under-financed, it was under-everything. There really wasn't enough gas up there for the project and it was just a lucky thing that about the time that it was to go on stream the Clack Lake??? field and the Yoyo field were found. And of course, these are very large gas fields running into the trillions of feet and therefore there was ample gas for the line. I often wonder what would have happened if we hadn't moved further north and discovered those things. The interesting part was that our drilling everywhere in those days, was quite primitive. we really didn't have a good handle on what muds to use in wells. It was a by guess and by gosh thing. There wasn't very much science went into it. The drilling there wasn't very much science went into it.

We simply rapped down a hole, we'd try a bit and if it worked pretty well, we'd go ahead and use it. There certainly was no computer studies that went in to any of these things. The results were pretty interesting on occasion. For example, it was just simply unheard of to run a full hole packer??? in a well. We used to run rat hole packers???, therefore you had to know what you wanted to test and then you had to drill a rat hole ahead and set the rat hole packer in the top. And the drillers were actually afraid to run a full hole packer for the simple reason that they couldn't see how they wouldn't get stuck and they could feel that packer dragging all the way up the hole and ruining their hole. And wells were not drilled to produce oil, it seemed they were drilled to satisfy the drillers. So we had this problem. I remember one occasion when we were drilling Fort Saskatchewan #1. I hadn't been in the office hardly at all. I'd been with the company about three weeks at that time as I recollect, this was in the summer of 1949. And I hadn't met the staff actually, other than Art Knoss, I knew nobody in the company. Like most of us in those days, we were working 24 hours a day, driving around all the time. I hadn't been back to my hotel room which I had back in Edmonton in the three weeks period of time and I must have smelled like an old billy goat. And I hadn't shaved and I remember I was a pretty wretched looking character, I don't think I changed my clothes more than once or twice in the whole three weeks. And I went to the fort Saskatchewan well and I wanted to run a test and they had virtually water in the hole. Well I wasn't going to get any packrasite??? with that so I went into town and of course, I was tired, I was mad, I was upset. And I walked into the office and they said, who are you and I said, my name is Browning and I walked through like I owned the joint and I said, who runs the drilling in this company and they said, it's a man called Tosh.??? Scottie Tosh and I became very good friends after that, he's a marvelous fellow. And I said, well where is he, and they said, he's in there and it's a very important meeting you can't go in. And this little secretary, I mean by little, her stature, sort of spread eagled herself against the door and said,

you can't go in there. And I said, who are you and she said, my name is Joan Briggs and I said, well, fine Joan, I picked her up and I said, you just sit on the edge of this desk and nothing will happen. I waded into the room and said, which one of you are Tosh. Big old Scottie stood up and looked at me, bald head, and said, I am why. I said, I was just out at . . . and I won't use the language I used in this. . . your well in fort Saskatchewan and you've got water in that hole instead of mud, I can't run a test, it's on the bank right now, you get mud in that hole. I haven't been to bed for three weeks, I'm going to go back to the hotel, I'm going to go to bed, I'm going to shave, I'm going to get up at 6:00, I'm going to go out to that well and if there isn't mud in it I'll clean your damn clock, do you understand that. Now you get your butt in the saddle and get things done right now. Well I had mud in the hole but what I didn't realize that the people in the room were Frank McMahon, and George McMahon, Cyrus Wright, the President of Sunrite???, all the top shots from Bear were there. The phone rang the next day, I was in the office by sheer coincidence and it was Frank McMahon and he said, you will come to Calgary immediately. I went down to Calgary and he said you will never do that again as long as you're working for this company. I said, Mr. McMahon, I don't care whether I work for this company or not but I'm going to tell you one thing, I go out on another well and they haven't got mud in the hole and it's just water, I'm going to go in and I'm going to clean his clock just for the fun of it and if you don't like it you can fire me right now. I must have impressed McMahon because he was an old wildcatter himself and he just laughed and that was the end of the conversation. But for a few minutes there I felt that I might just get run off. But the oil business was that way, it was a rough tough society. It's not like today where everything is scientific and everything is computer run, even on how a well is going to be drilled and when are bits going to be changed and all this sort of thing. And our testing facilities and everything else are so good. And people are different, they're gentlemen, we weren't gentlemen, we were all pretty goldarned rough and drinking was a

problem, everything else was a problem in those days. And so we just had a different kind of life and a different kind of attitude. It was simply to put it, a rough, tough society. But out of it came the people that today are running the oil business, the name people of the oil business. They were all very much alike. Christmas parties were very rough parties in those days and I remember the first year that we decided they cut them out was after a few divorces and a lot of problems came out of the Christmas parties. But this was the way the society was and we thought nothing of it.

#102 SB: You were mentioning the other day one of the Halliburton??? parties. Do you feel like running through that again?

JB: Yes. Halliburton and Oil Well Cementing Co. HOWCO, had an open house out at Railhead, which is long since gone. It used to be on 142nd St. and about 107th, 108th Ave. somewhere in that order. And they were opening this new warehouse, it was between Christmas and New Year's. As I recollect it was Dec. 28th, 1949, and what really happened was, there were three of us, Scottie Tosh, who I mentioned a few minutes ago, ran the drilling and Len Farmer, who was in charge of the land work and myself were in the office. And some salesman came in and dumped a bottle of whiskey down and said, this is for you people. So it was about 3:00 in the afternoon so Scottie said, what do you do when you have one bottle of whiskey between 3 people and the natural answer to that was drink it. So we sat and we drank the bottle of whiskey and we had this invitation to go to HOWCO's open house, husband and wife affair. We didn't take out wives and got out there and as happened very often in this goldarned business, we weren't exactly too sober when we walked in and this young fellow came up and insulted the daylight out of Tosh. Well, I was bound and determined we were not going to get into a fight at this nice party which Halliburton was so kindly putting on. So I locked poor old Scottie's arms behind his back and this guy just hauled off and let him have it right on the chops. Scottie turned around and said, don't be my friend any longer and with that the fight started and I mean it was a

donnybrook. One guy was very badly hurt, he got knocked off of the loading ramp and landed flat on his back on the ice and I don't know whether he broke his back but he was certainly taken to the hospital. Another fellow ended up with a broken leg and it got so rough that I turned to Scottie and I said, do you know, I don't like this and he said, I don't either. So Len and Scottie and I jumped into a taxi and went downtown. Well Scottie was staying at the old Mall Hotel in Edmonton at that time. So we let him off there and Len and I decided that we hadn't eaten yet. I don't know what time it was now, it must have been well on to 11:00 or 12:00 at night and when we looked back here was a group of people that had followed us and wanted to continue the fight and they'd kicked the windows in on the hotel trying to get at Scottie. Well Scottie was long gone upstairs and they didn't even know who he was so there was no way of them finding him. So they decided to follow us. So we went down to the Seven Seas cafe and I went to the little boys room, it was right up near the front of the cafe and I was in there for quite a little while I guess and when I opened the door a policeman was running by so I closed the door and opened the door and another policeman was running by. So this happened about 3 times and when I opened the door there was no policeman there and I turned and looked inside and here there was the doggondest fight going on in there and I just walked out the front door and went home. But that was the way parties were in those days. Thank God they've changed to that degree, now you go to a cocktail party here and it's a very civilized affair with people all sitting around, bankers etc. Everybody in suits, I don't think any of us were in suits at the HOWCO party as I recollect. As a matter of fact very seldom can I remember wearing a suit in Edmonton in those days, we just dressed in field clothes all the time.

#139 SB: Going back to Pacific's exploration activities, was gas a target at all or when they first started with Bear oil and everything did they anticipate getting much gas or were

they mostly looking for oil?

JB: We couldn't sell the gas at all, there was no pipeline out of Western Canada. We'll come on to that story later on because I had a large part in Trans Canada pipeline but that's on another few years yet. There was no sale for gas at all except for local markets and the local markets were pretty well supplied with gas that had been found many years before. The bow Island field was still a pretty big field, Turner Valley was supplying gas into Calgary. Calgary certainly had all the gas it needed. Edmonton had the Viking-Kinsella field and it had all the gas that it really needed. Small towns weren't supplied with gas, it was just far too expensive to put it into them and so if you found gas we just abandoned it. As a matter of fact, for many years later, the best way to find gas was to look at the old wells and see who had plugged a gas well because we didn't even complete a gas well. We'd just forget about it. Now this didn't apply to when Frank McMahon came up with the idea that there was enough gas in Canada to start building West Coast Transmission. And so we started looking for gas in the Peace river but it took a long time to find enough gas in the Peace River for the simple reason that the wells we drilled in and around the town of Peace river were not really big wells. You've always got to remember one thing when you are talking about Canada and that is, the kind of oil we find in Canada is very small compared with anything in the world and the economics of what we find is very poor compared with the big oil fields of the world. We don't have a really big oil field in Canada. What I mean by a big oil field is a field with say a billion barrels of oil in it that only requires 20 wells to drill. We've got fields with a billion barrels of oil in it, the Cardium production at Pembina but I don't know how many wells there are in it but many hundreds for the same billion barrels. And when you compare that with the Middle East, there is nothing economic about this. Our lifting??? cost here run into the dollars, the lifting costs there run into a few pennies and so the economics are an entirely different affair. And so the development of Western Canada was very fortuitous that we found the major fields that we did and they

became the backbone of Western Canada. Our problem today is that those fields are drying up. Leduc is just about finished, Redwater is just about finished and these fields are on their last legs and the oil fields that we are finding now are very small in comparison. We're finding a lot of them but they're very small in comparison and so our costs of finding them and our costs of producing are going up and the thing that is keeping Western Canada in the oil business is the fact that the price of oil is going up. And if it weren't for the fact of OPEC raising the price of oil probably this would become a desert as far as finding oil is concerned. It has one important advantage, it is ours. And you've got to remember that always in anything that we do, that the economics of producing something at home is pretty doggone good when you compare it with buying something as important as oil internationally. And therefore the oil industry will continue.

#180 SB: I was wondering if you knew how Ted Link and Art Knoss became associated with Pacific?

JB: Ted retired from Imperial Oil and went out consulting and the first contract he had was with Pacific Petroleum and when he was looking around when the Bear project started he went back to his old friends at Imperial Oil and tried to decide who he was going to get to handle the Bear project, which was his baby. So in looking around, his association with the Canol project brought Lorne Faulkner to the fore and also one of the people that had worked for him as a geologist over the years in Western Canada was Art Knoss. Now this was before he went to South America. It's rather interesting, one little side light and that is that Art actually mapped a small reversal in the North Saskatchewan River at Redwater. This is not directly at Redwater but on the North Saskatchewan River where it crosses the Redwater field. The reversal was there, it's very small, I've forgotten something like about a degree reversal and it was ignored completely but it was interesting that Art mapped long. . . . oh, gosh he must have mapped it back in the

early 40's. And because of the relationship that Ted had with Imperial Oil, the people that he hired at first all came out of Imperial Oil. Certainly his management team came out of Imperial Oil, Scottie Tosh was an old driller from down in Turner Valley days, one of the old timers at Turner Valley and one of the real great men of the industry. And he came in to head up the drilling. Scottie was the best fisherman, by fisherman I don't mean catching fish, I mean fishing in oil wells when pipe or anything is lost down the hole. He was known as one of the best fishermen in Canada. They brought in several other people and then these people started bringing in their friends. That was actually how Bear got started and that's where the backbone of Pacific came from.

#207 SB: With Pacific you mentioned that they didn't really have money before they'd start drilling. Did they actually have a budget or did they just sort of go out and raise money as they needed it?

JB: We had a program and we had a budget as we knew what it was going to cost and we were supported as I mentioned earlier by Sun Ray and the Getty company, I can't remember the name of that one particularly and there were 2 or 3 other companies that had substantial money that carried the Bear project. The Bear project carried Pacific's exploration. I'm talking about their overhead from an exploration standpoint. And they participated in a lot of these wells. And with a man like Frank McMahon who is just one of the great promoters, you had people continually coming to him and then we had an association. And take a person that is coming into the oil business, a company like Fina for example that wants to get established, they look around and they can associate themselves with this kind of company or this kind of company or this kind of company. And the kind of company they were looking for was a company like Pacific that had something to sell. They could go to Imperial Oil but Imperial Oil wasn't going to cut them in on any wells at Redwater or at Leduc. But here is dear old

Pacific. And then you've got to remember that Pacific also owned Atlantic. Frank McMahon owned Atlantic anyhow. And we had tremendous fame out of the Atlantic blowout which was really the thing that brought attention to Western Canada. The fact that one well would produce a million barrels of oil, . . .you could look that up, the statistic, I've forgotten it long since. . . .but fantastic quantities of oil. Which was collected in pits, sucked out, then taken and sold. And here was one well that was producing more oil than Western Canada had produced, I guess outside of Turner Valley, in history. And so this really brought everything to the fore and guess who's name was at the front, dear old Frank McMahon. And so automatically we had an aura around us that drew people to this company. And we had developed very quickly a technical staff that was really first class and you could see that from the names of the people that went on, the people that I named, Charlie Stelk, Andrechuk, Pierre Cote, go on down the list. Then we had Art Knoss already in the company and then we had John Downing, Don cook. My gosh you've got a who's who of the industry today just out of the people that were in that group.

#241 SB: At Redwater was there much of a discovery there by Pacific, did it become substantial?

JB: No, we didn't discover anything there. That's a rather interesting story that I've never been able to substantiate but we'll put it down in the line of gossip. I know that time wise and I know everything else about it is true. I just don't have direct contact with the people that made the decision to guarantee that this is exactly how it happened. But it is factual. Shell Oil Co. owned all the land at Redwater and this was back under the old law where you did not have to give back half of the land, approx. half, it wasn't worded that way, you could keep blocks of 3 miles X 3 miles or 4 miles X 2 miles and they could corner on to each other or you could leave a mile quarter in between them but this left a lot of land over to the government. Now it was

before that law was passed and Shell Oil had to have one seismic line that ran across that wiggly waggly road that goes north for a ways and then east for a ways and then north for a ways and then east for a ways. It didn't directly cross the field. And they'd run a seismic line along the highway, and you've got to remember seismic was a little primitive in those days. But they did see a reversal over the Redwater field. But it was such a big thing that they discounted anything of that size could exist. You've got to remember we didn't know about reefs in those days. Certainly reefs had been mapped and it was in the literature, you can go back and find it all through the literature, all the way back to Darwin but looking for oil in reefs was not the vogue until Leduc was found. Now just one quick story on Leduc, when Leduc was found, it was actually found in the D2, the Niscue??? as we call it today. This was not the important producer, it was the next well that was drilled through the D2 and went down and found the D3, the Leduc and that was the field. And it's the same thing that produces out at Redwater. This story took place in 1947 or 8, right after the discovery of Leduc. Shell had a miserable record in Western Canada, we always called it the queen, referring back to the Hague, Queen Wilhelmina at that time. The queen decided as we said, that they could drill one more well in western Canada and if they didn't find oil they were out. So they had a small structure down at Castor as I recollect and they had this weird anomaly up at Redwater and the choice was whether they would drill this anomaly that they had here or the one at Castor or the one at Redwater. Well as I mentioned the one at Redwater was on one seismic line, it was a wiggly waggly line, that is it didn't go straight across the thing so that they didn't have a continuous section across it. And beside who on earth ever heard of anything that big in Western Canada and they chose to drill Castor. Castor was a dry hole and they dropped all their acreage and pulled out. Imperial promptly picked up all the acreage at Redwater and consequently out of this they made the discovery at Redwater. Now the advantage to Pacific was that the new rules and regulations were in effect by this time, brought in

by the great Ernest Manning who was one of the cleverest men I ever heard of. And out of this all of this corridor acreage became available for sales. So what we were doing in Pacific was, when these blocks were put up for sale, we were bidding on the corridor blocks, the stuff that was left by

Imperial Oil. Imperial according to the grapevine again, had made up their mind that they should not be greedy and try to buy up the whole field. Today we wouldn't be that generous I guarantee you that. If I have a chance to get the whole field, I'll be in there bidding and this is the case of every company after that. But Imperial did not compete and Imperial had the knowledge. Some of the other companies that did not compete at that time just. . . I have no idea why they didn't, for example Texaco didn't get in in the early days and Mobil never did get in. And a lot of the other companies just didn't get into the bidding on these sales and so this left a vacuum. And with our knowledge and with the ability of our staff and we had a good staff, we were able to bid at Redwater and get acreage there. And we drilled I think, it was somewhere around 80 wells in the Redwater field. And of course, this became the backbone of Pacific's entire operation. That was the source of funds, that's what led to all the development in the Peace River country. It was all due to the . . . not the discoveries but the production which we acquired at Redwater.

End of tape.

Tape 3 Side 2

JB: Back to this Redwater just for a minute here, I think it is important to explain that we did understand the geology of Redwater quite well. Our seismic was good. It was all paper seismic and it took a lot of doing, we had no computer studies or

anything like that, it was a tremendous job working it up. Hours and hours went into it. But the big advantage that anybody bidding at Redwater had in the early days was that our reservoir engineering was very primitive. As a matter of fact it was just by guess and by god. We'd take a copy of Lahey's book on reservoirs and we'd come up with these rule of thumb conclusions and we'd take the lowest factor and so consequently we bought oil at a very low price. I think I mentioned previously that we had no idea of water drive???, we had no idea how effective water drive was going to be. We had no idea that it was going to be a 40% recovery factor. We were using 15% because there was no gas cap and therefore we'd go down and say, well it must be a solution gas drive, a solution gas drive is 15%. And this was a tremendous advantage to company like Pacific that was not going to use it's own money anyhow. We would bid on the parcel and we would sell it the next day and get all our money back. But some other company would go in there and they would have reservoir engineers who would be cautious and they would have this who was cautious. We weren't cautious, we just didn't have the technical knowledge in the reservoir field. And our engineering was run by Lyle Casbow??? and Lyle Casbow is a field operator, he is not an expert on reservoirs. I guess I was the reservoir engineer of the company, I certainly did more on it than anybody else. And we started accumulating a groups of engineers at that time. It's rather interesting that Al McIntosh was one of the first engineers that we hired as I recollect. I remember he came in very early in the life of it and Al went on to become, I think he was Executive Vice-President under Errasmuson in Pacific at the time it was bought out and then he went with Home Oil and became a very important figure in the oil industry. But he was one of our first engineers and it was the lack of reservoir engineering knowledge and it was very primitive all over the world but it was a lack of that that really gave Pacific it's boost. I don't think we could have done it if everybody had known just how good Redwater was.

#023 SB: So you continued on with Pacific or were you actually working for Pacific at the same time as Bear Oil or were they considered the same thing?

JB: Yes, I've forgotten who we got our paycheques from as a matter of fact but we never treated it as two companies and you've got to remember I think it was, that any one company was only allowed to own 200,000 acres of permits from the Alberta government so what we would do it we would form another oil company and another oil company and another oil company. And we had the McMahon Oil Co. and the Yulma??? Oil Co. and the George Oil Co. and the Boucher Oil Co. and we named them after anything and everybody you can think of and I don't know how many companies we had but we sure had a slug of them just because of this rule of the 200,000. But the staff was treated as one and it was in 1951 that we finally decided that having two separate office, one in Calgary and one in Edmonton was wrong and so they moved the whole staff down to Calgary. And about that time the group of us started breaking up, not because of the move or anything like that but because jobs were becoming very plentiful. There were other opportunities. Art Knoss quit and went out and with Ted Link formed, I guess it was the Cree Oil Co. that they found first, made a discovery at Malmo???, the Malmo oil fields, became big shots and went on from there. John Downey joined them, Don Cook joined them. I left and went to work for another company. There started a real break up and so Pacific changed at that point and the whole attitude of the company changed. It became very concentrated on finding gas for West Coast and West Coast became the big push behind it. And so Pacific changed very dramatically at that time. There's one other little story that was of interest. I mentioned earlier that we had all this core up around the Athabasca River from the Bear Oil project and I mentioned it became our most valuable trading bait. With it we were able to get countless logs and tremendous amounts of information. Actually more than we could digest because every company wanted to see this core. And we would say, well we'll let you see one of them for this and it was an exorbitant

price at that time. Later on it doesn't seem like very much but at that time. I'm not talking about dollar bills but I'm talking about the amount of information we were able to get. And so one day I was talking to a man with Shell Oil Co. who was a scout with Shell Oil Co. The first scout I ever met as a matter of fact. And he came to negotiate this thing, he was out of their Midland office, Midland Texas. And he said, boy you people sure are primitive up here, I said, in what way, well all this nonsense of going around from company to company to get the data, it's very time consuming. Why don't you have a scout check, and I said, what is a scout check, so he described what a scout check was in detail and I said I thought that was an excellent idea. So I got hold of Harry Rigferd???, who at that time was with Imperial Oil and later came to work for Pacific and we didn't have a scout. The only trading we did was along the line that I was mentioning and I guess I handled it as I recollect. I don't really remember whether anybody else handled it, we certainly didn't have a scouting department. And we discussed forming a scout check. Well half of the companies in those days were in Edmonton and half of the companies were in Calgary and so we decided we'd start having a scout check and meet in Red Deer which was a half way point. Like everything else, those things sort of disintegrated in a way, I think it was every Wednesday morning that they met and they'd all accumulate on Tuesday night and we'd have poker games and drinking until the wee small hours of the morning and then we would have the scout check the next day. And under this we started trading information and pretty soon sheets were developed and so that the people would just read the information off their sheet and somebody would be responsible for x number and they would read out those sheets and they were all in order so it was done very rapidly. And this was the formation really, of scouting and of the scout check in Western Canada and so I guess that fellow from Shell Oil and myself and then Harry Rigferd were the ones that really started the scout check. I don't know how many people really know that story in Western Canada. I don't ever think the scout check here

realizes it today.

#068 SB: Did scouting come about with the development of competition between companies, was it sort of an open field before. . . .?

JB: We scouted in the early days just simply so that we got the information. We didn't trade logs in those days, it was simply that we read out the top which could be or could not be accurate depending upon the person, I often wonder whether people lied about them, if they gave away false information or not. I never had any evidence of anybody doing things like that but it could have been done because we didn't have a log exchange. And then about that time, Arlo Miner??? came up from. . . I think he came out of Denver around that time with Riley's reproduction. And Riley's reproduction had the ability to reproduce logs and from this the scout check got into the log trading business and then they said up ground rules that these logs could be traded at this time and these logs could be traded at this time and a short time after that the Alberta Conservation Board, now the Energy Resource Conservation Board started setting up ground rules too. On collecting information and how information would be stored and this was probably the greatest thing that ever happened to the oil business in Western Canada. For the simple reason that all of these data were collected in one place and they designed these core shacks out here, which are now out by the university and started collecting cores and a matter of fact put it into law that the government owned the core and that you were not allowed to throw it away. And when I look at the tremendous waste there is in the United States on the fact that they're not forced to run decent logs, they're not forced to keep cores, they just throw the goldarned things in the mud pit after they're through with them and run a bulldozer over top of them. And the tremendous loss of information there, it is just unbelievable and unless the Conservation Board, I believe that was largely the work of McKinnon at that time, that set that thing all up and Red. . . I can't remember Red's last name was one of the

important factors in that too, and I think the two of them were the ones that thought this up. The government was behind it, we had a marvelous Deputy Minister at that time, Summerville???, I knew him very well, I consider him a personal friend of mine and they were more the group that set this whole organization in effect and really were a tremendous boost not only to the scout check but to the entire oil industry. Because data were available and date meant that we had the ability to look ahead and forecast and carry on exploration programs with sound factual data. And that probably has been the biggest single boost there has been to Western Canada. Now the other provinces followed very quickly afterwards on the same idea so that you have exactly the same thing in British Columbia and Saskatchewan and in Manitoba to a lesser degree because the oil industry was never really that big a thing there.

End of #108

Tape 4 Side 1

Tape Blank

Tape 5 Side 1

SB: It's July 21st, 1983, Susan Birley interviewing Jack Browning in his office in Calgary and this is the fifth interview. Mr. Browning I wonder if you could just finish with when

you left Tenneco??? and what you continues on with after that.

JB: I left Tenneco in 1983, I've forgotten the exact month. . .

SB: or '73

JB: . . .about February or somewhere around in there. I didn't leave it, they fired me.

It's what's called early retirement. My best definition of early retirement is being fired with generous terms and that was about the size of it. I was 55 years of age at that point in time and they decided they had other people they wanted to promote and so they moved me out. It was all right with me, I had no objection to it at all and I went out consulting. I consulted for many companies around Calgary, somewhat on international work in Nigeria, Columbia, Ecuador, Guatemala, Dominican Republic to name a few of them. And then I also went consulting for the World Bank and I worked on two major projects, one in Ecuador which involved several trips and one in Tanzania which only involved one trip. I wrote some other reports for them besides that but didn't make trips on those. It's a wonderful affair working for the World Bank because you can walk in and the government wants to borrow money and it's the only place I've ever been where you have 100% of the data. You walk into the head man of whatever department it is and he says, well, we can't show you that, it's confidential. You say, do you want the loan and he says yes, you say produce the information, just unlock the filing cabinets and get out of the way. That's the only time I've ever had that opportunity in my life so you really get an insight into what's going on, the financial background and everything else. I am still a consultant today. I joined Prodeco??? as a consultant in 1979 and have been with them ever since as a consultant. I'm retiring as of the present time and intend to go back consulting for other people and have two or three projects in mind at the present time which I hope will come to fruition.

Prodeco is the largest of the German drilling funds, a company depending upon discount rates and things like that, worth about \$300 million, discounted about 20% and has a good cash flow, low debt, is a good company. I don't know what's going to happen to it

now that I'm retiring, that's their business though. I will remain as a consultant with that.

#025 SB: I wonder if you'd like to go into a bit about your affiliations with societies, I know that you've been involved with quite a number of things over the years. Also if you'd like to mention some things. . . .I notice for instance that you've been connected with the University of Calgary in several capacities. I wonder if you'd just like to mention that?

JB: Well, to start back at the beginning. I believe that every person has a debt to society and that debt to society incorporates many things, not only working with welfare things, of that nature, which I have spent not very much time on, and societies connected with the industry and helping out in broad generalities. I've never been involved in politics, I've been invited to become involved in politics on a number of occasions and asked to run for MLA on one occasion but I've always resisted the temptation to get into politics. I started with the CSPG when it was the ASPG in 1949 when I first came back from South America and got involved with many things with them. For example I was Chairman of the committee that selected the logo. I think that was one of the first jobs I ever had with them and I worked on a number of other things with them and as a field geologist as I mentioned, I loved going out in the field so I got involved in every geological field trip they had from about 1952 right through to when I went to Houston in 1957. I enjoyed those tremendously. The one that I remember with greatest clarity was the one that was put on by Jerry Henderson and Ken North in the Golden area and Ken North and I would get out there in the field every Saturday morning and all day Sunday all during the summer getting ready for the field trip in the fall and every time we'd get into a fight. We'd get into the beer parlor and go. . . I don't mean a fistfight but we'd get into an argument and ken would get so fed up

with me, he'd say, you're not going coming with us and the next week Friday, he said, same time, same place and we'd go and get into another argument about some other facet of geology. But that was the way you learn and it was the experience of being with people as brilliant as the people that ran those field trips, it was a real pleasure. And I feel sorry for the young people that don't take advantage of things like this. I also got involved, when I went to Houston, I got involved with a number of societies there but my trouble was I was away from home, traveling so much that there really wasn't much chance to get involved with it. When I came back to

Canada though, I immediately got back involved with societies and as any person in my position as President of Tenneco, you get involved with the Canadian Petroleum Association. And this is not any thing of any great importance other than that you're willing to serve. If you're big enough stature you're asked automatically to be on it. I was Director of the British Columbia division of the Canadian Petroleum Association for a number of years and for one year I was on the Board of Governors of the Association. That was about my only relationship with them, I didn't serve on any committees with them. But I did go back to work with the CSPG and I did a number of things with them. At the same time in 1970 I was elected Vice-President of the American Association of Petroleum Geologists, the first Canadian to be so elected. We'd had one Canadian as President, that was Cam Sproule. Ted Link was also President of the AAPG but when Ted was President at that time, he was actually an American. He took out his Canadian citizenship shortly after that. So that a very involved and a lengthy year. The reason I guess I got elected over Americans, which was very unusual, considering that the Association was made up almost entirely of Americans percentage wise, was the fact that the year prior to that I had run the Calgary convention for the AAPG. This was an enormous extravaganza and was the best convention they'd ever put on to that point in time. I think it changed the whole tenor of their conventions, not only from the way papers were handled which was distinctive but

the way luncheons were put on. We had luncheons at the Jubilee Auditorium. We had no space in Calgary to put on a convention of this magnitude. The largest convention as I recollect, they had held to that point, was about 3,000 and Calgary being away off at the end of the string and not enough geologists here, etc., they weren't going to draw more than a couple of thousand and it was a mistake to put it on here. They ended up with 4,400. What amazed them was the fact that, on Friday before the convention, we had it organized so that the local people would register. And we'd put on a tremendous campaign with the Presidents of every company in town and we had 1,150 people register on the Friday which just absolutely shocked the committee of the AAPG. I guess it was from the notoriety and fame that I got from running that convention that I actually became Vice-president of the AAPG. And it was certainly a big help, I traveled all over the United States that year giving speeches to various societies on, you ought to come to Calgary. We actually made a movie, the only time a movie has ever been made advertising the convention and we had a helicopter fly down the main street of Calgary showing how big it was in those days and it was quite a movie. And something that the Glenbow Museum should get a copy of. I'm sure it's available and they should get a copy and put it in their archives just because it is a little distinctive. Out of that experience with the AAPG, I was invited to be on the advisory committee in 1974 for a three year period. The Advisory Council is the group that advises the Executive Committee. They handle many things on a routine basis such as they are the nominating committee of the association, they are the awards committee of the association. So these things are done routinely but there are a lot of other things done. One of the things that I did during that period of time with Sherm Wingard??? of the University of New Mexico was we rewrote the entire brochure on how awards should be given and changed the whole procedure for giving awards. One other thing that I didn't mention was, because of the work that I did on AAPG convention and my recommendations on it, we set up a new system for handling the conventions and I

wrote the entire brochure on how that was to be handled and was on the AAPG convention committee for a five year period after that. A job that I really didn't need. The other thing that I did with the AAPG, which was a great honour, was I was elected in 1976, 77 year as a Distinguished Lecturer and I talked in 35 universities and societies in Canada and the United States on locogins??? and megasheers???, the natural habitat for hydrocarbons and mineral deposits. I even remember the title, how do you like that. So those were the two associations I spent an awful lot of time with in my early days. Then I got involved with APEGGA the Association for Professional Engineers, Geologists and Geophysicists of Alberta and I spent an awful lot of time with them. I really got involved with them because I got into big arguments about the geologists in the affair and I got elected to a number of minor committees on that. One of them that was a major one was the Acts, Regulations and Bylaws Committee, which actually rewrote the law which became law in 1981. In 1975 I was elected a councilor for 3 years and served from '75-'78 and then in '81 I was elected 2nd Vice-President and in '82 I was elected first Vice-President and this year I am President of the association. I held a number of jobs with that, they're not really important. The most important was the Chairman of the Board of Education which is the liaison between government, university and industry. And one of the big things that we handled while I was chairman of the board of that was the idea of examinations. We were very worried about the poor qualifications of students entering university which actually are a disgrace. We get people even entering industry today that can't read and write and you can imagine what it's like when you get those kind of people entering university. So that I served on those committees and as I mentioned I'm still President of it. I mentioned earlier that I was one of the founding fathers of the Oil Scouts, it the oil scouts ever had a father and I served on the management advisory committee of that for a number of years. That was back in 1950 as I recollect that we actually started that. My memory is not 100% clear on that, I think it was 1950 and I think I was on

the management committee of that for several years after that. The only other person I can remember really clearly on that was George Dunlop of Sun Oil Company and George served on that at the same time I did. And we met. . . . and our main problem with it at that time was that there was no organization and we actually, as a management advisory committee, aided in drawing up an organization, regulations, how the thing would be run, which was a rather complicated affair. Other than that I have recently been elected to the Senate of the University of Calgary, I start on September 1st, 1983, that is for a three year period. And I have lectured to anybody that would sit still and listen, everybody from the Oil Field Technical Society to the Desk and Derrick, I've given four luncheon talks to the Canadian Society of Petroleum Geologists on a wide variety of subjects to be honest. I, like everybody else, I was involved in Cubs and Scouts when my kids were growing up and a new organization

I didn't know called the Junior Forest Wardens which I became very fond of. I don't even know whether they still exist but it was a very good organization. They took these kids that were pretty tough and we just dumped them out in the bush and made them find their own way and it was an excellent training ground for kids, much ahead of the Scouts because the Scouts have a habit of mothering their people but Junior Forest Wardens has never mothered anybody. The only other thing that I've done that I've considered was any significance was I was one of the visiting resource personnel of the Calgary School Board and the Separate School Board, I gave quite a number of lectures to them, just as a spin-off from them and I lectured to . . . we always say over 10,000 kids, the number is probably closer to 20,000 and that was over about a 6 year period. And I found that probably the most fascinating thing I ever did. The kids were highly enthusiastic about these talks and now that I'm retiring, that is the one thing that I am sure that I am going to pick up again. I'm going to go back to doing that. It's an amazing opportunity to get across to kids all the way from kindergarten right through to grade 12 what really goes on in the world and what the history of the world is.

And it's an opportunity that I feel that anybody that has any unusual background at all should be taking advantage of. And they'd certainly be welcome in the school system particularly now that their budgets are pared back and they don't have the ability to go on all the field trips that they used to go on, they are strapped for resource personnel to bring new ideas and new information into the classroom and so this is a very important affair and that's the one thing that I'm absolutely sure that I'm going to take up again.

#145 SB: Looking back over your career, are there any achievements that you feel were more significant than others to you or was it all sort of. . .?

JB: No. Getting married I guess was the most significant. I always laughingly say that if I hadn't got married, today I'd be a drunken field geologist. The two things I like best was field geology and coming into town and going out and having a party. When I got married I found that I couldn't be a field geologist because I was gone away from home too much. Certainly not the kind of field geology I was doing in South America and of course, that is all changed today, and I found out also that wives do not tolerate a lot of drinking and partying very much. So that was the most significant. And the thing that changed my career the most because at that point in time I got into management. It's really strange looking back. I'll always remember one story that probably was the most important thing that I learned in my life. When I came back I was in charge of so many facets of Pacific that I never handled before in my life and didn't really know very much about. And I read and read and read and picked the brains of dozens of people that were half way onto authority, we didn't have any authorities really in the oil business of Western Canada, it was really amazing how little we knew about the sub-surface geology or anything else of Western Canada, as witness the fact that when they hit the Leduc reef, they didn't know it was a reef. Everybody claims now that they did but I can guarantee you that when it was discovered. . .and I remember Ted Link was one of the first people to recognize it. He was still with Imperial Oil at that

time. And he was one of the first people to recognize it and he wrote a very important paper on regression and transgression and reefs. And it was sort of the benchmark for the study in Western Canada. We knew very little. And I remember when I came back my wife said to me, my gosh you don't know how to do any of those things, what are you going to do and I said, it's going to take them six months to find out that I don't know and by that time I will know. And that's pretty well been the history of my life. Whenever I had a job to do, I either did one of two things, I either went out and got somebody else to do the doggone job, in which case they worked for me and I got half the credit for it. You always boast about them, don't get me wrong, but regardless of that you still get the credit for having hired them if nothing else. Or I'd sit down and either study it up myself and that entails burning the midnight oil and I've done that a few hundred times in my life or getting an expert that really knew the subject and sitting down with him and talking it out and solving the problem jointly. However in the early days, everything was so doggone secretive, even log analysis was secretive. I remember we had a fellow called Fleming on our engineering staff that worked up an empirical solution to micro-logs. These were the first micro-logs that were run, I believe that I can honestly say that I ran the first micro-log in Western Canada and it was on a well in Redwater and I don't remember the well. And when he came out we oohed and aahed because we could see the [peros???] and we Fleming worked out a system by which we could determine empirically, quantitatively, within broad parameters the porosity on the logs and since the porosity was only somewhere between 3 and 5% on an average, even 10% difference in the calculation wasn't monumental in the overall calculation of the oil in place. So it was not that great. But I always remember Maurice Tixier. . . Maurice was a Frenchman, by strange coincidence when I moved to Houston my next door neighbour was Maurice Tixier, but anyway Maurice Tixier came up. . . I'd never met any of the top people from Slumberjay??? and he came over to our office to instruct us

and we showed him this, how we calculated this and he said, that is ridiculous, you just can't do that, this log is not designed for making calculations of a mathematical nature, it is strictly qualitative. And we said, hell we're doing it and he said, but it's strictly empirical, it doesn't follow. And I said, well you may not be able to go from Redwater to Leduc but you can sure find your way around Redwater using it and that's all we're interested in. So we were very innovative, we had to be because we didn't have any of the niceties of life. There wasn't all the stuff written up that there is today. And even today though, we're being innovative on new things. The work that we're doing right here in Prudco is something that five years ago we would have considered impossible in the interpretation. And we're looking at old fields and realizing that the geological interpretation that we put on those fields was entirely incorrect. And so we're just as innovative today, the difference is that we're not quite as primitive as we were then. We have a lot better tools and our logging is both quantitative and qualitative so that we can do an awful lot more than we ever did before. Seismic has improved so much in the last years. Largely due to computers, there isn't any real great technical change out in the field other than the computerization of it but at the same time this has been enough to revolutionize the business and then you get fellows like Roy Linsa??? and he has come up with means of interpreting the stratigraphy into the seismic. These things have really advance the science tremendously. So that we're dealing with a different affair today than we were before.

#209 SB: Well, I'd like to thank you very much for taking the time to participate in the program, I've enjoyed these sessions very much. And I hope that you will keep us in touch with whatever you get involved with next.

JB: Thank you.

64 Jack Browning

July 1983

Tape 3 Side 2