

PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: E. W. Best

INTERVIEWER: David Finch

DATE: May 29, 2001

DF: Today is the May 29, in the year 2001 and we are with Mr. E. W. or Ted Best, at 116 Roxboro Rd. S.W. in Calgary. My name is David Finch. So nice to see you.

TB: It's good seeing you.

DF: So tell me, start right at the beginning, when and where were you born?

TB: I was born in a place that's no longer there, Walkerville, Ontario, which is now a part of Windsor, Ontario in 1927.

DF: And what were your parents doing there?

TB: That's kind of something I'm proud of. My dad came to Canada as an orphan, he was part of the group that were sent out before the First World War as orphans to Canada, mostly as labour. So he and his brother, they were 12 and 14, came out on their own to Canada and they were put on farms in southwest Ontario and my dad was put on a farm, he was treated more like a son than a labourer while his brother was treated as a labourer. Both my uncle and my dad went into the army at 15 and 17 and both survived the First World War, three years of trench warfare. And my dad lived to 90 so I felt he had a great life of which I'm very proud.

DF: Wow. Any stories from that trench time period.

TB: One of the interesting things, I was just talking to someone else last week about this, they never really wanted to talk about the First World War. People will talk about the Second World War but people that were in the First World War, it was so horrific I think that they never wanted to talk about it. So he'd only talk about being hungry all

the time and the rats and that but he didn't like to talk about it, all his life he refused to talk about the First World War. Then in the Second World War he was in the reserves so he had a long interesting life. The part I remember most about him was he probably had a Grade 3 or Grade 4 education but he was an educated man. Every Saturday he and I went down to the Carnegie Library in Windsor, Ontario and got his supply of books for the next week for both him and I. so he became a well read man even though he only had a Grade 3 or Grade 4 education.

#025 DF: What was his name?

TB: Bill Best.

DF: Okay. Now tell us about your education.

TB: I grew up in Windsor, Ontario, which is really a car manufacturing city so it kind of exposed you to what the real world was like, it was a fairly tough city. But I was very fortunate in that I finished high school just the year the war finished in June 1945 so I went off to the University of Western Ontario and there took geology.

DF: Why?

TB: I suppose in high school I was mostly interested in math more than anything else, and I went to Western the first year of course, all the vets were there as well and I was most interested in maths and physics and here all the vets came back and had been working with radar and things like that for 3 or 4 years and I thought, why am I trying to catch up to them. Secondly I thought of it as being mostly teaching high school and I didn't really want to do that. The other one I really I suppose, wanted to do was go into medical school and I thought, my gosh 7 years of university would be too long so I backed into geology. It wasn't a very sophisticated reason but it worked out well.

DF: Now that wasn't petroleum geology though was it?

TB: No, in those day, particularly in eastern Canada it was mostly what we called hard rock geology, getting people ready for the mining industry. Though what had happened was in the summer I had worked for the Newfoundland Geological Survey while it was still a separate country, a year before Confederation.

#045 DF: How did that come about?

TB: Nobody else wanted the job. They paid \$125 a month and you paid your own way to Newfoundland. So that was the first month, I think it was \$125 to pay for the round trip so there weren't very many takers for that. But I wanted to get some experience so I worked out of Newfoundland doing field work that summer.

DF: What did you do on that field work?

TB: I worked on the south coast, we were really looking for fluorite deposits then. It's a flux for aluminum smelting and they'd had one mine in Newfoundland and were looking for another one. So it was a great summer in a different part of the world in those days. That gave me a leg up in having a years field experience so then for the summer of 1948, still a student I was hired by Imperial Oil and came out to Alberta and did work, mostly canoeing down the Saskatchewan and Pembina and some of the big rivers, so that was a great experience for me and that's when I got interested really in the sedimentary side of petroleum. So next summer, the year I graduated I came out, with Imperial Oil again, and worked up in the Peace River country, but instead of starting to work permanently I went to graduate school then. I went to the University of Wisconsin in Madison and ended up getting my PhD there. So this was one of the interesting ones, in 1949 Imperial offered me a permanent job for \$300 a month and I went to grad school for 3 1/2 years and in January 1953 they offered me a job again, for \$300 a month. So Imperial wasn't overly enthused about people who had gone to grad school. But it was a really important part of my life because it really gave me a broader spectrum of geology than what just coming out with a Bachelors degree, in those days anyway. So I had worked, my thesis, it was really on reefs which of course, was an important part of western Canada then. So grad school gave me kind of a broader look I think than what I would have had if I hadn't gone on to grad school.

#073 DF: Can you tell us about that summer you were working canoeing down the

rivers, what kind of work were you doing?

TB: It's quite an interesting one. After Imperial had found Leduc they then did the surface mapping to see if they could find a Leduc oil field by surface mapping. They did very detailed mapping over the field and were able to see the drape of the shallow features, coal beds primarily, over the Leduc field. So then, the summers of '48 and '49 was the idea to go and try to map, see if they could go and see any other fields like Leduc by a very inexpensive method of surface geology. What happened of course, is they were doing that in great detail, large scale maps and that but when we went down the rivers we were really doing it in a reconnaissance fashion so they didn't really apply the lesson as well as they should have. But it made for interesting work. The trouble is along the rivers you get a lot of slumps, that type of thing, so it's not a very good method of structural mapping really. But it was a fun way of doing geology so that we went over a lot of oil fields and we never noticed any of them. Then the following summer we still did some canoeing up in the Peace River but then did also by horse and that, so I wouldn't call them great geological experiences but they were great exploration experiences. Went back into the Swan Hills and all of those really quite accessible parts of the country that are now of course, got good highways and lots of oil fields and all the rest of it. But they were quite isolated parts of the country in those days. We worked north of Lesser Slave Lake and really could only get around by canoe.

#093 DF: So how did you come to have a full time job then?

TB: I graduated in January of 1953 from Wisconsin and I came to work for the Ohio Oil Company, which is today the Marathon Oil company. They were very active in Saskatchewan but I was working in Alberta and they really weren't investing much in Alberta so I didn't find it a very appealing job and I left them after two years and went to work then for Triad Oil Company, which was then owned 65% by Anglo

Iranian Oil company, which is today of course, BP. So my major career then really was with Triad and its successor company, BP.

DF: So tell us about what you did with BP then.

TB: BP, in the early 50's had major oil fields in the Middle East. Kuwait, they owned 50% of the Kuwait fields and were in fact, the major owners before the revolution in Iran, they had all the Iranian oil fields. In those early days in the 50's they had about 25% of the world's oil reserves. But they were rather restricted as to where else they could operate because they were such big players in the Middle East. When they started losing their Middle East production is when they came into Canada and other countries. So they were a relatively late arrival, relative to other oil companies, such as Imperial and Texaco and Chevron so much of the acreage was already tied up. When they came to Calgary they looked out the windows and when they see mountains to the west and it's kind of a duplicate of the Zagros Mountains in Iran so they were primarily interested in the structural belt, the foothills belt. Of course, Turner oil field had been found in the 30's, so they had found oil in the foothills and it was the one area in Alberta that wasn't being heavily explored by the companies that had been here previously. So their major thrust, starting in the mid 50's was in the foothills. So once again, I did a lot of field work. I'd been doing field work back in the 40's and did field work in my graduate work as well so I really did work in the foothills and I was primarily doing it in the mountains, doing the stratigraphy of the mountains. I started off doing it by horse and of course, we made the big transition in '57 or '58 into helicopters so we made the first big technology jump from horses to helicopters.

#131 DF: That was a big leap wasn't it?

TB: Yes, it was kind of a fantastic leap.

DF: Did you find anything in the foothills?

TB: Well, we were really just getting basic geology. We were there to try to find out

better where the reservoirs would be in the foothills, it was related to the foothills work in there. So it was kind of doing basic geology rather than you might say, directly looking for oil and gas. What happened of course, was that all of the fields that were found turned out to be gas rather than oil, after Turner Valley. So that we made some early gas discoveries in the foothills but gas in those days was almost considered to be useless. What you could sell was about 11 cents a thousand cubic feet. Of course, this year we were selling gas at 18, 19 dollars a thousand cubic feet. There wasn't a big demand, nor a very big price for it but we found in the central foothills several gas discoveries that are still being produced today, Lovett River, Stolberg all of those gas fields. I spent probably the first 5 years with Triad, doing surface geology and then in the winter time doing structural work on the seismic that we were doing in the central foothills area.

DF: So you were doing seismic by this point?

TB: Yes. We were doing a lot of seismic work. I suppose the interesting one about that, Triad was owned as I say 65% by BP. What happened was a lot of the people that came out were secondments from BP and from the Middle East so we really worked primarily in the structural belt. Then we moved north into the B.C. foothills, Monkman area. In those days there weren't even surface maps of the Monkman area, we had to make our own geological maps, do our own topographic maps, and did the first seismic work in that B.C. foothills which has turned out to be one of the big gas areas of western Canada now. So we were really the pioneers in that area.

#164 DF: So how did geology change over the time that you were in the business?

TB: That's a good question. Of course, all my education was before the big change had taken place in understanding the crustal movements and secondly what it was, there wasn't a lot of work being done on modern sedimentation and trying to apply it to geology. Then of course, I'd say, thirdly there wasn't the information today in the form

that we have it today. In some ways my education was in the old classical geology before the revolution that started taking place in the 50's, 60's, then again in the 80's and 90's. In those days we were doing relatively simple geology but we were also in the time when the big discoveries could be made. In some ways relatively easy to find as well, it didn't take the real skill and integrated approaches of today.

DF: How did you develop your skills then, during this period?

TB: I guess one of the main things which I learned at school, I think I learned it at graduate school and that was, it was important to read the literature and we didn't in those early days, have a lot of opportunity for courses. Today you have kind of a multitude of courses offered by societies and individuals, we didn't in those days so we had to rely very much on reading the literature. The American Association of Petroleum Geologists Bulletin was an important one and then the ASPG, the Alberta Society of Petroleum Geologists and the CSPG played an important role by starting to publish material primarily on western Canada. And then having the field trips that were run throughout western Canada and the publication of those guide books. So it was more through reading and going to the lectures and meetings that we had, local meetings or being able to go to a national AAPG meeting.

DF: One of the people that was writing about early petroleum geology was Ted Link, did you ever meet him?

TB: Actually Ted Link hired me when I was an undergraduate at Western Ontario.

DF: Do you remember the day he hired you, is there a story there?

TB: The reason I got hired of course, was I was one of the few people that had a little bit of field work and Ted Link was a person who had done field work, all the way up to Norman Wells so the fact that I went out to Newfoundland and paid my own way to get out there and do field work, I think probably was the reason I got hired by Imperial Oil. But then I got to know Ted Link later on, primarily through friendship with Link, Downing and Cook, they had in that day and I knew Don Cook and John Downing

and Ted Link, we used to go hunting now and again. So he's a great character of course. Link's were more than just Ted Link, there was also his brother from Chicago who was the great one for hiking around Lake O'Hara and really opened up, Lake O'Hara was one of the great hiking spots of western Canada. Then he had another brother that was a biochemist at Wisconsin who developed the rat poison Warfin, which is the Wisconsin Research Foundation is its name. What it was, was they were having trouble with cattle dying in Ontario and the brother found what it was, was in hay that was mildewed, being too damp. And it was dichomeral was what it was and dichomeral is of course, a blood thinner that is used for people when they are trying to prevent clotting and then he took that a step further and made it into a rat poison and the rats died of internal bleeding and they were hungry all the time so they kept on eating more and more rat poison. So the brothers, they're all outstanding people themselves. And then the one other, Walter Link, the fourth brother was the Chief Geologist for Standard of New Jersey. So they had four brothers, two of them geologists and a biochemist and a medical doctor, the family was quite something. I went to school with Walter Link's son and daughter, who were both geologists as well so they have a long tradition there, they were at Wisconsin when I was there.

#234 DF: Any stories about Ted Link, he was quite a character wasn't he?

TB: I'm trying to think of some I can tell. No, none that I want to tell anyway. He was so full of life and vigour as well as intellectual capabilities, an amazing man really.

DF: Were you part of any significant discoveries during your career?

TB: Let me put it differently if I could. Companies work through a group of people, it's hard to pick out individual ones, so I always think what we did at Triad was what was done as a group rather than individuals. As I say, it was the foothills gas, I would say, Shell and Triad were the two leaders in the foothills that are still producing gas yet. The most important discovery for Triad in the early 60's was the Edson gas field,

where there's about 2 1/2 trillion cubic feet of gas. That was a discovery that was two wells drilled simultaneously, one by Triad and Hudson's Bay and the other one by Hamilton brothers that found that field, which was, you know, it would be nice to find 2 trillion cubic feet today. That really started giving Triad the kind of cash flow it needed to keep on going.

DF: How was that field found, geology?

TB: That was plain subsurface geology. The fellow that played a key role in it was Al Bahan and it was just mapping the erosional edge of the Turner Valley carbonate formation. Further back to the west it was present with water in and to the east it was eroded off, so it was, call it simple but lots of people try to find things like that and Al Bahan was the one that really mapped that erosional edge of the Turner Valley that we then got acreage on and drilled. I should say what happened was fairly early in my career, I guess it was about 1958 or so, I became the Chief Geologist of Triad and then Exploration Manager in the 60's. So it was a group of people that I don't want to take any claim for, it was really the group that was doing it. The other one on the exploration really was the B.C. foothills area, Monkman gas, which was an important one, the central foothills gas area. So really a lot of ours was gas. In the 60's the other play that we were involved in was really the Beaverhill Lake reef play. There, in some ways, it was kind of, we weren't a big company, even though we were owned partially by a big company we had to live within our own available cash. First with Beaverhill was the Goose River oil field that we had posted, there was acreage available, we didn't have any acreage so we posted the acreage as a drilling reservation and the leases there were owned by Gulf. So when we posted the acreage Gulf then located a well on it and we had two scouts out on this geological play that we had. The day before they drill stem tested the Beaverhill Lake they went out and captured one of our scouts, Bob Carron was his name and put him into a trailer on site. The other scout escaped and got into town and phoned me to say

that they had taken one of our scouts and the other one had escaped. So the next day they drill stem tested the well and found oil in the Beaverhill Lake, which was what we thought might be up there. So we, in the meantime had phoned the RCMP about them illegally capturing one of our people and holding him against his will. We flew the RCMP out to the well site and released our scout who watched the whole drill stem test because it was being held. It must have been fairly late in the year when that happened because we took every cent we had and put it on the sale which occurred later that day. But Gulf bid a higher price than we did and got the sale. So then the next Beaverhill Lake play we had was South Kabob and we took a farm out from Mobil Oil on just one section of land, to drill a well on it. Chevron drilled a well at the same time further south than us and Union drilled one to the north of us on this Beaverhill Lake play and all three of the wells were discovery wells but we got outbid by Chevron that time. So the third play which was deeper yet, Ante Creek, we discovered oil there but the field was quite a bit smaller than the Goose River and the Kabob field. We did good geology on three of the Beaverhill Lake oil fields, which were quite subtle fields to find but we didn't really make a lot of money on those three but there was good geological work done there.

#320 DF: Was seismic involved in all of these?

TB: No, it was just straight, seismic wasn't good enough in those days to do that. I suppose the other one that. . . I ended up doing less geology and I ended up running the oil and gas company out here which then, we got into coal and minerals and everything else. One I suppose I feel quite good about is in the oil sands area, and by that time I'm talking about in the late 70's. That was the first time everyone started talking about mega-projects. Syncrude had already been started and Suncor already had their mining projects going. Imperial was looking at the Cold Lake in situ, which is underground thermal recovery of oil in the Cold Lake area. And they were talking

then of 150,000 barrel a day production, having an upgrader on site. We had the next best holdings of in situ oil sands and our approach was quite different. What we said was, we've got to start small and learn and apply new technology and gradually build up. Of course, being quite a bit smaller company it gave a chance for a smaller company in what was a very high cost project which ultimately could be producing a lot of oil. So we were the first one to use the small staged approach in the oil sands and of course, Imperial ended up doing the same thing and never did go to the mega approach on Cold Lake area. We negotiated new terms that are now really pretty prevalent with in the oil sands and in the east coast where you have these high cost areas. It was the negotiations that we did with the federal and the provincial government, that not having high royalties but rather work on a net profits basis to try to lower the risks. So that general change in the way of royalties and taxes, we kind of played a key role in that I felt. It's now really a basis for a very wide spread use of that approach on things. There wasn't a lot of geology involved in the oil sands, it was more a kind of management approach to it.

#363 DF: What was the technology you were applying in the oil sands?

TB: In the oil sands it was huff and puff, which was inject steam into the formation to lower the viscosity and increase the pressures on your formation. You inject steam for about 45 days and then turn the well around and produce oil out of it, there's more fluid, less viscous oil for about 90 days or so and then repeat that cycle. Then we tried some experimental ones as well, fire flood where we actually lit the oil by injecting oxygen into the well and setting up a front of burning oil that would then lower the viscosity and then produce an adjacent well. So we were experimenting with it and we tried some steam flood, where instead of injecting steam and then producing it out of the same well we would inject steam and form a front and then produce the oil out of another well. So we were doing a lot of experimental work in that area. That was in the

late 70's, early 80's.

DF: How successful was the fire flood system?

TB: Fire flood, what's happened is in fact, it's not one really being used much. It was difficult to control the fire front and there was a lot of very corrosive materials so it never really worked out too well. Now, of course, technology has allowed the drilling of horizontal wells into the oil sands so they're in fact, ending up using some quite different techniques although the huff and puff is still used initially but some real big advances have been made in that situ area since those days.

#392 DF: How did you come to be associated with the CSPG or ASPG?

TB: I have a hard job figuring that. I think it was just a gradual as what I was interested in. I ran some of the early field trips, we used to have an annual field trip, usually 2 or 3 days. They were kind of major excursions because there wasn't a lot known about the geology of the mountains and the foothills in those days, so my first involvement was really helping on some of those field trips, I organized one up into the Nordegg area as well.

DF: Can you tell us about the purpose of a field trip and what you do on a field trip?

TB: What you have in the mountains and in the foothills is you have the rocks that are present in the subsurface exposed so it's an easy way to actually see the rocks in 3 dimension. Of course, you can't see them in 3 dimension in the subsurface, not very easily anyway. So it's a very easy way to see the rocks, also to see them in this 3 dimensional effect. So it's a chance for people, who were mostly working in the subsurface in those days, to actually put their hands on and see the rocks and get some idea of what was the scale. You didn't really understand the scale of things. A favourite question I had asked, people go how far up was that reef up on the Husky Tower, it was called the Husky Tower in those days and how far out did it. . it was the scale of things when you start looking at logs and starting thinking in terms of a

reservoir being an inch, it wasn't an inch, it was only an inch on a log. So it was a good opportunity for people that worked subsurface to go in the mountains and see what they looked like. And also if you were working in the foothills of course, to actually see the structures that you were hoping there would be deeper accumulations on.

#428 DF: Okay, but you say see the structures, like in a 3 day trip, what would you actually do in the field, what are the details?

TB: For instance we'd spend quite a bit of time actually seeing outcrops of the Cardium sandstone, what was the Cardium sandstone, what was its depositional environment, which facies, having the cleanest sandstone where you might have porosity and that. So that formation that was so important in the subsurface, you could go and visit a number of localities so you'd visit that or you would do more than one formation, you would look at the outcrops of the carbonate, the limestone and the dolomites that eroded and formed the reservoir at the Edson gas field. You'd see in the outcrop, why was there porosity there, what formed the porosity etc. And we'd have 2 or 3 hundred people and we would have the experts, the knowledgeable people on the Cardium or on the Turner Valley formation talking about it and those people see it. The Nordegg field trip was into the central foothills area, I kind of organized that one. That was the first time, which was something that became important later on in the CSPG, was it was the first time we tried to get high school teachers to know a little bit about geology. So we took some high school teachers along on that trip and that was the first time we really tried to extend beyond our own little group of people there. The only thing was one of the high school teachers got so involved the bus took off and we left him out in the middle of the central foothills and we didn't know he was missing until about two hours later on back in Nordegg, so we had to go back and find him again. I don't know whether that fellow ever taught any geology to his students after that or not. Extending has become an important part of the

CSPG now, where there are both students getting a chance to come out and sending lecturers out to universities. So that was probably the first time we tried to extend beyond our own group there.

#474 DF: How did you come to be involved in the executive of the CSPG or the ASPG?

TB: I guess it was the ASPG. I just more or less just started down at the, probably started as the Secretary-Treasurer or something and then Vice-President. There was an election, now the President more or less, nobody runs against him anymore, in those days we used to run against them. I ran against Nick Taylor, Senator Nick Taylor. Nick never forgives me for that. I keep reminding him, the only time he ever ran for public office he lost. There wasn't much of a campaign, I wouldn't call it any kind of campaigning, we just eased into it I suppose, more than anything David.

DF: What were some of the big issues the year you were President?

TB: The big issue in those days was APEGGA, the Association of Professional Engineers, Geologists and Geophysicists. What they were wanting, of course, they were wanting people to be a member of APEGGA in order to call themselves geologists or to do geology. And in fact, in order to be a member of APEGGA one had to have a four year degree in geology or you had to write exams and there were lots of members of the CSPG who had only a 3 year degree. I think in the western universities they used to have a 3 year degree so they wanted to prevent those people from being well site geologists. So it was an . . . almost a certain antagonism has followed through for years I think, because of that. Because those people were really quite capable of doing what they were doing, well site geology. The companies could decide whether the person was competent or not but APEGGA wanted to decide whether they were competent or not so I used to have a lot of run ins with APEGGA because I felt they were doing a good job and the companies were capable of deciding, we didn't need a regulatory body

to tell Triad or Imperial Oil that that fellow wasn't a geologist. That was in some ways the biggest issue of those days.

#523 DF: In interviews this topic keeps coming up time and time again. Why was it that APEGGA wanted to have so much control over you geologists, do you know the history of that?

TB: No, I don't but I can give you what I think. I think it was a bureaucratic organization and I think they just wanted to have more power. The more people that are forced to be members and the more control they had. I'm not sure it was really run by its members, I think it was run by its bureaucracy. I think that's the wonderful thing about the CSPG, is that all through the years the executive and the committee members, they're all striving to do what's best for their members. I was a member of APEGGA but I never felt I got anything back from APEGGA. It was as close as we get to government in some ways. And of course, in the end they hold a lot of control through their legislation but I never really felt how they helped us.

End of tape.

Side 2

DF: Anything else from the year you were President?

TB: I don't think of it so much as the year of being President but the years of being on the executive and a continuing one. In those years we were primarily, it was meetings of course, we had both luncheon meetings and evening meetings in those days and we had probably more meetings than we have now. But we didn't have as many conventions. But the one thing that I got started, I think I can take credit for, was starting the Banff conference, where it was a one week school and as I was saying we didn't really have the opportunity to take courses. So we were one of the first ones to start a specialized course and we did a week one and the first one was on

carbonates because we knew about as much about carbonates as any place in the world. What we wanted to do was bring in experts from around the world on carbonates, where they would learn and we would learn as well. We started off with it being primarily for the carbonate specialists here to have a week course and discussion from around the world, we brought them in from around the world and that Banff school became an important part of developing our training and education. It's one I kind of feel best about that I got started there. The other one about that time was a great one which I was just a minor player in was the Atlas that Bob McCrossan and . . . my goodness, I'll think of his name in a minute. That was a wonderful undertaking. It was a huge undertaking there and what we had in those days, we had a huge support from the companies to undertake to do a geological history of western Canada basin. A lot of effort was put in by the companies, oh Glaister was the other. Perry Glaister and Bob McCrossan undertook that one and it was just a tremendous kind of effort. That was kind of symbol of what the CSPG did in the way of special publications. The other one was we started about that time the first of our conferences over and above our field trips. I think the first one was really the Devonian conference. Once again, that was such an important horizon for us here that we then brought in, once again we got people from around the world. And of course, Digby McLaren was the really the driving force behind that. So the CSPG was a wonderful organization, every year somebody would come up with something new and kind of get the enthusiasm and the effort that's put in, with a huge amount of support by the companies. The companies, I don't know if anyone ever realized just how much those volunteers in the CSPG did to move along the geology, move along the education of people, bring that information to the forefront. And it became better and better through the years, I don't think it ever went backwards.

#039 DF: Great. Do you attend these past President's dinners?

TB: It seems every year when they have them I'm away. We go away in the fall.

DF: But when you do attend those what are some of the topics that come up?

TB: What's the role of the Geological Survey of Canada. I think what kind of role governments should play and a lot of emphasis I think, on what kind of education. . a lot of it's on, not so much maybe CSPG matters as quite often, what kind of education should we be advocating for geologists, new graduates, how do we bring in new blood into the industry and that type of thing rather than a bunch of what the CSPG itself does. It's always kind of a fine line, I think they've done a pretty good job of staying out of the political aspect of things and looking on itself as a scientific organization and not an advocate for the industry itself.

DF: What's your opinion on the role of the GSC for example then?

TB: I think the GSC of course, in the case of the mining side of the business they've done most of the fundamental work, where the oil industry has relied less on the GSC than the mining industry. What they've done is they've taken, they're half way between the practical ??? and the academic world, they've gone and applied a lot of things. I've met a lot of capable geologists in the GSC and I've been a strong believer in them and of course, they have been on the forefront in the frontier areas, in the Arctic Islands, in bringing together a lot of that Mackenzie Delta data and on the east coast, bringing together, compiling data. So they've been something we can be really proud of as Canadians, is the Geological Survey of Canada. It's been just outstanding time after time, some of the leadership that they've shown.

#067 DF: Now perhaps other aspects of the government you might have opinions on too. I know you were on the CPA, can you tell us about the Canadian Petroleum Association and your work there.

TB: I was on the executive in the 80's, which of course, was our most difficult time. I'm still bitter towards the Liberal party and Trudeau and Lalonde for what they did to the Canadian industry. And never admitting that what they did was the wrong thing. The arrogance was just unbelievable, that somehow they thought they could forecast the

future and they never said, never thought about what if this happens, what if that happens. They seemed to have a feeling that they could bring it all under control. So it was a most difficult time of our industry's life. Mr. Chretien, the ones you have to . is Lalonde and Trudeau, I call it the desire to centralize, the desire to be in control, to want control. So many of those things were so wrong it's unbelievable. And Mr. Chretien, he still bears some of the ill feeling but in fact, when he became Minister of Energy and I had a fair amount to do with Mr. Chretien, he tried to bring around change and he recognized. So I give him a lot more credit than probably is generally given to him. Admittedly the big change occurred when the Conservatives came in but it was Mr. Chretien was making change and making change in the right direction and I think he was still limited as to how much he could do. Because the Liberals weren't prepared to admit it was wrong, if you're wrong you've got to change and they weren't willing to change. Of course, oil prices had collapsed but they still went on doing those things. There were so many aspects of the NEP that were a disaster, I can't think of anything that was really good about it. There must have been something, I just can't think of it.

DF: Well, I don't want to put words in your mouth but I've asked the same question of many geologists and many of them had very good experiences as a result of the NEP, in that it encouraged exploration in areas which wouldn't have otherwise been explored.

TB: Well, they would have been explored when the time came for it to be explored. It was premature to be up there, spending money in the Arctic Islands. It was premature to be making money, I mean Dome could make money off of drilling in the Mackenzie Delta.

Is that the way, is that good for the taxpayer. Was it could for Petrocan, how many billions of dollars that was spent drilling wells that should never have been drilled in those days. It'll come when the time's right but it was force feeding at the taxpayer's expense. Instead of being spent where it should have been spent in western Canada, it was being forced into offshore Newfoundland, offshore Nova Scotia, places

like that. The middle of Hudson's Bay, I was involved with Canterra in Hudson's Bay. We could make money drilling wells, drilling dry holes. I don't think that helps anybody, it might help some geologists.

#109 DF: Let's be careful not to say that it only happened once, it also happened in Turner Valley during World War II. Wartime Oils did the very same thing as the NEP in the 1980's, encouraged drilling to test out the parameters of oil fields.

TB: Governments can do things to encourage things to happen, it's the degree of it. I mean, when you're paying 80%, tax payers were paying 80% of the wells if you were a Canadian company, or in the case of Dome when they had super depletion, paying 125% of the wells. And it isn't like we needed the Arctic, it isn't like we needed the Mackenzie Valley oil.

DF: Well, I think you put yourself in an interesting position because you're certainly arguing against Ottawa but at the same time the province of Alberta was also trying to muscle its way in and gain a lot more power, wasn't it. So it was a power politics.

TB: Oh sure. That was part of the thing, Trudeau was going to fix Alberta. The province didn't help this cause at all and they were the first one that started it all with their escalation of royalties and that.

DF: Thank you, I am glad you said that, I didn't want to put those words in your mouth. But it was a bigger issue rather than just Ottawa picking on us.

TB: But Ottawa was wasting the whole country's money. The interesting one is of course, the industry says a contract is a contract. I happen to be one of those who says a contract is a contract when the environment's the same, which is more the Japanese approach to things. I know in the 70's industry went berserk over the royalties being raised and some companies really pulled back because of that but in fact, the price of oil had changed so dramatically, was it right for the owner to only get that much, even if it was a contract. So I understand that side of it. The

government's policies can't be rigid, it was just in my opinion, the policies of the federal government, I can't think of one that was really helpful. All the way from FIRA, today what are we saying, how do countries improve their economic development, what did we do in those days, we said we don't want foreigners, we don't want foreign investment. One thing I'm proud of was working for BP, I cannot think of one thing that we did, we made mistakes, same as anybody else, we never did anything that would harm this country. I never got anything from London saying, you buy British products, or you do this, there was nothing ever came back. Yet we were looked on as being not as good as a Canadian company. I never got anything from them to say, it wasn't for. . . trying to do what was right for our shareholders and this country, yet that was not the inference in the NEP. I knew a lot of other companies, I think they were the same way. Obviously I feel pretty excited about this subject.

#150 DF: It's good. To be fair though, you worked for BP, if you'd worked for an American

company you would have seen, I mean, I know that when Canadian companies try to go work in the United States, the United States is pretty careful to guard its own best interests as well, if the shoe were on the other foot.

TB: How were Canadian companies restricted? The only U.S. policy that was, is that if there was anything that was against the U.S. companies they were then treated in a like fashion. They did have that policy in the works. You could go into U.S. federal lands. At one stage non-Canadian companies couldn't go onto federal lands. The tax situation were treated the same way. Maybe there was but I'm not aware of those. Maybe prejudice against Canadian companies but I don't know of any policies that were anti-foreign.

DF: Well, there are some historical precedents. In the early 1970's when there was a shortage of oil there were certainly examples of times when oil that was coming from

Venezuela to Canada in an Imperial Oil tanker was siphoned off to New York because mother Exxon said it was more important for the Americans to get the oil than the Canadians.

TB: But that's not a government policy, that might have been a company one.

DF: I guess my point is that if you're a powerful country your own needs are more important than those of other countries or companies when push comes to shove and in the early 1980's when the price of oil was very high, it wasn't just the NEP and the Liberals that were making great expectations or exaggerated claims about the future, Joe Clark had great expectations too, as did all the oil companies. You oil companies all thought the price of oil was going to go to 40, 60, 80 dollars a barrel and it was a fight for the spoils wasn't it?

TB: But in companies, I guess the one thing companies try to do is say, what if this happens, what if that happens. There were lots of people forecasting high prices of crude oil. We were in the coal business, and companies make lots of mistakes, but what they try to do is learn from them and correct them in a hurry and what happened if I can give you an example is companies, the big companies thought the price of oil was going to go up and they didn't think there was going to be a lot more found so they started going into the coal business, we went into the coal business in quite a big way for our size company. Our cash flows were a lot higher then and so we went into the coal business and in fact, a memorandum of agreement had come in to develop coal in northeast B.C. with the Koreans and the Japanese and in April of '81, the NEP was October of 1980, BP said, we're starting to get signals that the price of oil is not going up. We're not paying \$37 a barrel, we starting to be able to buy spot crude at a lot less out of Iran and you ought to be careful about starting to spend \$200 million to develop that coal mine. We tried to see the Alberta government then about the signals, the Alberta government wouldn't even talk to us. There we were, you know what our low price forecast was, \$20 a barrel. And if you look at 1982 the

federal government was still forecasting \$100 a barrel. You might say, what's the evidence of that. Within three months we had that coal project shut down, we had 100 people we had to let go and the coal business was going to Japan and Korea saying we're not going to develop it because we think the price of oil is a risk and we're not going to develop our mine.

#203 DF: So the Alberta and the federal government were both still expecting the price of oil to ????. So I give you that, industry is always closer to the price.

TB: Amazingly we all forgot about Economics I. It was an amazing time, we did so many dumb things it was unbelievable.

DF: Unfortunately it's not a lot different than today.

TB: Well, we never learn. In some ways I'm talking about how we try to learn from these things. Well, we're a little more cautious now maybe.

DF: I don't know, you read the papers these days and it sounds like the price of oil in Alberta is never going to drop and gas as well, especially. Building more pipelines, sending it away as fast as we can, it's amazing. And Alberta taxpayers getting money back through the mail to subsidize the price of natural gas in the home.

TB: Yes. I think it was the Liberals who said, you've got your own NEP and in some ways we do.

DF: What do you think of that?

TB: I don't think it's the way to do it myself. That's a mistake. The mistake then was subsidizing, here they were they were subsidizing the Cadillac drivers back in NEP and now, instead of making us more efficient they're subsidizing energy costs, that's not the way to do it. They should be doing it the other way.

DF: What of your contributions in your career do you consider most important?

TB: I've really had three careers, I worked for the big company and then ended up running the resource company and my second career was after I retired from BP, I then

went into consulting. What I was really trying to do there, I went mostly in the international area and at the same time I went on a lot of Boards like Nova and Polisar and Canterra, fishery products. So I had kind of a second career which was really important to me where I kind of sit back. When you're working for a company you're always so busy it seems to me, you don't have enough time to sit back and think about things. At least I didn't do enough of that. That was the biggest mistake I made sometimes was not putting my feet up on the desk and sitting back and thinking about things, you're reacting to what's the issue today too much, at least I was. So that second career I really thought a lot about what I'd done right and what I'd done wrong and tried to apply it. I worked in China and Thailand, so that was a very satisfying time of my life where I tried to apply some of the things that maybe I didn't apply as well as I should have. Then when you turn 70 in life you get kicked off all those big Boards. So now I'm in my third career, of being with little companies. I'm involved in Africa and southeast Asia and Newfoundland on little projects and I'm still involved in some smaller companies in western Canada. So it's kind of a really fun time in my life now, because I can still contribute I think and the little guys that need help, so they've got to get this free help so I'm now in my third career, which is a fun one and applying I think, some of my last 50 years. And working hard at it.

#252 DF: Can you give us an example of one of those, like, what's the project in Newfoundland?

TB: This is a little company, Canadian Imperial Ventures, I'm an investor and a Director of that company and we're over on the west side of Newfoundland, which is the mirror image would you believe, of the foothills. The reverse of the foothills, so here we are applying what we learned in western Canada to the western side of Newfoundland right now. We're in the process of trying to develop, hopefully a good sized oil field out there.

DF: Offshore or . . ?

TB: No, onshore. So I started my career in the foothills of Alberta and I'm working on the foothills of, dabbling I guess, I call my third one a dabbler. Then I'm on the Alberta Environmental Appeal Board and that one, hopefully applying some geology, hopefully applying some economic aspects of things and that too. So I'm still learning and still applying it. So each of those careers have really been great rewarding ones for me. Rewarding mentally as much, not financially, I find then just a very rewarding life I've had and very lucky, I've been the most lucky person on earth. In timing, I finished high school at the end of the war, I didn't have to go off to war and we've had 50 years since then of kind of economic development. We've had some ups and downs like the NEP but when you think of what's happened in Alberta and Canada in those 50 years, so I really just kind of got there at the right time. So a lot of good luck.

DF: Just baiting you a bit, the NEP is certainly something that westerners don't like, in 1960 there was a National Oil Policy that gave all of Canada west of the Ottawa valley to western Canadian producers, does the oil industry remember that?

TB: Sure they remember that.

DF: Not as fondly as the NEP.

TB: That one of course, it really helped. I worked for a multinational but that one really was out to help Home Oil and companies like that. And I think it was a good thing, it gave the industry a leg up and it gave some of the smaller companies that needed those cash flows. And not really necessarily against. . the trouble with subsidies is when do you stop them. Here we have Bombardier, he got \$1 billion last week, once you get living on those it's hard to stop them. And I think there are times when it's a young industry that it's a good thing to do. That one, we built it and it came to a halt. We had I think it was about a 15 cent a barrel subsidy. The NEP of course, it became \$20 subsidy to the consumer, the scale of it became quite a bit different one. But it was not for multinationals, it was for the Canadian companies. No, a company doesn't

forget those things, I don't think.

#297 DF: Any regrets, are there things that you would like to have done in your career that you didn't get to do?

TB: About the only thing I would say on that, I've never regretted what I've done. I can't think of anything I've done I regretted. The only thing I've regretted is what I haven't done.

DF: Such as?

TB: Those are kind of relatively minor ones. I would always be off in some place in Europe or something, I had to go over to London all the time and I'd feel like I had to rush back to the office instead of taking a few days holidays. And in fact, it didn't make a bloody bit of difference if I'd been here or whether I hadn't. I think I rushed back maybe for my own ego. So I suppose sometimes in my own personal investments I wasn't enough of a believer in my own instincts sometimes, kind of cautious. Maybe too cautious through life. No, I can't think of anything I've done that I'd. . . I made lots of mistakes but you only learn from your mistakes, everybody makes mistakes. But none of those I'm ever ashamed of.

DF: You've had quite a few adventures over the years, how did you get to be on the North Pole?

TB: I worked all the way up to the Arctic Islands really, we flew out with Weldy Fhibbs to go to land on the north pole but we never. . . Fhibbs was the famous pilot that developed this capability of landing with big tires, fixed wings on anyplace in the Arctic. So we went to fly out towards the North Pole but we didn't, the winds were so bad we never got there. But I've flown over the North Pole from Anchorage to Denmark. At one stage the Alaskan stuff was run out of Calgary here as well, so I've been up to Alaska. So I've been very fortunate, being at a lot of different BP operations from time to time too.

DF: What took you to Antarctica?

TB: Just fun. My wife and I do a lot of travelling now. We've picked out an exotic trip every year. We went down there on a Russian scientific vessel, it was a great one. Last year we went to Uzbekistan to go along the route of Marco Polo. This year we're going to go to Mali to go to Timbuktu. So every year we've got to do one exotic trip.

#341 DF: Now you must have some stories from your canoe trips, do you have any of those you can tell me? You're looking out the window at the Elbow River flowing by so you've got to tell me some canoeing stories.

TB: One canoeing story was we were going down the Pembina River with Imperial Oil and the other geologist and I. . I have to go back a little bit. Colin Cricknay was a famous early Ted Link era geologist and he always, he was a tough task master. Anyway when we were young students there he said, you always get in a canoe you've got to take your shoes off, never get into a canoe with your shoes on and never get into a canoe when it's on land and all of these little rules. So the next year we were going down the Pembina River and it was a pretty fast flowing river and the other geologist with me, he always wanted to take his shoes off. The trouble was he took his shoes off before he got into the canoe and then he forgot to take his shoes. So we went shooting down the Pembina River, about a five day trip and he didn't have any shoes for the rest of the five days. Of course, then there was a huge amount of game we would see on those rivers, there's great animal life on a quiet river. Now I take me grandkids down. Canoeing is a great sport, are you a canoer?

DF: Oh yes. I'll tell you some more when we get off tape. How about bear stories, any encounters with bears over the years.

TB: Oh yes. I've always had lots of bear stories. The best, we had a horse party and we'd stay out for a month at a time and we were out not too far from Jasper and we were really down, almost out of food. So the packers went into Jasper to get more food

and they took everybody with them, just the student geologist and I stayed behind and we had a grizzly bear came into camp. We had a case of Carnation milk left and he was amazing, that bear sat down and pierced each of those cans of Carnation milk. I can just visualize him sitting there and he would pierce it and drink it and toss it over his shoulder. How they knew there was something in the can is what amazed me. They'd probably hung around the camp and seen tin cans and associated. So he drank all of our Carnation milk, next time he came out we just had a few cans of meat left and he pierced those cans and ate all their meat and there wasn't a teaspoon full of meat left. So then the third night, we were almost out of food so I said, I'll stay in the cook tent that night and scare the bear away if he comes back. So I took the ax, we were in the park so we didn't have any guns. That was the dumbest thing I've done in my life I guess. So I sleep in the tent with my ax and I'm a pretty heavy sleeper, I never woke up. The bear came in, took the rest of the food. The students the next morning said, what happened, we heard the bear, they never came to rescue me. Luckily. So I slept through, then the packers showed up the next day. We had lots of bear stories, I could go on and tell you lots of them.

#404 DF: So did you ever get attacked?

TB: No. Never. One summer we had a couple of students, they were on a mineral party and they came over the top of the hill and there was just a young grizzly bear, and he grappled with the one student and they rolled down the outcrop and they got separated and the student he headed back to Montreal, practically walked back to Montreal. He was never going to come back, he gave up geology, that was enough for him.

DF: I can imagine. So what's your strategy for staying safe in bear country?

TB: I guess really just trying to keep alert and being as noisy as you can. Horses are the best thing, I don't know why bears won't hang around horses at all. Go back to

the old ways of just using horses.

DF: So you've done both horse geology and helicopter geology?

TB: Yes, and then fixed wing, I've done the whole works, and canoe.

DF: Yes, lots of changes over the years. What do you see the future for the CSPG?

TB: It's a very vital organization. Every year somebody else takes it over and comes up with something new. I think it's the most vital part of the profession because they're upgrading people all the time with their lectures and great publication. Now they have these wonderful conferences. It seems to be able to, every year, have a rebirth with a new executive. It's tough though for them now, in that the companies don't support them, we used to be supported by the companies. So people are under huge pressures compared to I think, what we were in the way of time. They don't have the time that we seemed to be able to have to devote to it. So I think that's a biggest risk to the CSPG is whether they'll get the kind of support. Because they have to have the corporate support, it's hard for the individuals to spend that much time on it. Because they're under huge demands now. And I see they're more and more paying people to do things now. Which I don't know, I think it's probably required under this environment.

#449 DF: Why the change at the corporate level?

TB: I don't know that. I don't understand why. In fact I wrote Talisman asking them why, I don't think they're a corporate member and I wrote them, why aren't you a corporate member, I can't believe that you're not supporting them. I think it's a little more short term now than it used to be with companies. And it used to be that geologists and engineers ran the companies and now it's accountants and lawyers, it's a different kind of people. And they're under huge pressures, I accept they're under huge pressures but it used to be a different world. I think that's part of the reason. But it'll survive, I think, I'm optimistic about it.

DF: Where do you think geology is going to take us next in the search for petroleum?

TB: No doubt the international areas. I think we're going to see more and more Canadian companies going international. We've got a lot to offer other countries. From what we've learned here, the Canadian style is a little more understanding I think and that type of thing. So I think that's a big area. And of course, we'll go to the oil sands and frontiers, it's a tough game in the western Canada basin, you have to run fast to stand still. We're seeing a big shift internationally.

DF: Canadians have always done that, gone overseas when things have slowed down at home but any other basins to be found here in Canada?

TB: I suppose there's a few, like the west coast I suppose is the big one but it's got a lot of problems before it'll go ahead on that. I think that's probably the biggest basin that we haven't really looked at.

#485 DF: Offshore. And the north, what's going to happen up there? More development in the far north?

TB: The Arctic Islands? It'll be quite awhile I think. It's heavily gas bearing and of course, you're going to see Alaska and Mackenzie gas come first. There you're talking of Prudhoe Bay, 35 trillion cubic feet, it's about half of western Canada reserves so it's going to help the U.S. for quite awhile. I don't think. . . the Arctic Islands are quite a few years off yet. So it's going to be in the Delta and the offshore Beaufort. And I think of course, the east coast is going to be a continuing one too. But they don't take all that geological man power or woman power like the western Canada basin does. So we're going to have to be doing, I think geological opportunities in all those things really.

DF: Have you become involved in the geology that has to do with the diamonds in the north?

TB: Just out of interest.

DF: Well, I know some geologists who, they start out as hard rock geologists and then they went to petroleum and now they're dabbling in the diamonds. Like a third career almost in geology.

TB: Mineral geology is a lot more difficult and complex I think, than petroleum geology myself. It's a tough way to make a buck.

DF: But aren't those Kimberlite pipes something pretty interesting, something all together different again.

TB: Oh yes. I was in the mineral business there for a little while when we were diversifying and we were just starting to get interested in the Kimberlite things then but they collapsed, all of those diversifications. So I still follow it a little bit just from friends.

DF: Well, on behalf of the CSPG and the Petroleum Industry Oral History Project, I'd like to thank you so very much for allowing us to come into your home this morning and to ask you a few questions. Your contribution is very important and I thank you very much.

TB: It was fun talking to you.