

PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: Bill Charles

INTERVIEWER: Nadine Mackenzie

DATE: October 1984

NM: This is Nadine Mackenzie speaking. I'm interviewing Mr. Bill Charles. Mr. Charles, thank you for having accepted to participate in our project. Can you tell me, when and where were you born?

BC: I was born in Los Angeles, California on May 11th, 1915.

NM: What did your parents do?

BC: My father was in many businesses but primarily started out in the mining business and was in the first radio business in California. He backed the first company to put on portable radios and auto radios and was working on television up until the time he passed away as far as getting it started. He was an entrepreneur essentially.

NM: Where were you educated?

BC: I was educated at the University of Southern California where I had an AB Degree in Geology with a minor in Petroleum Engineering in 1939.

#016 NM: Why did you choose geology?

BC: As I say my father was interested in mining and I got taken out and I got very fascinated with mining geology more than oil geology. And that's why I got interested in geology as a subject. At the time I took it in school I was told that it was probably the most useless subject I could take. I could take ballet if I wanted to take something that was less useful but there were no jobs available in the 30's.

NM: Did you have any summer jobs while at university?

BC: Yes. I worked up at. . . let's see, it was Carson City, Nevada. My father was promoting a big mine up at a place called Como???, that's near Dayton, Nevada and Carson City, Nevada and I worked in the summer driving a small pick-up truck, a number of summers in the 30's.

NM: And after university what did you do?

BC: I went to work immediately for a mining company in Nevada. It was the largest silver mine out of Silver Peak, Nevada and I had the delightful job of pushing ore carts around on the underground. And then when an individual in the mill lost a finger or an arm in the some of the machinery I was given a choice job of running the crushing, the primary crushing in the mine.

#035 NM: And how long did you keep this job for?

BC: Just as short as possible. I finally got out of that in about 4 months and I was offered a job as a roustabout with Belleridge Oil??? and that is a small independent oil company in California that was in existence since the early 1900's. And I had a chance to work as a

very junior geologist or engineer with them and recently, the last two years, Belleridge Oil was sold to the great Shell Oil Company for 3.2 billion dollars. It proved to be a little larger than I'm saying. It was an interesting oil company right there in California. From Belleridge Oil the war hit. . .oh, yes, the war hit in Dec. 7th, 1941 and I was married shortly thereafter and joined the Navy as an ensign and took my training at Notre Dame University in Indiana. And they make you a Navy officer in 6 weeks, it's very quick. Then I was sent from there to the Mair??? Island Navy yard and was supposed to be an expert on construction of submarines, naval tenders and destroyer escort boats. My career in the Navy was essentially in the navy yard and I stayed there until the end of the war. After that I returned to Belleridge Oil and I worked for Belleridge for about 2 years. And then I had an opportunity of going with Mr. Getty's outfit, that's J. Paul Getty and it was called Pacific Western Oil Corporation and I worked in California on a number of wells and proposals around Bakersfield, California. Then I was set to Wyoming in 1949 and 50, I spent down around Casper, Wyoming where we were developing a new oil field out near Thermopolis???. After returning to California, after my sojourn in Wyoming, I was informed one Friday afternoon that I would be going to Canada on Monday so please pack quickly. In the meantime I must say in my experience there, I had a divorce at that time so I was really looking forward to a change of climate. I came up and there I met Edith. . .

#075 NM: Which part of Canada was it, was it Alberta?

BC: Calgary. I came up on a DC-3 and landed here and I was told that we were to close down all Mr. Getty's operation up here because he had a new possibility of going into Saudi Arabia. He had made a big arrangement there and so I was sent up to fulfill the last obligations. It's kind of interesting, Pacific Western was made up of 3 companies, it was made up of as I say, Mr. Getty's own company Pacific Western, it was made up partly of Tidewater Associated Oil and it was also made up of Skelly Oil???, I think it was 1/3, 1/3, 1/3.

NM: So it was a very big organization?

BC: It was the tiniest organization you ever saw.

NM: But how come, they had so many of . . .

BC: Well, Edith was the manager of the entire operation when I arrived and it had been much larger, initially it had come in and joined Dr. Ted Link and the others in this big Bear Oil. . . you've heard of Bear Oil and they drilled many, many wells and they were conveniently located close to transportation. That was one thing that was required by Ted Link, that they drop off the well near a railroad, near a road, near something. Access was very important at that time. But anyway it proved to be not too successful but it was early exploration. So we drilled several wells when I was here under Pacific Western and the I was sent back to California. At that time was told that I would be promptly going to Arabia because they were through with the operation in Canada as far as they were concerned, they were not increasing it.

#103 NM: Which year was this?

BC: This was in 1951 and 1952. From then I was offered a job as Chief Geologist for a little company called Central Leduc Oils and Del Rio Producers which subsequently was merged in and is now part of Pan Canadian Oil. It was a very small organization, there's where Don Redman??? and I grew to know each other. Neil McQueen??? was the President, a geologist who had worked with Ted Link in the very earliest days, 1920 as a very young man, had gone up to Norman Wells and had many experiences. He was a remarkable man, Neil McQueen, he was very much an entrepreneur and had been in both mining and oil. His father had been a Vice-President of Imperial Oil so he had that background. And then there was Mr. Arthur Mewburn??? who you may or may not know. He's related to the family that has the Mewburn Hospital in Edmonton and he was the land expert. Art Mewburn guided the company on acquisition of potential oil land for Central Leduc. And what he did was, in those days you could acquire vast tracks of land from the railroad, for instance you could get CPR land for about 7 ½ cents a year, I think was the total rent on it. And acquire these vast tracks of land and that's when Central Leduc did acquire, not only from CPR but the Crown, a tremendous, what we call land spread. They had land, they had a huge land spread in Saskatchewan and this was where the big Weyburn oil field was found and they farmed originally it was 200,000 acres out to Mobil Oil and Mobil had drilled 7 wells on this 200,000 acres and had found one well called Ratcliffe??? #1. They were just about ready to give it up when Mr. McQueen came in and said, they've drilled 7 wells and we better try a well or two ourselves, so I had the opportunity of locating the first 3 wells on the Weyburn oil field. And the Weyburn field was most unique. It produces an awful lot of water but it produces oil with it. So we had that going and at the same time or just before that really, for 3 summers we had this very interesting well being drilled up in the northeast B.C. called Toad River Joint Venture. And Toad River Joint Venture was a big project and I'm sure you've probably heard before about that. It was formed by Central and U.S. Smelting and a number of small companies. We had to go in by barge and helicopter, we used everything to get in there, and this was in 1952, 53, and 54. We only drilled the well during the summer. I had a very interesting Turkish geologist helping me and his name was Ed Chettens??? and he was up on the well and I was up on the well. It was a camp job right on the big river and it was a picturesque place. In the fall they had great problems with grizzly bears and lots of wild life in there. At that time we didn't have as good communications as they do today. They didn't have roads so we had to use the rivers as roads. We went in using the famous Streeper??? Brothers barges to bring in the rig. . .in fact I think today the rig is still there. It was a rig that came from Leduc and had to be constructed. Most rigs today are portable and can be lifted and lowered and go up and down.

#175 NM: Could you tell me a bit more about this Turkish geologist, why did he come to Canada?

BC: It's very interesting about Ed Chettens. Ed Chettens was one of a number of Turkish high school students that were on an exchange basis taken to North American, either to Canada or the United States and educated in the universities. Now they had come over and they knew no English and they had to learn English and achieve all the things with a

strange language and higher education. While he was here, Ed Chettens married a very charming girl from North Dakota, Helen. The way I met Ed was the fact that I knew another Turkish geologist. When I had gotten up here and was working with a number . . . well, even in the days of Pacific Western, we were using geophysical companies, and Pete Bediz who is still here in town is a Turkish geologist, or no, he's a geophysicist. Through him, there is a big Turkish community here in town really, it's quite interesting. And that's how I . . . I told Pete that I desperately needed a geologist and he said, there's one coming in from Ankora??? today by plane so we practically met him on the plane and he was immediately taken up to Toad River and he stayed with Central for long after I left there and then became a Vice-President of the current Sulpetro and he is still a consultant to Sulpetro and is currently living I believe in Houston. The interesting thing about Central was, while Toad River was going on I was watching what was going on in the Weyburn area under Mobil before the Weyburn field was found because we were following and for a small company with about 2 geologists, that was quite an extent because you were going from one end of Saskatchewan way down there at Estevan and going way up to Fort Nelson up in British Columbia. And then in between we had a number of wells in the old Armena field, Viking wells there and we had these huge land spreads that were constantly being activated by farm outs and essentially what we were doing was promoting a number of projects. Quite successfully though. I stayed with Central until 1956 and my down fall with Central was the fact that when I was asked to write up the story of the Weyburn field I said to Mr. McQueen that we had 33 million barrels of oil in place there. He said, there couldn't possibly be that much oil. Well currently, in the last statistics I read it has produced way over 300 million which is a major, major field and one interesting thing I should mention about Central Leduc was a geologist that influenced us a great deal, a man by the name of Mr. Sam Marshall. He was from Mew Mexico and proved to be an old friend of my brother and Sam had worked for J. Paul Getty in California and had put Pacific Western in it's very infancy together for Getty and then he had joined as an independent and joined a man, it was Marshall and Winston out of Minneapolis and then he became a very close friend of Neil McQueen and he came up and he helped immeasurably on the initial finding of the Weyburn field. He showed how. . . , he was using the very early concepts of all the art of geology that you could on the knowledge that was available at the time. So I give Sam Marshall a great deal of credit for his enthusiasm for that area. They as I say, from Central I had an opportunity to go over and I became the Chief Geologist for White Rose or Canadian Oils. This was the largest Canadian integrated oil company in Canada at the time. It had over 3,500 gas stations, it had refining possibilities down in Sarnia and then had recently acquired an old Canadian company called Anglo-Canadian and that's when I met Mr. J. B. Webb, Jack Webb who is probably one of the most. . . well, he passed away here a few years ago but he is probably one of the most outstanding geologists that Canada's had in recent times.

#265 NM: Where were the headquarters of this company?

BC: Toronto.

NM: So did you move to Toronto?

BC: No. They decided that they would have their headquarters right here in Calgary. As I say, they had acquired Anglo-Canadian so they had a ready built staff and continued operations. Then we were given a very substantial sum for drilling and with a staff of about 7 geologists besides Mr. Webb and myself we had very aggressive programs. At that time we had an opportunity of going back into Saskatchewan and we acquired a huge farmout from Canadian Superior and one of the things that I wanted them to get in was further drilling in the Weyburn field. As I mentioned earlier one of the problems with Central Leduc was the vast quantities of water we were producing with the oil and we got back and we really hit the heart of the oil field when we drilled on this Canadian Superior farmout. It was a great, very exciting time. We really opened up that huge oil field. The one limiting factor with Canadian Oils was the fact that you couldn't acquire very much land, they didn't have a budget for land but they had all kinds of money for drilling. So you'd have to earn your land by drilling and of course, you don't earn a lot of land frequently. That was one of the problems but we went in and as I say, we had a very successful period there. The next thing that occurred almost simultaneously after being with Canadian Oils was the discovery of the Innisfail oil field. It's about a 60 million barrel field and it was acquired by a farm in from Hudson Bay. Then we discovered, that was a D3, that was a Leduc reef field. And then we went up into Joffrey and were looking for Leduc type fields and ended up with what we call a niscue or it's a blanket type of oil field and we found, in addition to that, over in Saskatchewan we went ahead and we found little fields like, Pinto and Benson and a number of them. It just seemed like 1956 - 57 in there. . . .

End of tape.

Tape 1 Side 2

BC: Now we were mentioning all these different fields that we found. Canadian Oils was probably one of the most unique companies as I said before in all of western Canada because it was such a, well as I say, a very strong company and was very successful and we were just booming along with our exploration and we had a very fine. . . Dr. Kenneth West was the head of refining and he was doing innovations on a number of methods of producing gasoline and oil from this Weyburn crude which was sort of a drug on the market at that time because it had a fairly high sulphur content. They revamped their Sarnia big refinery to accommodate the Weyburn crude and they also acquired a long term contract to get the crude there at a very favourable price. That was one interesting phase in Canadian Oils. Canadian Oils decided that they would be very interested in the Arctic, so we had opportunities to acquire acreage up there and we used Dr. Cam Sproule and I made several trips to the Arctic when we were acquiring permits. This was before Pan Arctic and before a lot of those, in the very early stages. We drilled wells all over the country including down in Ontario, we had an opportunity there. I had a very fine geologist that was from Ontario, George Robertson and he was very helpful in locating a number of interesting prospects in Ontario as well as he was primarily interested in the exploration of all the prospects in Alberta and northeast B.C. He initiated the first work up in the Rainbow area. You see, after Canadian Oils again, was attacked by a large major, Shell Oil, shell seems to be my Waterloo . . . anyway they bought Canadian Oils out from under everybody and of course, all the exploration staff was immediately let out. They kept the refinery, they kept the distributing, they were interested only in the gas stations, the 3,500 gas stations. But we were initiating, at that time, we had drilled about 3 wells up in the Rainbow area prior to the discovery. My Chief Geologist at that time, went over to Banff Oils, that's Ronald White, and Ron White worked along with John Rudolph at Banff and they reactivated what shell had completely thrown out, which was Rainbow. And of course, it's a well known story about the discovery of Rainbow field but it was really done through the efforts of George Robertson and Ronald White and those ??? Canadian Oils. Now, one of the interesting things at Canadian Oils was the fact that while we were doing this work up at Rainbow, it was part of a very large program which we called the 4 way group. The 4 way group consisted of Canadian Superior, the Calgary and Edmonton Corporation and Canadian Fina??? and Canadian Oils. And Canadian Oils, many times would initiate new areas for exploration and one of the new areas was the rainbow area. That's how Dr. Risterbich??? became acquainted with the Rainbow area is through that 4 way group which Mr. Robertson gave a special talk on. And proposed. . . and as I say, we drilled at least 3 wells up there before the great Shell Oil company wiped us out in one fell swoop. After Shell Oil took over Canadian Oils I went as a consultant, I became a consultant and I consulted for a number of small companies, Charter Oils and that was Mr. Paul Berlitz??? and Spruce Oils, that was Matt Newell??? and Beta Resources, that was Mr. Glick??? and Mr. Pezam??? and then we also. . . George Robertson was also out on his own so we formed a small company called TNR. Consultants. We worked together on a number of projects. We called our company

the . . what was the name of that thing, Trans Northern Resources. Trans Northern Resources drilled very few wells, our financing didn't go too well. But we drilled a well down here in southern Alberta that was a dry hole, it had gas but it had water with it. We were already poised to drill a well in Saskatchewan and had spudded it in but we didn't have enough money to finish it. It was subsequently finished and was an oil well. We also filed on, I think it was 3/4 of a million acres up in the Beaufort Sea and right along the Delta area there. That was merged into Mr. Pezam's Beta Resources, which was subsequently sold for a million dollars cash after the famous Imperial Oil discovery up there in the Delta, the first oil discovery.

#089 Then I had an opportunity in 1967 to go as a special projects geologist for Murphy Oil Company. Now Murphy Oil Company is a small, well not too small but it's an independent company out of Arkansas. Very shortly after I got there, Mr. Kirby who was the Vice-President of Exploration was moved out of that position and I was made the Chief Geologist for Murphy Oil. Murphy was interested in a number of interesting projects and then I convinced George Robertson to join us and he joined Murphy and we drilled a well in places like Cape Breton Island and we acquired quite a large spread of Arctic acreage through my old friend Jack Webb, who had subsequently gone to another small company. We drilled wells in Alberta, Saskatchewan, British Columbia and we were working away on a number of interesting projects. Murphy Oil of course, was hit when the National Energy Program came and withdrew because it was a foreign company. I left Murphy in 1971 and went. . . in '72 I was back consulting and we formed a small company in California called Canadian Kern??? Oil and had a geologist out there, Mr. Brooks in Bakersfield and we drilled a well which was unsuccessful. Then I came back and I went into doing more field work in Canada, I was working with Sulpetro and Permagine??? and number of small companies and finally I, in 1975, had an opportunity to go to England where I went for Candeca??? and Great Basins. And went over and had the opportunity of going through all of British Petroleums on wells drilled in England. They'd never allowed a foreigner to go through their files. Their files were kept up in midlands, up near Neegreen???

#128 NM: So it was top secret? So how come you were successful in having a look at it?

BC: Because British Petroleums were made a partner with Candeca and a whole group of small companies, Great Basins included. They were trying to work out a program for doing more drilling and we proposed a 10 well drilling program and really, the politics and the environmental problems and everything over there just shut the program down. However the English financiers took over all of the Canadian interests. All Canadian interests made a great deal of money on just land, just because they acquired it. But in the meantime we had all this information on all their wells and some of them were absolutely fascinating. We never considered England as having any oil at all. That was one little interesting sideline and project that. . .

NM: How long did you stay in England?

BC: We stayed 8 months and then came back. Then essentially what I've been doing is consulting work since then.

#145 NM: Mr. Charles, can you tell me about your professional affiliations?

BC: I'm a registered professional geologist in the province of Alberta, I'm a registered petroleum engineer in the state of California. I belong to the American Association of Mining and Metallurgical Engineers particularly the petroleum section and of course, the Alberta Society, well it was the Alberta Society, the Canadian Society of Petroleum Geologists. I have had temporary association with the provinces of both Saskatchewan and British Columbia. I guess those are the main ones.

NM: What about your publications?

BC: Well, I haven't published very much. I was looking up in my notes, I was going to have a long paper on the Weyburn field and for some reason something stopped that. I have all the notes on it. The only publication I guess, that I have, I collaborated with Mr. White on a paper on the Innisfail oil field.

#161 NM: Could you compare the training of oil people in your time to what it is nowadays?

BC: Well, I think the thing in my time was the fact that you had an opportunity to learn all phases of the oil industry, whereas now they are very closely niched into. . . either you're a stratigrapher or a structural geologist or a particular type of paleontologist and I think we had a more general approach to geology. I think that was very good. I think we had a real opportunity to excel in all phases of geology instead of just one.

NM: And you were also maybe, doing more field work, were you not?

BC: Yes, I think there was more field work done. More actual physical walking around and finding out what the terrain was like, compared to today. Now we're using satellite maps and all sorts of . . .

NM: New technology.

BC: Yes, new technology.

#179 NM: You have been a witness to the ups and downs of the oil business, what do you think of that?

BC: I can tell you, I started in the down. I can tell you one company which . . . when I applied for a job with Mobil Oil, which was called General Petroleum in California, they said, oh you've just graduated in geology, well we have to have people with Masters' degree to wash our samples. From then on I had a very low regard for the large major oil companies. I always found the smaller companies gave you more scope, more opportunity, more freedom and frankly more pleasure in working. The big companies, to my mind are just like working for the post office or shall we say the railroads or any huge corporation. I think you get lost in them. You can't express your own individuality.

NM: But the oil industry seems to be like a yo-yo, it's up and down, it cycles.

BC: Oh, the ups and down, that was a down when I was there. And then I've been approached by major companies like Cal Standard and those that wanted me to come, after I'd been working for Belleridge Oil in the early days, to work as a junior engineer. It was fascinating how sometimes geologists could almost write their own ticket. But I think that's true in many professions. I have a great many friends in the movie industry and they say ups and down are just normal things there. Either you're making a wonderful TV

series or you're starving. I feel it's just part of the experience. It is not an even going thing because as we know, for many, many years, up until the great 1972 oil upgrade of the price, was controlled by the seven sisters or the very large companies. And then when governments got into it, they even made it worse so we're seeing the results of that right now.

#215 NM: That's what I wanted to ask you, what do you think of the National Energy Program?

BC: I think the National Energy Program started in my lifetime particularly, when the great Shell Oil Company took over Canadian Oils, because what they did, deliberately and with no feeling and no consideration for the personnel, took over a totally Canadian company, wiped it out and merged it into their vast system. If they had left it alone and allowed it to compete I don't think we would have Petro Canada today. All we have today, as you know, what happened was, actually the government encouraged all the Canadian companies to expand and you see what happened, Dome, Sulpetro, all the different Canadian companies, what happened was, they over expanded and they're all in financial trouble.

NM: They are so big.

BC: And they're so big right.

#233 NM: So how do you foresee the future of the oil industry in Canada?

BC: I foresee the oil industry in Canada in a very interesting way. I have been a great advocate, I didn't say this in my earlier interview but, I feel that heavy oil is going to be the lifeblood of the oil industry in Canada because heavy oil in California went through almost the same phases. What I meant was, on the initial stages of the oil industry, you can only pump a very small amount of heavy oil out by conventional ways but now they've got these new sophisticated fire floods and steam floods and all types of secondary recovery have made the feasibility of producing oil very possible. And I'm not speaking of the mining methods, like Syncrude and those because of course, they're labour intensive. The oil industry is not labour intensive and that's why it makes it a complete victim of the tax system. If it were heavily labour intensive just like. . .the only industry that seems to escape from that is the hydro-electric industry. We never see Hydro Quebec or Hydro Ontario being taxed the way the oil industry is and yet they're energy industries.

#261 NM: Can you comment on the contribution of Alberta on the development of the Canadian oil industry?

BC: Well, the marvelous thing about the Alberta oil industry is the fact that it has done an extremely good job of regulating the drilling and as a geologist, the preservation of all the cores and the material that is found in the drilling of wells. Whereas in places like I've been before, in Wyoming or California, cores are taken out and dumped. And even in England where you'd think they'd preserve everything, they do not preserve the core data. Here it's just like a library and then they have systems of keeping their well data and they

probably have. . .

NM: Why don't they preserve that in England?

BC: I can't. . . well, they don't have the storage they said.

NM: They could make a place.

BC: Oh yes. They just feel it's unnecessary.

NM: That's a pity.

BC: Yes, it is because the coal board is doing it you see.

#281 NM: And what is your opinion on nationalized oil industries, I'm speaking of Petro-Canada for example?

BC: Petro Canada has shown it's ability to be innovative in so many ways, inefficiency and lack of expression of individuals, I'm speaking of geology. I don't imagine a person could ever initiate anything with Petro Canada unless you were a strong politician. I feel that private enterprise and the tax system they have, they don't need Petro Canada.

NM: They have a beautiful building downtown now.

BC: I know they do. But I still say, they're still looked on as something that shouldn't be. I feel that if they had just encouraged the Canadian companies or given them a reasonable break in the earlier days that. . .and I feel multi-nationals probably pulled it. They probably did more damage than anything.

NM: So are you against government intervention in the oil industry?

BC: I feel the government is so inept in managing anything as complex as the oil industry. I feel that they have to have laws, they have to have regulation but to the extent that they've gone in some instances, it's been absurd. And it's made it very difficult. I think England is the best example of complete government control and you can't own a private lease in England, there's no such thing. And only some Duke of somebody has a small thing that was left over from Queen Victoria's time.

NM: Even so, sometimes they have to sell it or rent it.

End of tape.

Tape 2 Side 1

NM: Mr. Charles, who were the most influential persons in your career?

BC: I think probably one of the most influential people was my college professor, Dr. Thomas Clements???, he was head of the geological department of the University of Southern California. And as I mentioned before, Mr. Sam Marshall, Mr. Webb and I feel, even today my friend George Robertson's very influential in lots of things. Those were the three.

NM: What were the most exciting experiences in your career?

BC: One was down in Wyoming when I discovered a new oil zone and the other of course, was finding the Weyburn oil field. I think those were the two most exciting ones. They finding of that huge mammoth Weyburn oil field. . . . Of course, I must tell you that in time magazine, Shell Oil claimed that they found Weyburn oil field 10 years later. They had discovered the Midale??? oil field which was 10 miles away. But I don't think when you find something 10 miles away, you can claim that that's the same oil field and it isn't. They aren't connected.

#021 NM: What do you consider your achievements?

BC: Now that's a difficult question isn't it. That's a real tough one. Oh, doubling the oil reserves for Canadian Oils was a helpful achievement, we did double our reserves. I think the satisfaction, you know my father always told me, when you discover a gold mine, a silver mine, an oil well or anything of that nature, you are not taking away from anybody, you're creating wealth that wasn't there before. You're not a salesman that takes something and makes it into a different thing and then upgrades it and sells it for more than what you paid for it. You're actually just creating something that came out of the earth and he felt it was the most satisfying thing in the world, to create wealth by finding things. I think that's one of the most interesting things.

#034 NM: Looking back at your career, what do you think of it?

BC: I thoroughly enjoyed it. It's one of those lucky things. I always thought the worst thing to be would be to work in a bank and do sums all day. I thought that would be the worst because accounting was not one of my great fortes.

NM: You are semi-retired now. Do you have any plans for full retirement?

BC: A geologist never retires. They just slow down a bit.

NM: Before I ask you the last question, is there anything else you want to talk about or anything I've forgotten to ask you.

BC: No, I don't think so.

NM: So the last question is, on the whole, what do you think of the oil industry?

BC: I think it's a fascinating industry. The advantages of the oil industry over the mining industry are insurmountable because physically you're working above ground, you're not being lowered down and going under and physically. . . it's a mental gymnastics. . . I thoroughly enjoy it.

NM: So you would recommend it?

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Tape 2 Side 1

BC: Yes.

NM: Thank you very much for this very interesting interview Mr. Charles.