

PETROLEUM INDUSTRY ORAL HISTORY PROJECT  
TRANSCRIPT

INTERVIEWEE: Dr. Hans Suter

INTERVIEWER: Betty Cooper

DATE: June 1982

BC: . . . speaking to Dr. Hans [Heinrich] Suter in Rm. 2514 of the Home Oil Tower in Calgary. It's June 10<sup>th</sup>, 1982. Dr. Suter I'd like to first of all just get a little of your background, where were you born?

HS: I was born in Switzerland in a little village named Collican??? on the 15<sup>th</sup> July, 1899 at 7 in the morning.

BC: Well, you almost made it into the 20<sup>th</sup> century, you were just sort of there just almost on the turn. And where did you take your early education then?

HS: I did mention, what do you call . . . The maturity, that's what you call the maturity, that's your entrance examination to university, I took that in ???, that's one of the capitals in Switzerland. A capital in Switzerland, it's like the States, in the U.S., it's much smaller than the provinces here in Calgary you know.

BC: Yes. And then you went into university, what year?

HS: I went to university in 1918 to ??? University.

BC: And what were you majoring in?

HS: I wasn't majoring. We have nothing like that you see. I started in general natural science. That would lead eventually to a diploma for teaching in grade 6-12 or something like that.

BC: So you were originally going to be a teacher.

HS: Well, my father forced me.

BC: I see, what did your father do?

HS: My father was a technologist in weaving you know, and making cloth and such things like that.

BC: So your father said you were to be a teacher so you started out to be a teacher.

HS: Yes. ??? I knew already I was going to be a geologist you see, but he said that for safety sake and the professors in the university said the same. Because at that time employment of geologists was very new and very changeable. There were years when they didn't hire any and there were years when they took half a dozen or a dozen.

BC: This was in Switzerland itself?

HS: No.

BC: That was worldwide.

HS: Mostly Shell you know. ??? they took a lot of Swiss geologists.

BC: So you first went in to be a teacher but did you teach?

HS: Never.

BC: How did you move into geology?

HS: I went through the same courses as what they call pre-med the same as those who study medicine, I took the same thing, that was the same you see, ??? mathematics but very

poor for me, I'm not a mathematician. In 1919 my money ran out so I went to Germany to the university because the Swiss money was so fantastic with the German that with a month's expenditure I could stay a year in Germany. It was fantastic, you won't believe it.

#039 BC: This was in the post war, immediately following the war when the German Mark had no value at all. So what university did you attend there?

HS: ??? in ???, German. But I only stayed. . .there I met my final professor named Paul Nickling??? and I was already feeling that I was going to specialize in his line and he was a petrologist, petrographer you know, universal fellow. So he was offered a job in Zurich, Switzerland and I went with him.

BC: So you went to work for him or did you go as a . . . ?

HS: ???

BC: Oh, as a student, I see.

HS: As a student. And then after a year or so I became assistant you know. And I went on studying and finally, in 1924 I graduated, made my doctor examination you know. But to say ???, in 1921 I went back to my home ??? to pass an examination for teacher for the grade 6-8 or something like this you see. And all those scientists which I was tested there I didn't have to repeat during the doctor examination you see. So that eased it a little.

BC: And when you finally received your doctor in 1924 then where did you go?

HS: A month or 2 or 3 later, I've forgotten, I went to Peru with ???, I went to Peru for an expedition you know.

BC: Was this an oil company?

HS: Yes, that's a famous oil company. Here they only know it as Shell.

BC: Well yes, all right. But it was a branch of Shell. And you went to Peru?

HS: Vice versa.

BC: Oh, Shell is a branch of?

HS: Yes.

BC: Right. Could you tell me about some of your experiences in Peru?

HS: In Peru I was what you call regional exploration, going over the country. At that time it was a desert, an absolute desert, dry, so every outcrop was visible.

BC: This would be very exciting for you then.

HS: Oh, I said, how the hell do people can pay me for what I'm doing here because I would do it for free of charge. It was as much geographic as geological. I visited northwest Peru, it was the coastal area you know.

BC: And you were telling me when we were lining up this interview about your travel in one of the first cars. Could you recount that experience for me?

HS: Yes, I got an old Ford, Lizzie or what they call it or something?

BC: A Tin Lizzie.

HS: It was completely outfit with a crate so I could lock up my stuff you know but when you went over the desert area it was too heavy so we threw the crate away. Actually the whole body was taken away, just left with the chassis with the motor and the seats. So that was our idea of a runner over sand you see, because in the sand if you have too much weight you can't do it. The first trick was to lower the pressure of the tires making it more

ballooney, they you could go better.

BC: There weren't many cars around at that time were there?

HS: Oh no, hardly any.

BC: Was not your license plate rather special too?

HS: No, except that it was #1 for that particular part of the country.

#083 BC: So you were the first one to license a car in that area?

HS: It looks like.

BC: Tell me, in your work in Peru what were you looking for, was it petroleum geology that you had gone into?

HS: Oh yes. In that time the idea was to find oil in structures you know, anticlines mainly. And there were no anticlines there anyhow. One thing I have to say, that was '24 and at the end of '24 we got the cyclical 11 year rain season. The rainy season engulfed the whole country and inside 2-3 weeks the whole desert was blooming, you couldn't have seen any more outcrops, they were all covered.

BC: So you were very fortunate that you went at that particular time.

HS: Yes.

BC: And it was like that for 11 years you say.

HS: No, every 11 years you have a cycle of rain you know. And we just hit it.

BC: So then you left Peru did you?

HS: Yes, when the expedition was finished we made reports and the head office found there was nothing worthwhile so the exploration was closed and we went home.

BC: Have they ever found any oil in that area?

HS: No. It has been ??? years later but there was nothing.

BC: So back to Zurich you went and then what happened?

HS: I went back to Zurich and became what you call first assistant to the professor.

BC: This was at the university?

HS: Well, before I did that, before I entered that job he said, you go and do some ??? study. So I went to Paris, to the college, to France and studied sedimentary petrology or petrography you know. Then in '25 I went back and took the job you see.

BC: And how long were you there as an assistant to the professor.

HS: 1927. I quit because the work was too hard.

BC: In what way was the work too hard?

HS: I had to go and make studies for my own, you see, to publish. Because even at that time the idea was that you don't progress unless you publish. So that took part of my time but that I could only do after working hours, because during the working hours I had to prepare for lectures and assist the professor in the lectures. Then I had to assist and give courses in microscopy and such things you see. Anything which ??? science you know.

BC: What was the name of the place where you were teaching, what was it called?

HS: It was a dual place, one part was called Federal Polytechnical Institute and the other was, it was ??? University of Zurich. Officially I belonged to the federal technological institute you know. And by '27 I got fed up. My eyes hurt me too, the microscopic work is very bad you know.

BC: So having decided teaching was not going to be your life's career?

HS: Well, I didn't say so, I said I wanted to see more of the world. As a boy, when I was a young boy, maybe 10-12 years old, I got hold of a geography book of the whole world and that was my bible. I said, I must go and see these places. So besides being fed up I got an offer to go back to the oil. So I went to a company called North Venezuelan Petroleum Company, Al Meida de la Costa Venezuela??? as a field and well geologist.

#135 BC: This was a company that was formed in Venezuela was it, its headquarters were there?

HS: No, it was an English company. An affiliate of Central Mining and Investment Corporation of South Africa. They had huge concessions in Venezuela.

BC: You went to Venezuela then in 1927?

HS: Yes.

BC: As a field geologist. How long were you in Venezuela?

HS: I stayed there till 1932.

BC: So that was quite a few years.

HS: And that was interrupted with visits, every 3 years you got 3 months leave for going home. And then at that time that company was a little bit fed up and wanted to reduce the staff so they said, you go now to another place. You don't leave us really but you go to another place and I went to Bolivia.

BC: This was in 1932?

HS: That was in '32.

BC: Yes, but before we leave Venezuela can we talk a little about where you worked in Venezuela and can you remember any of the people that you worked with who might have been part of, were any of them later part of the oil patch in Alberta?

HS: I met a lot of people. First of all I improved my Spanish, by that time I was speaking Spanish pretty fluently. The one man I would like to remember is General Lorenzo Ricardo, a colourful man, powerful you know, but kind of what you would call [grey eminence]???. He never went into the public ??? but he always was in contact with the dictator of Venezuela at that time.

BC: What was the dictator's name at that time?

HS: I can't remember at the moment. He was famous, a real ??? and boy, he was cruel. He dealt with men just like with animals.

BC: This general that you remember so well, he obviously was a different type of a person.

HS: Actually he was from Cuba I believe and immigrated to Venezuela and made his name there. The name general was just an honorary title you know.

BC: He wasn't really general of the army?

HS: No, but he was a fine fellow I tell you. And he was a Director of the company, ???, they knew that they had to get local people to get into the life of the whole country and ease the way with the government and all these things you see. So we had him as a king of intermediary with the government besides a local lawyer, a fine fellow, I've forgotten his name. I'm bad with names, I can't help it.

BC: Can we think about some of the work you did when you were in Venezuela, were there

any major discoveries made while you were there?

HS: In the whole time?

BC: Yes, in the area that you were working?

HS: In the area I was working there was one small discovery, a small field called El Maida de la Costa??? and that was, I was supervising the wells, I was locating the wells and logging them and so on and so on. By the time they gave up, that's another story, they had about 2 or 3 thousand barrels a day production.

#188 BC: And why did they give it up?

HS: Because that didn't pay.

BC: Was this why they decided to have you move to another company, were the discoveries not. . .?

HS: No, in Bolivia I was in mining. The Central Mining and Investment Corporation had an interest in a mine of ??? that was tin and silver. Also there at that time I worked in another mine which was ???, which was mainly silver and zinc. They had a model of the mine about the size of this table with all the houses on the surface and everything, all in solid silver.

BC: It would be beautiful wouldn't it.

HS: Oh, it was beautiful. Then in '33. . .

BC: How did you enjoy going from petroleum to the mining?

HS: I didn't like it too much you see, because it was very dangerous work.

BC: You were underground a lot?

HS: Yes. Part underground and part above. You see, I mapped the surface too and the underground work, I had to map the mining, the adits and the galleries and all these things and that was very dangerous work because the mine had [got gassed]??? from time to time. And the heat was terrific. From the level where the entrance was you were dressed to stand the climate, that's very cold there, the air is very thin. So you feel the cold very much so you have leather coats on and whatnot and so on. Then the first level you take the coat off, the next level you take the shirt off and at the third level more or less you take the pants off and just go on in underpants you know. And of course, water tight boots. And you can't help breathing whatever dust there is. And I tell you, when I left that mine it took me three months to clean my nose. I mean, that's the lungs you see. I'm glad I left.

BC: It's very dangerous and I'm sure the life span of the workers in those days was fairly short.

HS: 29 years. Every other day and accident. They spoke ??? you know, and they had a place called ???, that means the Place of the Dead, part of the mine, they called it. There were galleries so dangerous, you see, as a mapping geologist I hate to go into any corner whether it was worked or not. And in some places it was so dangerous that they had to post a man every 100 yds. to keep a signal going. If I wouldn't give a signal that I was still alive they would come rush and help me.

BC: Obviously it wasn't your choice to go there, it was your choice to leave?

HS: Not either. I had a choice to stay or go back to Venezuela you know. Because it happened

there were difficulties between the company in London and the owner of the mines. And the manager of that mine was a South African, Cowan was his name, very colourful fellow and he was more or less forced to resign. So I said to myself, if that fellow goes I go too, and I left and went back to Venezuela. At Venezuela they took me back in to the oil side. \

BC: So then you stayed at Venezuela for another several years did you?

HS: Yes. That was '33 to '39 I stayed with the North Venezuelan Petroleum Company. I was posted, in the meantime they had discovered a field maybe 60-80 miles or so north of where I used to work, that was Cumerabo???. That was a very wonderful little field where the wells were really extraordinary. The oil was so light that they could feed it into a diesel motor right away. That I mapped in detail the whole area and besides that, I supervised the tanker loading of the share of oil which our company got from the field. The field was operated by Standard of New Jersey, the Venezuelan branch of the New Jersey. They operated there and we got a share of it, I think about 30%.

#267 BC: Your fellow workers that you worked with, were the majority of them people that had been brought into the country.

HS: Yes.

BC: Where were they from?

HS: That was a mixed company. There were some Swiss, there were some English, there were some Germans. Let me see, as geologists and ???. At that time there wasn't a Venezuelan geologist anyhow. They didn't teach geology in the university, that came later.

BC: What prompted you to leave Venezuela then?

HS: In '39?

BC: Yes.

HS: I was transferred to Trinidad Leaseholds in Trinidad, British West Indies.

BC: Was Trinidad Leaseholds part of the same company?

HS: Same outfit. Not part of the same company but part of, also belonged to, controlled by Central Mining.

BC: It was another of their companies?

HS: Yes. And of course, there I was chief geologist until '52 when I was then transferred to Canada.

BC: Tell me about Trinidad because your work in Trinidad and the way they drilled for wells was quite different than the way they did it here in Canada when you came up, was it not?

HS: In a way yes. Because the whole geology there is something quite different. First of all they only deal with the ages of ???. myocene, ???, but the Cretaceous was an unknown quantity down below, they hardly touched it when I was there.

BC: Do they now?

HS: In the meantime they have drilled some more wells and maybe they found some gas, I don't keep up anymore you know. But there we talked in terms of an acre, the problem we looked at was maybe at the widest, 10 acres wide. Look at what is in Canada when I came to Canada, that's another story. I found that they deal with townships and sections

and such things, that was quite different. And they had some very fine fields, like the Forest field, where you get oil practically anywhere you drilled.

BC: How far down did you have to drill?

HS: Anything from 500' down to 8,000.

BC: You mean it depended on, you could get it anywhere within that area or depending on where you were drilling?

HS: No, no, you got production anywhere in that interval. And of course, a ??? was 500' and the crest of the anticline may have been at 3,000' lower down you know and such things.

BC: But your drilling methods were different too, the way you dealt with things was different.

HS: Well, we did much more coating??? than what they used to do here you know. And we had to rely on the samples for [age demarcation]??? because the formations from top to bottom, they looked so similar, you couldn't recognize them just on the samples. You had to use micro-forams??? and we were one of the first companies in the world to use micro-forams.

BC: Could you explain what micro-forams are?

HS: They are a kind of animal which are so small that you need, for the smaller ones you need 20-40 magnification to see them you see. These subdivided the whole section. And the palaeontologists could say on the basis of the composition of a sample of these foram ??? where they were. And he had names for all the formations.

End of tape.

Tape 1 Side 2

HS: Venezuela was all exploration and you never knew when the darn thing would end you know. I was there ??? field and they started to work it under a different name, which was called the Qui??? oilfields of Venezuela, ???. And then when they did that they started to what they call spread eagle, jump from one anticline to another at 20 kilometres distance, whatever it was you see. And finally they got fed up with that too because they found nothing. And then they farmed out that the westernmost corner, they farmed it out to Standard Oil of New Jersey and they found ???. But there was a beautiful anticline known in outline and they had seeps on the surface. At the top of the crest the seep had oil and water and gas. So the first well drilled there was a blow-out so to speak, just fantastic. I've never seen. . . I seen another blow-out in the same place, that's really something to listen to you know. When they did that I was just coming back from Bolivia and to go over there as a representative of the company. The charge was I had to map the area in detail, a scale of 1-5,000 or something like this you know. At the same time watch the administration and supervise tanker loading because the company took their royalty in kind you know. From time to time we had a tanker coming. I remember very well these tanker loadings, there was always an occasion. Of course, 24 hours work because I was alone. We had French tankers, we had English tankers and we had Norwegian and one German and each one was something different. The French, they offered you beautiful bread and champagne and a nice cheese and were quite pleasant. They always swore against the English measurements. They used metric measurements you see, which are

independent of temperature but the English measures, they depend on measuring temperature too, ??? make errors and what not. And the English tanker was a surplus First World War tanker and was leaking. In one voyage they lost 800 tons of oil just seeping out. Then the Norwegians, they didn't talk very much. They didn't even offer you a beer or a schnaps or whatnot. The Germans, they offered you beer of course, but that was already Nazi time you know, and that was the cleanest ship there was besides. . .

BC: It was really under the German navy I guess.

HS: They hadn't been home for 3 years. Imagine a tanker, that was one of these, what they call, tramp tankers. Tramp tankers, they take a load, go to someplace, take another load another place and they only go home when they have to refit really. And they were 3 years going already. That's hard on the men. Oh yes, the French tanker, that was a good one really. One day the captain, he said, can you get me some parakeets, what you call parrots you know. Then the crew also wanted some you see, so I got that as a telegram you see. So I caught 200 hundred parrots together, I had them all in my bedroom. I brought them in a crate, I brought them on to a ship and said, here, make your selection. Of course, the captain got the best one. The last one was one with a lame leg and the sailor was complaining, I said, don't you worry, he loves you more than the others. They were real jolly fellows, the French people. There was an English tanker, a company tanker too coming from time to time, called ???, which was one of the first tankers sunk on a voyage home to England. Just after the war began they took a load of gasoline and by golly, down it went.

#049 BC: This would have been just . . .you would have probably known that crew well too because. . .

HS: The captain at least. The crew and captain were saved, there was . . . Oh, I could tell a story about the wartime. They had a training place for pilots you know, English pilots and quite a few of them killed themselves during the training, went down into the sea and are still there.

BC: This is in Trinidad?

HS: Yes.

BC: You moved to Trinidad the year the war began?

HS: '39. Did it start in '39?

BC: It started in '39, in September of '39, August, September. So a lot of your, certainly the first 6 years of your time in Trinidad was in wartime conditions. How would they be different from peace time conditions in the oil patch?

HS: First of all, you couldn't get any more beer. They didn't manufacture it yet you see. Of course, you had cheap rum, a dollar of two per bottle and very good one. Then the imported food got scarce you see. I think we lived for 3 or 4 or 5 months without meat. And the natives had to go and eat breadfruit and the tree with the breadfruit, that is a meal which replaces potatoes and such things. You ???.

BC: What about the work in the oil. . .

HS: That got more busy, busy, busy you see.

BC: You were looking for oil with. . . much more intently?



HS: You treat it more intently you know. Because we knew the oil was there, we ??? partly in a way because we ??? too much you know. But we had to get the cartel??? going, had to get it up. And we went back into old abandoned fields and redrilled them too.

BC: And did you find much oil there?

HS: Oh you found a little bit sure. Enough to get going. The oil in Trinidad is not too bad, [13 and more than 30 degree]???, most of it. They also had heavy oil there, they even had some tar sands there.

BC: It's almost an oil island is it.

HS: Yes. But that's only in the south. The south side is hilly, has ranges and that's where the oil is. But the structures are so shallow that they show up on the surface. Then the northern part is separated from the south by what is called the Central Range, with Cretaceous ??? on the surface. ??? basin which, the facees is blackish, ??? almost. And whatever we drilled we didn't find anything, a little gas. Now later on the Americans came and they took over you know, and they drilled and found gas. And then the northern range, that's really good high mountains, not alpine but at least 15 [hundred, thousand]??? feet, several hundred feet more. There is nothing there of course.

#089 BC: Tell me, in drilling in Trinidad, you were mentioning to me earlier that it was different than drilling here because here we drill in feet and there they drill in degrees, could you explain that please?

HS: It's not a matter of feet and degrees. It's better to say, here the formations, the western ??? basins are so flat that they are all below 1 degree. That's not good enough, not accurate enough, so they calculate the depth of the formations in terms of feet per mile. Where in Trinidad you have strong dips which you measure in degrees, 5 degrees up to 50 degrees in some places, it's even overturned you know. Did I talk about that before?

BC: Yes, about the drilling, if you can. . .

HS: About formations being soft, the drill has a tendency to wander you know, especially. . .if you want a straight hole you can only drill slowly and with little weight on the bit. But to make a reasonable speed you have to put weight on and then the drill bit starts to wander. We found out the rule of how this happens. And as I say, if the dip is more than 45 degrees, the drill bit has a tendency to wander down dip. If it's less than 45 degrees it wanders up dip and at 45 degrees itself, the drill bit doesn't know what it wants, as I say it and wanders to the left or to the right along the strike.

BC: Can it wander very far?

HS: The deeper you go the faster it goes. I have seen wandering which must have been several hundred feet.

BC: Would this make it difficult as far as your drilling, would it add to the difficulty of drilling, when you had this strange. . .?

HS: No, that eases it. But it can go with the speed you know, and the surface drainage grid or pattern. It's then tallied, it's adjusted to this, where we expect the drill bit to end you know. And in fact, the whole darn thing, we used, in one field, it was very steep dipping, when you drilled vertically down you hit the water. So instead of moving the location up dip we started to deviate the well from the same surface hole you know, up dip and got

to the oil. And we did that not once, but 6 times at least. You take advantage of these things you see. It takes very close cooperation between the geologist and the driller, the drilling people and the engineers. Such a small outfit, it's almost a family outfit anyway.

BC: And you were out on the field?

HS: No, I was in the office. Each field had a resident geologist. And I supervised, besides that surface mapping too you know. And I had the surveyors and I had the land all in my hand too, and palaeontology. And I was a member of the management committee. And I was the oldest of the whole bunch so I had the privilege of talking my own opinion you know.

#133 BC: Now at that time, when the war came, there would be a change in the type of people you got down there, there wouldn't be the British coming down to work with you?

HS: Yes, the British didn't come down. So they replaced them by Canadians. Canadians came, not in every department, but in . . . drillers are an international lot anyhow you know. Most in Venezuela and Trinidad, the drillers were either American or Canadians and a sprinkling of English.

BC: What about geologists, did you get any Canadian geologists?

HS: Only 3. One was very good. He went to ???, the other one, ??? and then we had a French-Canadian and he was a real individualist you know, like quicksilver. He finally quit himself and went into the mines in British Guyana. But one of them became manager of an oil company and finally ended up as manager of ???, whether he's still there or not I don't know.

BC: You also had someone that came down from the University of Alberta did you not?

HS: Yes, at the same time, how they got hold of him I don't know but Professor Clark, wonderful man you know, he was professor of metallurgy at the University of Alberta. He came down to install what is called reservoir engineering work, you know, taking the cores, determine what's the content, the porosity, permeability, the oil content and then those which collect from this, you can say whether the well will produce oil or not and how much. So then recoveries were not too bad, but at the very end when I was down there we started the repressuring you know. We worked from the American experiments of repressuring with gas, we did that. And you know what happened, the gas broke through the formation and came out on the surface. So loose and so soft the whole formations were. So we had to be very careful and ???.

BC: Having such a soft surface and subsurface, would this have affected, did you do any geophysical work at that time?

HS: Oh yes, we did.

BC: Would this affect it?

HS: Yes. You had porosity of dips. You see, I'm talking in terms of dips because we used 3 dimensional seismic, which is, the arrangement of the geophones is so that 3 of them concentrate their energy on one point. So by the time you calculate and evaluate the whole thing, you can calculate the dip, if you get a dip you see. And some of the sandstones were solid enough to give dips you see. And then they used the straight part correction, and not the curved one. Because the curved one, if you used the curved one, it

happened that the dippage was calculated, the end of the hole or the end of the dip was up in the air, it made like this.

#179 BC: Almost like a U shape.

HS: Yes. But straight deviation or straight adjustment, that was okay. You could use it. But the one difficulty was that the sugar cane plantations you know, in a heavy rain we couldn't shoot because the noise from the sugar cane was so much that it just blasted everything out of the seismogram.

BC: Did weather affect your work down there, in your drilling and exploration?

HS: Exploration yes. In the rainy season you couldn't explore surface you know. But the drilling, that still went on. It's just a little bit more trouble. We had to make our roads and because we had no road material we burned the clay. So we made burnt clay roads ???.

BC: They'd be quite lovely to look at I'd think.

HS: Yes. They were quite good and ??? cost ??? some money. But I forgot to say the first time that Trinidad roads are all asphalted you know, but they used ??? asphalt from the asphalt lake. And that is so soft that if you leave a car and stay for half an hour the wheels sink in at least that much.

BC: At least 6". That's how they made the roads then?

HS: Today.

BC: Today they still do?

HS: Most of the roads today as I say, but maybe they have some main highways which are proper ???.

BC: The quality of the oil that you were finding in Trinidad, it has . . .

HS: Was quite good.

BC: But this would be almost like what you'd get in the oilsands is it, the . . .

HS: Oh no.

BC: It was different again. What they were using for the roads?

HS: Oh no, for the roads they didn't use ???.

BC: Oh, what did they use?

HS: Raw asphalt from the asphalt lake.

BC: Oh raw asphalt, sorry I didn't catch that.

HS: The asphalt lake, the famous asphalt lake of Trinidad.

BC: How big is that lake?

HS: About 100 acres or something, I don't know. It was quite big. But you can walk over it, over most parts, some parts are a little soft. It's just gradually sinking down due to exploitation, it's not filling up anymore.

BC: But for a long time you could take it off the top and it would just keep coming in?

HS: Right. For many years.

BC: Is that a unique formation in the world or are there other asphalt lakes?

HS: No. Across the Gulf of ??? in Venezuela, there they had a whole row of little lakes but not as big as the one in Trinidad. Asphalt lakes are known all the world over, ??? especially.

- BC: One of the things that you were going to talk about too, and that is the way they drilled in Trinidad as against the grid system that they have in Canada.
- HS: You see, we work in acres, not in tens or 640 acre lots. So that's the big difference. What you do here, geology is what we would call regional??? geology down there. Our maps were on a scale of 1-5,000, 1-20,000 was already regional. Here an ordinary map is 1-100,000 or 50,000. It's the scale and that scale is the one which baffles the geologist from the outside who isn't used to such big dimensions.
- #233 BC: This is what happened to you, you came to Canada in 1952. And what was the major thing that you found different about working here and working in say, Trinidad?
- HS: First of all, the number of companies, the speed of development. The activity was fantastic and the whole leasing system was also. They were bidding for acreage you know, and all these rules which are down there. There was no bidding at that time. Anyhow the leasing situation, as far as the government was concerned was pretty mature down there. The local fellows who owned a couple of acres or so, and had their mineral rights, well that was still going on. You leased them for a dollar or two a year and then dropped them from time to time so there was always a little bit going on in that particular thing. And then, to keep track of all the exploration here in Canada, that was just, for a newcomer was fantastic you know. Down there you may have 3, 4, 5 wells going as exploration wells but here you had dozens. I look at my dairy here, but the important diary I couldn't find, 1956, but we'll come to that later on. What else would you want to know about. . .?
- BC: I'd like to know about when you came up here, who was with Trinity Leaseholds when you came? You came as the direct representative of the president and reported directly to the president of Trinity Leaseholds. Why were you sent here?
- HS: They wanted a senior geologist. There was one geologist here, Robert O. Young, he is now a consultant. He himself is a geologist. They simply wanted to show more interest ???
- BC: Then you came here. So when you arrived here, there was Mr. Young and there was Charles Lee.
- HS: Yes. And they had a scout, I forgot his name. The rest was administrative you know.
- BC: So it was a pretty small company at that time.
- HS: Oh yes. When I took over I got one more geologist, a lady.
- BC: A lady geologist.
- HS: Yes.
- BC: You were rather progressive. There weren't too many lady geologists around at that time were there?
- HS: Well, I had one and she quit because she got married and then I got the other one, Eleanor Burton. Now she's Eleanor Houton, she married, when she was a bachelor she was Eleanor Burton, now she's Eleanor Houton. You'll come across her because she is a member of the executive committee here of the CSPG.
- BC: What work were the women geologists involved in, were they working out in the field?

HS: No, we didn't do any field work.

BC: No one did any field work?

HS: No. That was beyond our scope. We just looked at . . . Lee and Young they looked at sales you know, and offers of farm outs. The lady geologist, I finally got another geologist, besides Young I had a geologist and that lady geologist. They made maps of certain horizons, contour maps and such things.

#294 BC: How much land did Trinidad Leaseholds have under lease, how active were they at that time?

HS: At that time the total acreage you could measure maybe in a couple of hundred acres. And they had about 10-12 wells producing you know, in Leduc mainly. They were minor things you know.

BC: So was one of the things that you were looking to do, to get more acreage?

HS: Yes, more or less, but the first job was to make an economic appraisal. Imagine me, coming from Trinidad, an economic appraisal and the Canadian oil situation, how many wells, how much capital we have to put up to get a start and how soon will it start paying back. I spent I think 3 or 4 months on it you see, completely futile. Because by the time I had figures they were already out of date. When I took over I soon said, it's no use doing ??? and became a client of Sproule Associates. I had Sproule check every offer in farm outs you know, and such things.

BC: So Trinidad kept itself fairly small then?

HS: Yes. And later on, if you want to go on talking about Canada, later on we started to get a little bit bigger and took a partnership with Bailey, Shelbourne, you know. I call them Basil for short. We had a quite nice cooperation between them. We took over these thing south of Grande Prairie, huge, about 2 or 3 townships, it was very big. We did the surface survey, the field work was done by Sproule in contract with one of our geologists assisting and so on. Later on, but now we're going ahead. . . we took quite a few little farm outs here and there with Home Oil. We didn't call them farm outs, we called them partnership basis you know. And had a little oil, a little gas here and so on. But nothing very much. And of course, the president of the company himself wasn't interested in the oil production side you know. He was a salesman and a refinery man, concentrated on the refinery and retail sales of gasoline. They had several hundred stations in Toronto and. . .

BC: So this is really the area where Trinity Leaseholds was strong was refining and marketing?

HS: Yes, right.

BC: And the exploration was very. . .

HS: If they had gone on, they would have gone on to petrochemicals right away.

BC: Right.

End of tape.

Tape 2 Side 1

HS: I mean, I liked him very much. He was superintendent. . .

- BC: If we could just get the name onto the tape, Dr. Suter, this is when you were still in Trinidad and this would be Bob Blair's father that came down. What was his connection.
- HS: He was superintendent supervising the building of a 100 octane refinery you know. He had things in his hunt, just at his fingertips, a big flow sheet, a big wall, the big wall was the flow sheet, this has to arrive today, this has arrive tomorrow and so on and so on you know.
- BC: Very organized.
- HS: It was the first time I saw that, very organized man. He was a chemical engineer you know and he knew about as much about refining as anybody you know.
- BC: This 100 octane refinery, that would be quite a different type of refinery?
- HS: I am not a specialist in refining of course.
- BC: No, but this was one of the first.
- HS: I was told it was the first outside the U.S. And that was used for fuelling the battle of England, the air battle you know.
- BC: You would have seen the war to a certain extent in Trinidad, you had blackouts did you?
- HS: Oh, blackouts sure. We had guns, we had a 6" or was it 8" gun. One day we were talking, one of our advisors in Trinidad, we had a consulting geologist named Professor Reiling??? and he was sitting there where you sit, I was sitting here and my chief geologist, Central Mining & Investment's chief geologist, Dr. Coogler???, he was sitting there and the gun went loose you know. Coogler jumped up in the air, Professor Reiling was sitting there making nothing, I did nothing. . . I was too slow, just sitting there. But you should have seen it. But the whole ground shook you know. They were so damn good shooting with their gun. We had a torpedo net in front of us you see, ????. One day they were shooting at a target and they were censored for doing it because they hit the target instead of where they should have shot at the rest of it you know. And the German submarines, they came into Trinidad harbours too. And shot ships up. They were quite. . .
- BC: So you would be part of. . .you were really in the war zone.
- HS: Sure. And at one stage we had about 20,000 American soldiers on the island. They had huge camps you know and there was an air base besides you know, Lumbring??? Air Base.
- BC: They also had patrols that went out to sea, you mentioned.
- HS: Besides the planes, they had also bombers you know.
- BC: And before we turned the tape on you were talking to me about one of the strikes that they did make, one of the German submarines that they did hit, if we can just record that.
- HS; Oh, that one interlude of a Spanish tanker fuelling a German submarine.
- #040 BC: Right.
- HS: In fact they hit, by luck, just by luck, not by cunning. Because these bombers, they had these. . .to take off from the water, what do you call it?
- BC: Pontoons?
- HS: Not pontoons. In Canada they had them for years after the war still.
- BC: Like the flying. . . we call them the flying boat sort of.
- HS: Yes, the flying boat, they were too, too slow. And the Germans shot one down from the

- submarine. They stayed on the surface and shot it down because it was too slow. There's no use talking about the war too much because. . .
- BC: No, it's just really where it tied in to the oil production. You had to drill differently didn't you, you had to go right through and try and get. . .
- HS: We drilled more than we would have ordinarily and speed up the drilling. That's where I mentioned the multiple completions you know.
- BC: Yes, could you just tell me what you mean by multiple completions?
- HS: You drill a hole and you cement a certain interval, isolate a certain interval from another interval and you isolate that one from a third interval. Then you set casing and you perforate each horizon but you put a plug on top of each horizon so it can't interfere with the next one. And you have a special tubing to produce from that so that up to 3 strings of tubing were set in there to produce each horizon at the same time. But that's a technique which was invented, or worked out in the States you know.
- BC: But it brought you a lot of the oil that much more quickly.
- HS: Oh yes, sure. The wells were not very big but they were at least, I mean a well which was 150 barrels or so a day wasn't even looked at.
- BC: Tell me, when you came up to Canada and started looking around, after you got over your surprise, Trinidad Leaseholds never became a great big exploration company did it?
- HS: No.
- BC: So what really was the role here? The role of Trinidad Leasing, was it to get oil that you could then put into your refinery?
- HS: Right. That's it. The president thought that oil that we produced could go into his refinery but he was mistaken you know. Because the oil that is produced here goes into the pipeline and you get your oil but not necessarily your own you know. You get a credit for putting it in and outside you take whatever is next in the pipeline. That's a different thing. The president or chairman of Trinidad Leaseholds. . .
- BC: What was his name, do you remember?
- HS: A man named Fox. He died early. His whole family had a genetic something wrong, they all died at the age 50-55. And he wanted to have a counter weight to the president, Rosefield??? was his name, who was not interested in the fields. ??? I suppose, ???.
- BC: So you came out here really to start leasing land to do some exploration or just to look around?
- HS: No, it wasn't that. It was just, go and look what's going on. And of course, look what you can recommend and find out at what level is it economic. They were more interested in the economics of the darn thing than in the actual oil.
- #085 BC: So what would you have said in your first report, what type of recommendations did you give to them?
- HS: Well, I picked a trend you see. And said, so many wells you've got to drill there, they cost so and so much, ??? is so and so much production is so and so much and the value of the oil is so and so much. You can pay for it, it can cost you that much. And it came out, inside 2 or 3 years you could have something going, small, small, small thing. But I wasn't asked to come and say, pick a piece of land, which at that time there was a lot of

- Crown land, a lot of land still free you know. They didn't tell me that.
- BC: So after you gave your recommendation, then what was the decision of the head office as far as Trinidad Leaseholds was concerned? Was it still called Trinidad Leaseholds incidentally?
- HS: It was still for a short time called, yes, it was still called Trinidad Leaseholds. But then before any action really was taken they changed the name Regent. . .
- BC: They called it Regent Refinery, which it was, that branch of the company was well known in eastern Canada.
- HS: Why they changed the name, because the Leaseholds word wasn't liked you see. People here in Toronto and ???, they said, what's this company doing in oil, it's a leasehold company. And so what kind of leasehold, land or oil land or any land and so on. so they said, let's change it and put it Regent. Why the name Regent I don't know but anyhow it was another bad word because pronounced in French, [Regent] you know. ??? in English, show you're bilingual to begin with. At that time I was bilingual too. I don't like the part of Canada that was bilingual, not bilingual but had 2 languages you know. Now, I don't like to be bilingual in the sense that it is now, pushed out you see. I voiced my opinion against it. I mean, I used to speak French more fluent than English.
- BC: Coming from Switzerland you'd speak several languages really, probably.
- HS: Yes, I spoke French, German, high German. We learned German in school like we learn French. My own language is a dialect but it's a very dialect apart from the German. Not quite like Dutch but not too far away.
- BC: Tell me, do you remember when it became Regent Refinery, about the date?
- HS: It must be '53 or '54.
- BC: So what did you do in those first years that you were here. Mr. Lee was the manager but he left fairly shortly.
- HS: Very shortly and then we . . .
- BC: Then Mr. Cander??? came and. . .
- HS: That didn't last more than a year either and then I took over. Then of course, I . . .
- BC: Then in '54 you took over, so what did you do when you took over?
- HS: I had to sell the drilling part of the company.
- BC: Why did you do that?
- HS: Because I got orders.
- BC: Why did they decide to sell the drilling?
- HS: There was nothing in it. Too much trouble anyhow. And the competition became more fierce you know.
- BC: At that time you had a drilling rig and your own people. . .?
- HS: Oh yes, we had several rigs you know. Not too deep, I think 8,000' or something like this, I don't know.
- #128 BC: Were they in place when you came up here?
- HS: Yes. They were doing part work and part for ourselves. You see, we thought it was cheaper to drill your own wells than have somebody else to do it. It wasn't really that way, we do the drilling ourselves you know, on anything.



- BC: And then you found that this was not so?
- HS: Not so. Anyhow, I'm not quite sure what all transpired in their heads. At the same time the production became minimum, that it was hardly worthwhile to keep on producing the wells. And so we. . .
- BC: Where were your wells, they in the Leduc area eh?
- HS: Leduc.
- BC: But not. . .
- HS: Not good ones.
- BC: Not big ones.
- HS: I think they had even water, some of them.
- BC: Did you have any land that was under lease at that time, had you taken up leases?
- HS: I didn't take up any leases at that time. Lee had taken some leases but on not very good ground, none of them.
- BC: Outside of Leduc.
- HS: Yes, more or less in the . . .
- BC: But on the plains.
- HS: The plains you know. One of the Viking fields was ??? but we never even tested it.
- BC: You just got rid of it?
- HS: We tested 1 or 2 places, we got some gas you know, just about on the border of profitability ??? too much.
- BC: Then after you took over in '54 Dr. Suter, you just started selling off the drilling rigs and what else did you do?
- HS: Then I got the permission to start leasing you see, or participation. So we took a huge participation with Basil, south of Grande Prairie, more than a township ???.
- BC: With Bailey, Selbourne.
- HS: Yes. We did exploring, surface geology and the seismic and Basil did the drilling you know. That was over Cardium and ??? huge success. Then later on when I left, when Regent finally was taken over by Texaco, they were drilling deep down for the reefs you know, and found some water, I believe, didn't drill deep enough. What it is now, I don't know, I didn't follow the whole thing.
- BC: Who did you work with at Bailey Selbourne, do you remember the names of the people that you were working with?
- HS: With Friley mainly. Smart guy, washed with all water. He really knew the details of how to deal with leases and so on. As a geologist we are not very good at dealing with leases, you know why, you're either attached to a lease or not. If you're attached it's as a baby, you're not going to get rid of it, and so on. But for Friley, that's cold blooded, if it suits the deal that's it. He was a very good man.
- #173 BC: Very good businessman in that sense.
- HS: Yes. He came from Tulsa I believe. He should be interviewed anyhow if they interview other people than geologists.
- BC: Yes, we're interviewing many different people from different areas.
- HS: Then Friley should.

- BC: Yes. He was not a geologist, what was he, an engineer?
- HS: A land man. And that's what you need at a certain stage.
- BC: So you really depended on your partners, you didn't have land men within your Regent Refinery?
- HS: No, not yet. That kept us busy there. Then later on, we took also some interest in Cardium with Home Oil you know, in the south part of the whole area. The prospects turned out to be really Mississippian I believe. Anyhow it didn't very much pan out, that part.
- BC: This would be in the mid 50's also?
- HS: Yes. And then with Home Oil we took several other participations, got a little gas here and there. But you know, in all these times I've forgotten what the outcome of all these things are.
- BC: Yes. Who were you working with in Home Oil, who was your close associate there?
- HS: That was John Carr.
- BC: Yes, can you remember much about him?
- HS: I sure remember much about him. He always laughed and smiled. And I admired very much his method of presenting data. He had a big book you know, about that wide, that thick and he had, for each area he had a topographic map on top, then the contour of each horizon going down. So if you talked about a Devonian he would flick the page to the map. And that was on a ??? map you know, which shows the properties of the townships and all these things. Then the area of interest marked and so on. He was up to date.
- BC: Very clear and precise so that he could put his finger on it.
- HS: Yes. As good as one knew at that time. He will be interviewed, that's for sure.
- BC: Yes. And whereabouts were you working with Mr. Carr, with Home Oil at that time?
- HS: What part . . .
- BC: Of Alberta, were you working on participation?
- HS: I just said, some of them were in the south of the Cardium trend. Mainly, and then one area near a lake, near a . . . put it this way, not in the foothills you see, only in the plains. More in the deeper part of the plains or medium part of the plains, inside the Cardium and Viking and so and so, side of things. Touching maybe, and going down to the Devonian too, wherever it was possible. But not in the grass side of southeast Alberta or eastern Alberta, no.
- #218 BC: As a geologist who had done a lot of work on the field, did you get much chance to go out of your office once you got to Alberta?
- HS: When we did the Grande Prairie acreage, I supervised the seismic and I went out there sometimes in the winter time. But we didn't do any mapping or search you see. And then in the summer time I went on a trip with a helicopter over the Grande Prairie area.
- BC: How did you find going out to the Grande Prairie area in the winter time, as against the work you'd done in say, Trinidad or Venezuela, how did it change, how different was it?
- HS: It was easier. Because you moved in a car you see, or in one of these snow buggies. And slept in a camp, ate the finest food in the world. Not the same as camping in Venezuela with a tent.
- BC: And your little Ford car.

HS: No Ford car. The Ford car was in Peru. No, you had to ride on a mule or you had to walk. And walking in the bush, you had to cut your trail first you see. You can't make more than about a mile, mile and a half an hour.

BC: In Venezuela?

HS: Yes, in the bush. Because there's always fallen trees which you've got to get around or over you know.

BC: What about when you were working in Grande Prairie, you had the winter elements to contend with, how did you manage those?

HS: I was very lucky. I never was really cold.

BC: What time of the year were you up?

HS: In January, February, December, so on. It was wintertime because in summertime you couldn't move around in that muskeg area. No, I had the most mild winters, I was astonished.

BC: You were surprised, that would be one of your first winters here wouldn't it?

HS: My first visit in '49, it was in December and it was below zero. It was about 10 below zero here in Calgary and 15 or 20 in Edmonton. I noticed that immediately and I felt wonderful.

BC: Of course, coming from Switzerland you would be used to some cold winters.

HS: Well, my part of Switzerland is not so cold. It's very funny, Switzerland, in the wintertime, the higher you go the warmer it is. You have inversion you see. The valley is cold because the cold air stays there, it can't go anywhere and then higher up the sun shines. It's like here, the sunshine thing, it can be above freezing in wintertime and here it's below freezing.

BC: Could we look further into what had now become Regent Refinery. This would be after 1954. How long did you stay with Regent Refinery?

HS: Until it was sold. I think it was '56 or. . . I lost the thing, I can't say. I can only tell you something, I can tell you the story what happened. In '55 I looked through it, it isn't there. You see, this is '57, it must be '56, that's what I think. Because before we did that we had taken up that Swan Hill thing you know. That occupied my time.

#278 BC: We haven't talked about Swan Hills at all.

HS: Well, that's a big part. While we were still Regent we took it, it was still Regent you see. And we even took up 2 or 3 townships, I think 2 townships of tar sand land also you see, before Swan Hill. No, no that was after Swan Hill.

BC: Tell me about Swan Hill.

HS: The Swan Hill is a dangerous subject because there's probably several people who claim to have found it you know. And if I give my story they say, well, that's it.

BC: I would like to hear your story. This is your story and I think it's important for you to tell your story.

HS: I didn't discover the Swan Hills field. Because that means drilling and the drilling was done by Home Oil you see. So the Home Oil can come and claim discovery of the Swan Hill. But I can only tell you how I found Swan Hill and how I took it up you know. The details you can read in, I wrote it here in the back. The Treasure Hunter, you see the

Treasure Hunter, that book there.

BC: Yes, in fact I have a . . . I don't know if I brought my copy with me.

HS: Page 174, 75, 76, 79, 82 is the story.

BC: Yes, but tell me it in your words.

HS: Yes, okay. When I was told, go and look for some big acreage you know. I told to my geologist, but being a geologist I started to ponder too. I said to myself, I can only look in regional terms you see. In other words I used at the whole darn western Canada basin, right up to the Yukon or whatever it is and so on, down to the border. And say now, what can I do with this from a regional standpoint. So I said, I'm using some rules. Geology has very few laws you know, but it has a lot of rules. And rules of course, have exceptions you see. So I said, one of them is that movements in the basement have an effect on the overlying sedimentary cover. That's what's called tele-tectonic effects. And in the cover it will be expressed in terms of structure and in terms of lithology. The next point is this, these tectonic movements in the basement, they proceed along lines you see. So I looked for lines, what they call lineaments??? you know. Then I took a map. In fact I found a map of the whole area, the whole Alberta, very simplified, there was an old map this size, which was purely regional and showed the trend of the northern boundary of the southern Alberta ??? platform. Then I saw the line-up of Leduc reef, Redwater and company up to the northeast, you know there was the ???. Then I noticed that they had a route in the mountains, surface geology found by the GSC and I looked up at these lineaments you see, and I saw that the lineament of the north boundary of southern Alberta platform was parallel to a line which I drew to the reef trend, just like this. Here's the disturbed edge, with the outcrops you know. Then here is the southern Alberta line and then here is Leduc, it goes like this, more or less parallel. Then there is another line of parallel. . . that's a rule, not a law.

End of tape.

## Tape 2 Side 2

BC: So if you can just start again where you were talking about the other law.

HS: Another rule.

BC: Another rule, not law.

HS: That is these are, I should say, manifestations of movements of basement blocks. A basement block, you know, a basement block is surrounded by faults or by fractures you see. And then tend to be parallel, that's a rule, not law. And then I found here another outcrop you see so it's quite obvious. I make the line like this you see, parallel.

BC: Just parallel from the line from Leduc, going back to the outcrop.

HS: Yes. And this is what, as we call it, the Swan Hill line you know. Then I say to myself, that contains reefs, this is a reef trend. So this one here must have reefs too because this is a reef line too. Now where on this trend should I look. A line like this is never horizontal completely you know, it has ups and downs.

BC: Right. And how long would that line stretch, that you would draw, how far across the province?

HS: Right across to the, what do you call. . .

BC: Right up to the oil sands do you mean?

HS: Not quite. Just south of it. . . there was a lot of reefs there too. Not ??? but full of water you know so they didn't take it. Now I saw, ups and downs, so I say, if it's a reef it probably might show up as a little high in the cover you know. Because even if you cover it, it adjusts itself by packing you know. And I found here was the Swan Hills, you know, a high part. In front of all the hills here, a high part here. Something must hold it up. And I said, maybe that's a reef below. So I said, okay that's it. Here I found out by chance that this was available in townships. You could lease it as a township by bidding you see. And the night that . . . every day I drew this line and said, how do I like it you know, and the night before the bid came I moved the darn thing, I had it here in this township, I moved it to this township.

BC: One township closer to the outcrop.

HS: And here was another township, this township was bought by Shell, this township was bought by somebody else, and this one was bought by us you know.

BC: The middle one was bought by Regent Drilling right?

HS: Yes, that one. And that had the reef below.

BC: Wow, and you had moved it over one.

HS: Just over from one township to the other because I liked that line better. Just liked it better because it looks a little nicer. So there's a lot of luck. And I say, I at least picked it, that's all I can claim.

#038 BC: And the other 2 townships, the ones on either side, did they became oil producing areas too.

HS: No, the one on the west was completely washed out. The one in the east had a little bit too.

BC: But now Regent Drilling was not interested. . .

HS: Regent Refinery.

BC: Regent Refinery, sorry, was not really interested in doing a lot of exploration.

HS: No. That's different you see. They gave me the money, I had to set the price which I would like to pay. How the hell I did it, I don't know.

BC: How much did you pay?

HS: \$1.26 or something, I've forgot, it's in the book you know. What did I say now, where. . . oh, by the time we had obtained the lease you see, I started to make surveys, aerial surveys and photo-geological surveys which was wonderful but meant nothing. And ??? to make something and I couldn't interpret it. But you know, after drilling I found out that the ??? couldn't read it. It is very interesting, here you have little highs, ??? highs you know and here you have a low. And ??? Swan Hill. If he had known at that time, the surveyors??? didn't know it. I didn't know it either.

BC: Nobody could interpret this.

HS: But the government would have shown it already.

BC: But they were using different types of seismic.

HS: Yes, and it wasn't too good.

- BC: But the people that you were consulting with couldn't read that particular reading.
- HS: The one who made the gravity meter, they couldn't read it.
- BC: Who eventually drilled in the area that you had spotted?
- HS: Home Oil. Now comes the story why you see. That was still, while we were still Regent. Regent told me, we have spent that money, we have no money anymore for drilling, you must farm out. I almost cried you know. You see, the firm had itself overexpanded, in expanding gasoline stations over in England. They had a fight with Texaco or with BP or Shell or whatnot, so and so, and they were very successful. But by doing that they were materially successful but the money was drained. And by the time they had reached a state, what you call their working capital was ????. So finally I said, okay and as I had good relations with Home Oil you know, by the many little deals we had with them I went to the Home Oil and offered them. I offered them 45% at a million dollars or something. And then we were sold to Texaco. And up to '57 I was named attorney of the company here with full power. We went on operating until February 20<sup>th</sup>, '57. As before we'd hardly any interference from either Texaco Toronto or Texaco New York. They said that darn thing isn't worth worrying anyhow. And their geologist, I had given the geologist from Texaco, I had given them all the dope I had about the area you know. They rated it and said I paid too much and they didn't want it. So they sent me a letter, get rid of it, farm it out. And they said, in that case, don't record that here for a second. Texaco had declared no interest in the whole area and I was ordered to farm it out. I wrote them a letter, they asked me what terms should I offer, I said, 50-50 and a million dollars cash or something like that you know. So they said, okay, go ahead.
- #087 BC: So first of all you'd gone to Home and then you'd had to say no to Home. . .
- HS: I had to go to Home and say, I'm sorry, it can't go through because the company has been sold, ???, you see. Then afterwards, when Texaco gave me the go ahead, I said to myself, where am I going, I have to go back to Home.
- BC: Sure, because they were the ones that had. . .
- HS: They had shown interest. It was a kind of Alberta customer, whatever they was told, you go back to the same thing. I told him these terms and by golly, he fell for it. Besides, a well must be drilled to the basement you know. Whether they drilled a well to the basement I don't know. I didn't follow it up. I had no material interest in the Home Oil or in Texaco. They drilled and found some oil so that was good enough you see.
- BC: So Texaco had part of that oil.
- HS: Texaco got 50%. Texaco was not even satisfied with that, they didn't like it. And Home Oil proposed a pipeline, they had a pipeline and Texaco refused to participate. But at that time Texaco had handed over the whole regions refining stuff to Texaco Canada Ltd. you know. And Texaco Canada Ltd. was not interested, or Texaco New York was not interested in participation in the pipeline. So finally Home Oil got mad and told them off or something, about what kind of people and finally they agreed you know. And you know how much profit they made the first year already, \$800,000.
- BC: So they needed to be shown a little more clearly I guess, that this was indeed a profitable. Did Texaco then become, you stayed with Texaco did you?

HS: Yes. ??? they took the 50% and still ??? too. For Home it was a godsend you know, I've been told that it was.

BC: It was one of the major finds for Home Oil you would say?

HS: Sure. I flew over Swan Hills with our company representative from London, he said, what the hell you want to go in such mountainous area. At that time there was a storm when we flew over it and we were up about 6,000' and the plane shook like blazes. I was the only one besides the pilot who wasn't air sick. I had to go and help the others. But I was there and we made the seismic, you see, I gave it the works because I said, here is my only chance to do something and I wanted to prove it. But the seismic didn't show too many. Some said, oh there is something. The Texaco seismic people ???, they started out, they noticed that Imperial had a line through their area years ago. Right straight through, didn't see the reef.

BC: They had done seismic work before?

HS: Yes. The thing is, at that time, it was very difficult to recognize the reef with this type of equipment they had at that time. Nowadays, oh gee. . .

BC: This was the gravity that you had the trouble with too.

HS: The gravity was not very helpful. But we had to do something to show, you are under obligation to write the report, what you have done in exploring to the government you know. And if you don't do something then you can't write the report.

#132 BC: Would you say Dr. Suter, that the discovery of Swan Hill was the highlight in your geological career?

HS: I won't say that but it was sure the highlight of my activity in Canada. From that moment on, here look at what I said here.

BC: Read it to me.

HS: Last day at the office.

BC: I can see that, last day at the office, yes.

HS: Then I went from. . .

BC: Did you retire then, that was your last day with Texaco?

HS: That was my last day with Texaco Canada Ltd.

BC: And that would be in 1957.

HS: But you see, when the deal came, the deal was so that they had to take over the staff. So some of the staff went to Texaco Canada Ltd. and 2 or 3 of us went to Texaco. I was there assigned special projects and was sitting there but the first call I got was to go to New York. I went to New York to see what they want to assign you to and what they did, they assign me to write a report on the tar sands that thick.

BC: And inch thick report, my goodness.

HS: It took me 3/4 of a year to write that report, covering everything.

BC: So you spent quite a bit of time up in the tar sands did you?

HS: No, I only spent about 2 visits, that's all. The rest is from the books.

BC: This is really compiling. . .

HS: Compiling.

BC: The data that was around. Because there's been a lot of. . .

- HS: Oh yes. But I even went so far as to calculate the cost and all these things. Now I can laugh, back to it you see.
- BC: What did you calculate the costs at, to get the oil out of the tar sands at that time, this was '57?
- HS: What's your guess?
- BC: I wouldn't hazard a guess.
- HS: Of course, I only dealt with the richest one and the actual example was between 3 or 4 dollars. At that price.
- BC: Using the same methods they're using today?
- HS: I wouldn't know. But I used similar methods that the government had used and Clark had used. I was in close contact with professor Clark. And I looked at all the locks and everything. Went and stayed in Edmonton for a week, to look at all the locks and cut all the samples and this and that.
- BC: How did that compare with the costs of getting conventional oil at that time?
- HS: Well that must have been about between 60-75 cents and a dollar.

#169 BC: So it was still. . .

- HS: But then of course, ??? the richest part which I dealt with. We could not apply it to the whole area.
- BC: After you left Texaco, what did you do?
- HS: I didn't leave Texaco, I was retired from Texaco.
- BC: You were early retired then because . . .
- HS: No. '57 I went to Texaco, on the 20<sup>th</sup> of February. Then when I finished with the tar sand report, they still had no. . .
- BC: I'm sorry, I've confused myself. In 1957 that was your last day at the office when you were tying up the end of the Regency or the Regent.
- HS: No, at the time tying up Texaco ????. And then there was Texaco took me over as an employee with open thing. But I think they had no intention of giving me a job equivalent, but they were supposed to give me an equivalent job. So I went on special project and made up myself what I was going to do in the meantime. And I started to look at each basin of Canada. I once wrote a report on the offshore of Nove Scotia, a year before Texaco heard that there was something going there. So when Texaco sent a letter up to Calgary office saying what do you know about that off shore thing I said, here's the report.
- BC: All right.
- HS: Now what did I want to say? Oh,. about the shock that you get when you come here is the quantity aspect is fantastic. So many formations, so many names. Stratigraphy, so many words going, to absorb that from the outside, you know, what is it, in the 60s, maybe in the late 50s or early 60s, one of the geologists from Trinidad was transferred to Calgary. And he could not upgrade, he lost his mind, had to go to the psychiatrist. He almost smashed his head in. He just couldn't take it.

#205 BC: The immensity of it.



- HS: Yes, the immensity of it. People who are accustomed, who are born here and are trained here, for them that's their daily life. But for an outsider from Trinidad with so many microscopic details, it hard to. . .
- BC: You're still a very active geologist. So obviously you may have retired from one company, but then did you become a consultant?
- HS: Yes, before I go to that what I'd like to say, that I have lived now in my life and seen the development of the oil geology from the seepage stage to the more sophisticated stage now. You wouldn't believe it but the contour map was only invented during the First World War. And the term facees weren't even known until war time. The Americans and the Canadians didn't know anything about the term facees.
- BC: You've seen many, many changes.
- HS: Yes, and the term Gas Ratio. Perhaps you have heard about it. It's written GOR. That was invented by the Standard Oil of New Jersey or the Humble Oil in 1934-5 or somewhere around there. The real impetus of oil geology started in the early 20s, ????. You could sell an oil prospect only if there is also an anticline. Then you could sell if it had a fault you know with a trap. Then finally sedimentologists came and said, here where these outcrops are is a stratigraphic trap. So the ancient sea shores were mapped you could sell a project on that. And nowadays you can only sell it on seismic.
- BC: How do you feel about that? About the way seismic seems to have taken over. . .
- HS: Well the seismic is for me, subsurface mapping like they are surveyors. The ordinary topographic surveyor surveys the surface and the seismic people does the sub-surface.
- BC: And then geologist has to do the interpretation?
- HS: Mostly. And has to live with it anyhow.
- BC: What are you doing as a consultant, what types of work do you . . . ?
- HS: In '64 I retired from Texaco. And then I spent a couple months doing nothing, digging in the garden and whatnot around here. And then I went Home Oil and talked to what's his name, to Brown you know, and said I have a few ideas, you might be interested. Then he called in Clark, that's the exploration manager at that time, I forgot his name, maybe he's on the list too. So I worked up a few of these prospects, these things, but they didn't bite. And off and on, I came back, once I got a job for Trinidad, twice or three times, something here, something there. But I didn't make any effort to get official standing as a consultant geologist.

#259 BC: But here you are in Home Tower.

- HS: It became a habit as I went on and went on and they gave me an office. And I keep on doing a little bit work here and there. And sometimes the staff, in years by, in the old building, they came over and talked to me with their problems. Nowadays, with the new setup, there's much impersonal, it used to be like a family in the old time. Now it's more impersonal.
- BC: So in the old times it was like your family in Trinidad. The small. . .
- HS: Yes. But the old style geology where a lot of feet work was involved. You see, in Venezuela and in Trinidad, companies had to do their own surveying, their own geology and everything. The government didn't do nothing. I wrote a book about the Trinidad

geology before I left Trinidad. And one fellow, while I was trapped in the . . he's from the States, he's dead now, world famous, his name is ????. I sent him a copy and he wrote me a letter saying, that's a wonderful piece of work, a wonder that the government of Trinidad has done you know. So I wrote him back, hell no, that's private industry.

BC: That's interesting...

HS: Do you know that the company which has done more for petroleum geology than anyone else? That's New Jersey, Imperial. That's the New Jersey Group, Standard Oil of New Jersey. The basic concept is from them, that's Sprat and Stabing and somebody else, famous name, forgot him. They did more from that than anybody else. Shell has more information, people say, then any other company but they keep it locked up.

BC: But Standard Oil of New Jersey shared their knowledge.

HS: Shared these things.

BC: In looking back on the people that you have met in the oil patch, particularly here in Alberta, who stands out to you as one of the outstanding oil people who have helped in the progress of the industry?

HS: when you mean oil people, to me oil people means business managers, and presidents and such things.

BC: Well the people that have contributed more to the growth of the industry.

HS: What about very helpful?

BC: Helpful to you personally perhaps, or to the industry.

HS: I would say Sproule. That man was a fantastic worker and an optimist besides and had his finger in a lot of pies you know. And he was businessman besides. But he sure was a geologists besides too, he never forgot that. I mean he died far too early. Must have been 65 or something. It's a pity.

BC: You did quite a lot of work with him did you not?

HS: No, not a lot.

#314 BC: No, but you were associated . . .

HS: Well, I worked for him when I was pensioned off. I worked for a couple of months with him. He wanted me to come over to his place and work there, you know. I didn't like it.

BC: Can you remember any anecdote about your association with him, any particular incident that shows what he's like?

HS: Well his handling of. . . I took him to meetings with my president and chairman and whatnot in Toronto when we had business meetings, I took him once up there. And the way he behaved himself was so convincing, that the president fell for it. He was a precursor of using lithology as more than just thickness and depths. But why the porosity, where can you expect porosity, where the sand is washed. Where is it washed, in the area where the waves are and so on. He was one of the first to have spotted that and used it. And then of course, he was about the only one who was successful I should say, in using photo-geology for evaluating prospects. He not only had the Lieneman concept, which you heard about, somebody must have talked to you about Lieneman concept, which is nice, theoretical, practical. . . it's very difficult to really make ????. But he could make use of it very well because he had done more work than others. But he never published really

fundamentally had you know.

BC: So all of his knowledge is lost now.

HS: That happens when people die. But I always say I've forgotten a hell of a lot of things. As thick as book you know, but I couldn't complain because most of it came out of books anyhow.

End of tape.

### Tape 3 Side 1

BC: I'll just introduce it again. This is Betty Cooper and I'm talking to Mr., to Dr. Hans Suter.

HS: Forget about the doctor.

BC: Dr. Hans Suter and it is June 21<sup>st</sup>, I believe, Monday morning at 11:00, 25<sup>th</sup> floor of the Home Tower. Now you had some notes that you had made Dr. Suter and perhaps you could talk to those.

HS: Yes, I would like to add a few points. Sid Clair was President of the Bactu??? Corporation, I forgot the name you know.

BC: Oh yes, I remember. His first name was?

HS: Sid. And you said, who impressed you most, I mentioned Sproule as a geologist. But when you mention oilmen then I must mention Bob Brown you know.

BC: Yes of course. And I'd like to talk about Mr. Brown.

HS: Yes, we can come back to him. Most astonished when I came here was not only the production, the low production which it took to be commercial but also the spacing. That was to me so different from what we had in Trinidad, where we dealt with 3 acre spacing, 5 acre spacing. A 10 acre spacing was a fantastic big spacing for us down there. And I still have my doubts in my head whether we have the right spacing. I believe that all the spacing policies were dictated or promulgated by the engineers and the geologists had very little input. I'm referring here to wells in the Tertiary and in the Cretaceous and in the Jurassic you know, where anticlinal??? exists you see. Now, I personally think that it might pay to look into the matter a little bit more and maybe even drill a ??? trail in the present spacing and see. You might get surprises.

BC: Yes. Why do you feel that there is such a big space and you feel that if it was a smaller space then you perhaps might find pools that were missing?

HS: Sure.

BC: What happened in your experience in Trinidad where you were so close together?

HS: Well, in Trinidad, we could say at an average of about 275' away from one well, you couldn't correlate the well anymore. They were already in another set of lenses.

BC: Do you feel that that same principal would apply here?

HS: I don't feel it's exactly the same but I would like to know more about what the actual situation is. Because we didn't rely in Trinidad on the engineers alone. In fact the geologist had the main say in most cases you know.

BC: And Canadian policy is different from American policy too, is it not? They drill much closer together.

HS: Yes, because that's all old fashioned, old style heritage. That's due to the situation of property situation, where like in Signal Hill or whatever the hill was, I've forgot, Barberry Hill or whatnot, in California, where they drilled so close that the property of one well was half way, that the well set over the property and drilling was, the derrick was halfway in another property. The properties there were lots and acres but not big square miles and such things like that you see.

BC: Why do you feel the engineers put it into such big things?

HS: Because they rely on their core analysis, they rely on their pressure tests and of course, there's something in it but they still might miss something. It's a case for me, of trying a little bit more and not relying 100% on one mathematical, physical approach, that's what it is you see.

#042 BC: Have you ever approached government people about this?

HS: No, not government. I discussed it with some people but just lightly, they were not too much interested you know. You see the geologists here in this country are not so close associated, in contact with the engineers. They work as a group and the other works as a group and the connection is possibly not 100% as it is in Trinidad.

BC: Would that be because our space is so much bigger?

HS: Yes, sure. And then you were in a virgin territory you know. And you had obligations which were stiffer maybe, than from private owners of land.

BC: Yes, environmental considerations.

HS: Well, political, the whole thing, it so happens you know. . . and then each of the whole thing, in Trinidad they started to drill before the First World War already, in the States, east Canada was one of the first to drill in 1840's and whatnot. This was only Turner Valley and nothing else you know. Part of it at that time, you had hardly any roads in Alberta.

BC: No, you certainly didn't until after the Second World War.

HS: And they were all gravel roads besides. ??? the spacing thing which I said. Now about the deviation holes, that is something which I also, maybe as a hobby. But the technique of drilling deviated holes is very, very far advanced I can tell you, slant holes, the call them slant holes, right down horizontal from a well, down vertical then horizontal out. So much there. And I feel there may be something in it instead of just relying on fracturing you know. Fracture process is expensive and it has its limitations.

BC: More expensive than drilling. . .

HS: Maybe even more expensive in some cases, that could be.

BC: What is the major advantage do you feel, to be able to do this deviations drilling?

HS: To get the maximum exposure of oil producing formations to the bore hole. The better exposure, that means that you increase the porosity for ??? and permeability you know. Any matter that's good enough in a field, that slant hole drilling, especially in the foothills where it's very costly to move the wells you know and drill one well here and another well a mile or two away, that's very costly. If you could get a payable well in one site by slant hole drilling and then watching the exposure, you might have an advantage.

BC: You would suggest then, you would have your major hole in the middle and you could

kind of come in from all around.

HS: Yes, drill all around. Like the do it at the sea. Offshore they do it, they drill from one derrick centre, they drill 16 wells, slant hole.

BC: Why do they not do it here?

HS: They do it here, they do it in Canada too.

BC: You feel they don't do enough of it?

HS: I'm not saying nothing. Because offshore exploration is still in it's. . .

#078 BC: No, no, I mean in onshore drilling.

HS: Nobody has tried it yet. So far as I know. That's the thing. Anyhow it's common practice, the technology is well known. Now I would like to say something, when I came here I came for an English company you know, in the early 50's and I found that they were very welcome, an English company was very welcome. I used to have contact with the Petroleum Association and so on and with the government too. The government with the Social Credit Party, whatever you say, they were very accommodating you know, they were not really royalty hungry. And I found at that time that the Americans were welcome too, except that they made one minor complaint and that is that the Americans had an advantage because they could recover some of the money in their American tax which they had to pay from here you see. So I remember very well when they used to say, the Americans they can get a barrel, \$1 for 50 cents you know.

BC: Did this affect your English company at all, in your financial?

HS: No, no, we were too small anyhow. It didn't have anything to say. Now let me see. About Bob Brown now, we can talk about Bob Brown.

BC: Yes, I would like you to talk about Bob Brown because he certainly had a great influence, you had a great influence on each other.

HS: Yes. From the beginning he worked with partners all the time you know. We made several deals with him long before Swan Hill you know. So he wasn't an unknown person in our group, in our company. I heard a lot of criticism that he was rough shod and so on and whatnot, but then you've got to be a little bit rough sometimes too if you want to be a wildcat, a treasurer hunter as they call him you see. He was always quite accommodating. He didn't complain if you didn't take a farm out or participation you know, that's not a farm out really, it's a participation. Well that was nothing, so the next time it was alright, we started again on another one. We weren't always successful. We found some little gas and some little oil here and there but not too much.

BC: When did you first meet him?

HS: That must have been '53 or something.

BC: Can you remember meeting him?

HS: I remember meeting him, he was sitting there in front and then he called in the geologist, that was John Carr you know. And John Carr impressed me extremely much of course, because he had a system of showing the geology. He had a big map folio that size you see, for each township or for a group of townships. And on each he had in sequence, all the formations which are known, structure maps so you could take the Cretaceous off, comes the Jurassic, he takes it off, comes the Triassic and the ??? and such things and so

on. Then people could discuss what the chances are ????. There was one point which, one maxim which Bob Brown had was that he preferred projects which had a chance of at least 2 or 3 producing horizons. He didn't go for one shots you know.

BC: So he would be looking at the horizons to see what they might be all the way down?

HS: Yes. And at that time there was still a lot of ground reserves available and so on. So he went for that and he preferred prospect which, as I say, had multiple chances. That was quite a good idea you know. Later on of course, when reefs came some of them were so attractive, it was reef or no reef, that's all.

#129 BC: Really this became the byword, you just started looking for reefs.

HS: That came on later you know. In the beginning they were for sands you know, Viking sands and such things, and ??? sands and all these things.

BC: When you first met Mr. Brown, was it in connection with a prospect you were going to go into together, is that when you first met him?

HS: We can't say we went in together, put it this way, we just participated because the whole thing, the geology, the geophysics if any, the drilling and all the paraphernalia, the mud ???, that was all in the hands of Mr. Brown. We just took a certain percentage, say 25% or 10%.

BC: And you would just pay 10% of the cost and get 10% of the rewards.

HS: Right. There were companies who had a policy of going in for 1%, 2%, 3-5%.

BC: What was the policy of your company at that time?

HS: Certainly nothing less than 5-10%, it wasn't worthwhile. But I remember that fellow from Basil, what's his name, Friley???? of Basil, his was I'd rather like to have 5% of something which has promise, or 100% of something which was extremely doubtful. That was his thing. To be successful really, you've got to have some maxims you know. Of course, you judge each case on its own merits but still, the basic policy was ????. And he had the policy of a small participation. He was a wheeler, dealer in land, he didn't mind. . . you see, a geologist usually forms an attachment to a piece of land and then it's difficult to get him to forget about it. But Friley, he was, as I said, I'd rather have 5% than 100%.

BC: What about Mr. Brown, how was he? Did you look on him as a wheeler, dealer too?

HS: I couldn't give a real answer there but I don't think I would call him a wheeler, dealer. Maybe some might. But he was taciturn you see, Mr. Brown was a man of not so many words. He listened and had his own thoughts, then he talked it over probably with his fellows who had anything to say, like ??? and whatnot, these people.

BC: Do you remember the first one you went in on with him?

HS: The first one was a Cardium proposition I believe, to the northwest of here, there was a big township there. No, I don't know the details, I can't remember.

BC: What else can you remember about Mr. Brown, because you worked with him for many years really, didn't you?

HS: Well, for quite a few years but not many. He was a good host anyhow, as long as he had something to give you know.

BC: You came to work with Home Oil as a consultant. You were never a part of the Home Oil staff at all?

HS: No.

BC: So can you remember the first time you came over to consult with them, why you came?

HS: When I retired you know, I say to myself, I have a few pet projects. So I thought right away of Brown, maybe he might be interested.

BC: Yes, why would you choose Mr. Brown?

HS: Because I knew him best and liked him best.

BC: Why did you like him best?

HS: He treated us fair all in all.

BC: You felt that he would give you an honest hearing for any idea?

HS: Yes.

BC: So what idea did you come to him first with?

HS: One of my ideas was a method to find extension in a reef field or something like that you know, a method of pinpointing the whole thing.

#183 BC: Can you remember what it was?

HS: It meant special contouring.

BC: And what did he think of the idea?

HS: Well, I didn't tell it to him, I talked that over with his geologist you see. But not too much came out of it.

BC: Were you on the payroll at all for him at that time, or it was just a discussion you had?

HS: Yes.

BC: So when did you actually first do a consulting job for him?

HS: In '64 I retired, the end of '64 or something like this I started to see if he had any interest you see.

BC: So what kinds of projects, you said you had several pet projects, what were some of them, this was one?

HS: Another one was Gaspe. It was ??? prospect because it was 12 years ago and each well had a little oil you know and they never made a real field out of it. I said, all these wells were drilled in old styles times, maybe one should go with modern. . . they were drilled before acidizing was known you know. Those are all limestone wells. And I thought that maybe with modern drilling and completion methods we might find something. So I wrote a report on it.

BC: And what happened to the report?

HS: Nothing.

BC: Oh, they didn't have you consult on that either. You were doing a lot of free lance work without any money up front then?

HS: I made another contract ??? understanding that they would pay me \$600 a month you know, for half of my time.

BC: So you were really on retainer?

HS: For a time I had something, a retainer more or less, for a time. Then off and on you see, I consulted with other people, about Trinidad for instance and such things. But I didn't set up a consulting practice you know.

BC: Why not.

- HS: Because I was too lazy. I lacked the commercial talent. Originally I was really more interested in research than in anything else.
- BC: It's interesting that you never went into the university area because that's where they do a lot of research. Or with a big company that could afford it.
- HS: I did go back to university to teach for a short time in 1920. 5 or 6 or somewhere around there. But then I rather got caught in a rat race. You had to produce papers and you had to be an assistant to the professor. And there was very little time, I'd assist in teaching you see, give courses and such thing, there was very little left for research really.
- BC: No. Not even the summer months.
- HS: No. Oh, people think summer months are nothing, these people who are in the university have no summer months. At least where I was at the university in Switzerland, we had 4 weeks leave and that's all. The rest you had to be in the lab and prepare and what not and do what's to be done.
- #229 BC: We drifted a little way away from Mr. Brown. Eventually you came to have an office in the Home Oil building, could you explain how that came about please?
- HS: I couldn't explain it, it just so happened. They gave me an office to work in while I was doing something for them you see and then it became a habit in time. So sometimes I was off for several months, I didn't do nothing you know.
- BC: And the office was kept for you, was this Mr. Brown's suggestion?
- HS: I don't think so.
- BC: You never discussed it with him?
- HS: No. I mean, from the time I was really working with the geological department and not with Mr. Brown, I lost contact with him completely.
- BC: Oh, did you. Who did you work with in the geological department?
- HS: Well, with John Carr.
- BC: John Carr, yes. We haven't talked too much about Mr. Carr either.
- HS: Not too much.
- BC: No. Would you like to talk about Mr. Carr and the work you did together?
- HS: What should I say. He himself is a deep person. He didn't show all his talents, just on the fingertip and so on you know. And he was an extremely jolly fellow you know, he used to sing sometimes in the office. He left me a free hand more or less. Sometimes they came with a question, have you any answer for this or would you do this and that. That really comes when John Carr quit the job as chief geologist and became research geologist. And Chuck Hemphill??? took over, then Chuck Hemphill, he used to come around with some questions. At that time I was no more on the retainer you know, I just charged my time per hour or so.
- BC: Oh you weren't on a retainer any longer?
- HS: NO, I'm not on a retainer now either. I can sit here for the whole day and not charge a penny.
- BC: Do you find having an office like this has made quite a difference to your ability to continue doing research?
- HS: Yes. I ??? accommodate at the library, even here I have 2 big cupboards outside full of



books and look at what's happening in here. And at home it's just bleeding me.

BC: Is that research books or is that papers you have written?

HS: No, I didn't keep papers I had written. I quit writing papers years ago I think, when I was in Trinidad I used to write some papers which were published in the AAPG.

BC: Why did you stop writing when you've continued to research?

HS: I don't know. Maybe getting too old for it. I didn't think it was worthwhile, what I was saying.

BC: Well, obviously it is or you wouldn't still be here in Home Oil Tower.

HS: The last I did is a book on the geology of Trinidad, which is now out of date.

#276 BC: I think we mentioned that before, this particular book and you published it with private enterprise and people thought it was a government publication, it was so thorough.

HS: Yes. But I didn't publish it, the English overseas geological survey published it you know.

BC: Tell me about Mr. Carr. We haven't mentioned about what work you were doing together with him, can you remember some of the particular projects you were involved with?

HS: They were small projects, small questions very often you see.

BC: What about other, quote, pet projects that you had wanted to do some digging into? Were there any others besides the 2 you mentioned?

HS: One pet project was or still is, a real analysis of the modern tectonic theory, what they call new global tectonics or plate tectonics and such things you see. I studied that for a year or two and started to write that. I have a draft which is 1,500 pages already. Then I gave it up because it involved too much. . .then I did other things you see.

BC: This is the plate theory?

HS: Plate theory, yes.

BC: Were you supporting it or. . .?

HS: No, I was criticizing it and still do.

BC: Oh, what are your. . .?

HS: The claims are too big of these people. And they claim that is the ultimate theory and that solves all the problems. So I say, the plate theory is based on a belief, on a tenet of a maxim of a constant earth. They assume that the earth's volume is constant, that's the size of the earth you see. And that's not proven. And if it's wrong the whole theory is wrong. And plate tectonics is just one type of theory which was preceded by others, all based on tenets, on maxims of philosophical maxims. Like an expanding earth or a shrinking earth. Before plate tectonics the shrinking theory was very common. In fact, that was the main theory. And then they made attempts to promulgate the expanding earth you see. There are a few adherents of that theory still around, one of the main one is S. Warren ??? is the big one of the expanding earth you see. And I say to myself, we have already 3 theories which in turn have had their heydays you see. Now what next after the plate tectonic theory.

#322 BC: What do you think is next? What do you think, instead of the plate theory, what

do you believe in?

HS: First of all I believe there will be another theory coming one day. Because it's the same as, remember when Kruschew was in New York and gave a big speech about communistic theory being the last one in the world. One fellow, a journalist asked him, what comes next after communism and Kruschew got mad and made a few stupid remarks and that was all. But there's always something coming afterwards. So what's the easiest to think of, what's coming, a theory which combines all 3 others. That there were times of a constant earth, that there were times of an expanding earth, that there were times of a shrinking earth. How long do these periods last, we don't know. But so far as I can see, plate tectonics is not the last theory. Elements of each of these theories will survive and be put into the new one together.

BC: So you are writing a paper on this are you, or had you started to?

HS: I have started it. I have a whole book, see that book down there full of notes. When I'm finished with what I'm doing now.

BC: That's your next project is it?

HS: I don't think I would like, should I talk about it really.

BC: Why not.

HS: It's geothermics you see. I want to review geothermics as far as the interest of a geologist can be concerned you know.

BC: So this is a major undertaking for you then isn't it?

HS: At the moment yes. When that's finished then I think I'll go back to structure, tectonics. And see if I can't get something out of it a little bit more. I mean, plate tectonics has a heyday right now and they're working on details. But they don't doubt the basics, nobody looks into the basic side of the whole thing you know, the background and so on and so on.

BC: At one time nobody believed it, there was a great deal of scepticism surrounding it and then suddenly everybody, or most people seemed to be believing it.

HS: Nowadays. Some believe it without even knowing what they believe. But that's school. You see, all these theories become school theories. And each university adopts that school, all the students will be brainwashed in that particular theory.

BC: Well, maybe you'll brainwash them in the next one eh?

HS: Yes, I hope so.

BC: Can I just ask you one more question about Chuck Hemphill, you mentioned that he took over from Mr. Carr. Could you talk about him, your relationship with him and what he was like, or is like?

HS: Well, I had a pretty close personal friendship with Mr. Carr and I found him extremely helpful fellow you know, in and out of the office. With Chuck Hemphill, he was more or less, for years the sidekick of Mr. John Carr you know. And he was not actually, what shall I say, a colourful personality like John Carr has. Did you know that John Carr is an entomologist besides being a geologist? When you interview him, if you haven't done so, ask him about entomology, insects. All these things, I understand he's a first class authority.

#382 BC: Did you . . .

HS: But we have to go back to Chuck Hemphill. As I said, he was not as colourful as John Carr. He was a good office manager and a hard worker you know. But I didn't have too many personal contacts with him. They leave me alone you know. And comes another one which you really should interview too, that is Schmidt. When you come to analyse, if some of the fellows that are going to study all this material which you collect, they would like to probably analyse the setup and the birth, life and death of small companies you know. Which have been gobbled up one after the other by bigger ones, then the bigger ones, the biggest fish and so on and so on, until finally the government is the last one and Petro Canada gets everything. I'll tell you something, that's the history of oil in any country so far as I can see. Trinidad for instance, before the First World War, or just at the end of the First World War had about a hundred and four or five little companies you know. Many of them had just maybe 10 acres lease or something. By the time I came to Trinidad there were about 8 left. Nowadays only about 1, 2, 3, or 4 left. They government of course, is in too now. The same is going to happen in Canada. When I came to Canada one of my first jobs was to analyse companies which were of interest for us to purchase or to buy out. The quickest way to get acreage together is to buy little companies who can hardly hold their acreage you see. And of those companies, there must have been 300 or something, there's hardly anyone left now. A lot of new ones have been formed, which are really partnerships and there are dozens of little oil companies who have 1 or 2 wells. That problem will soon come up for any investigator, what's the past, the future of the small companies you know.

BC: You feel that they are destined for takeover.

HS: Yes. Gobbled up. Personally I feel that is a loss for Canada, for the community. Because all these companies have employees, they have their president, they have their staff. And all that's going, the next higher one throws them out you see. When my company was gobbled up I lost my job as manager there you see. And that happens all the time. Sometimes they find another place but sometimes they don't find nothing.

BC: So the answer is to not allow this to happen then?

HS: Yes. The thing is this, efficiency is wonderful. The more amalgamated and smoother probably you get by a big outfit. They can do more what a small outfit cannot do.

#441 BC: But what you did. . .

HS: But the human element is the best and finally companies get so big that the little companies, if they're clever enough can run a ring around them. You've heard that expression. For instance now, there are companies here, American companies who have to phone to their New York office for any darn thing. By the time that phone discussion or written discussion is finished a small outfit like Mr. Brown can take advantage of the situation and make a decision right now. That's one point I would like to make is that a man like Mr. Brown, he was able to make decisions, in many, many cases, on the point you see. That's how he got his successes. A big part of his success is that he was able to make decisions.

BC: But his little company became a big company too.

- HS: Well, fairly big, but still not like a Standard Oil or a Gulf or a Shell you know.
- BC: Still able to work. . .
- HS: Still things like this. In other words, what I want to say, efficiency is not all, so called efficiency is not all, the human angle is as good. That's proven in Russia right now. The government takes over agriculture you know, and what's the result, low production, waste. And have to rely on the little plots which the farmers convert on their own. That's a big significance in the whole thing which people forget.
- BC: Do you think that's what's going to happen with Petro Canada and the oil?
- HS: Petro Canada in my opinion, you cannot say that the country should not have a national oil company and so on, but it should make money for the thing. But Petro Canada will never make a cent.
- BC: Why not?
- HS: Because the waste and grabbing more power. Look what they paid for that Belgian outfit, they overpaid completely and who is paying it, from what money, from what they earn. No, that comes from you, from taxpayer directly.
- BC: Do you feel that it is inevitable though, that the small companies will disappear from Canada?
- HS: In time, yes. Unless a definite effort is made to keep them alive. But naturally one should not tolerate pure speculators you know, that's a different thing. I'm not talking of them. Of hard working people who work up a project and then carry it through to completion. But there is so much fringe activity going on around here you know. I mean, the oil company itself takes the biggest risk but everybody else around it, like the lawyers get the benefit from it without really contributing nothing to it, really, truly.
- BC: Do you have anything else that you would like to add to our interview Dr. Suter, or anybody that we've left out that you'd like to just sort of mention?
- End of tape

## Tape 3 Side 2

- HS: In my professional lifespan, from let's say, 1920 onwards, I have seen the geology developing entirely. As it is now it was hardly anything compared to what it was then. When I was entering the oil business they didn't really know what brought the oil to the surface. One fellow had a theory it was artesian pressure and that worked in some cases in California but that was no answer. It was not brought up by artificial pressure. Finally they got wise to it that it was the dissolved gas. When they couldn't find a use for gas they let it burn. Even in Edmonton, the first time I flew over the Leduc field there was a cloud hanging about and underneath was this smoke going up from the gas fires and so on. So they wasted that. Now gas is as good a thing as oil. The methods changed for one reason, because the targets which were available to be found by an older method like surface mapping, they were exhausted you see. And anticlines was the first study of where oil is to be found. When the anticlines which had surface expression, when they were exhausted, they had to find something else. In fact they got around and found out that oil is also trapped by faults, by fractures, by breaks, where 2 ??? are set up against the

other and one is sealed and has the oil and the other one has the water. That was all pre-geophysics. When I started work in the oil fields the only method which they really had was the ??? gravity thing. And that didn't work except with salt domes. Money was wasted until they found out it really didn't work you know. Then came electrical methods which work very shallow but they never really took over in the States. Then there finally came the seismograph and the development of the seismograph, you better talk to a geophysicist about that, that's just fantastic what they do now. That's what is called sophisticated. The processing is just absolutely out of the world. At the same time, up to 1930 so to speak, very few wells were looked by electrical methods you know. That was a completely new chapter in the oil industry, drilling and finding the oil.

#050 BC: And then you would have to work with the geophysicist too, so this was a change in your job.

HS: Yes. In my library I have dozens of articles discussing the fights between the geologists and geophysicists. They were very bitter in the 30's you know.

BC: How did you feel in the 30's about the geophysicists?

HS: I was introduced at the ??? survey and that was a complete flop you know. So I was very critical. Then we geologists were afraid we were going to be thrown out of our jobs you see. So you can see, on one side, the main side, there was the side of the geologists criticizing them you know. And even here, before Leduc, or even after Leduc, the seismic didn't work very well.

BC: And yet they discovered Leduc because of the seismic.

HS: Not because of the seismic. Leduc, there is an anticline at ??? which runs into Leduc, that was the reason for drilling there. That was not drilled for seismic reasons. They didn't even know there was a reef there really. And Shell, I have that from anybody probably will confirm it that Shell ran seismic lines over Leduc and didn't see the reef in that time because the seismic just wasn't capable of picking it up. And in the Swan Hill area Imperial Oil had a line through the reef and didn't know it. When I went and put my seismograph people over the Swan Hill area we came across their lines. I never saw their lines, the seismograph, I never saw them but anyhow they didn't bid. They were not interested because they didn't see it. But nowadays it's something different. For that you have to talk to a specialist.

BC: Right. And what are some of the other developments that you have seen?

HS: Before I come to that, let me say this. The same way as I was growing with the oil industry in knowledge about technology and all these things, the same way some geologists had the opportunity to work themselves into the real bowels of geophysics. That's John Carr, he grew up together with Blunden and saw the whole development of this seismic technology. So you can ask him about it.

BC: I will do it.

HS: What else did you want me to say?

BC: The other developments, other than the controversy between the geophysics and the geologists, as we came up into the 40's and the 50's, the big changes? You mentioned reefs before, this was a new phenomenon wasn't it, to discuss reefs?

- HS: Yes. I can't say very much about reefs because my knowledge is very small. All the reefs I've seen in my life are little, little, baby reefs in Trinidad which were eroded on the surface and had lost their oil you see. So I couldn't say much about them. But that's not the whole thing. The same way as geology developed its method, the drilling too. In the early times they had no real core barrels to take a core. So the ??? core barrel was made, it just took a bit of drill pipe and cut some teeth into it and drilled down in the hope that something would stick in it and come up and get the sample. Then finally they got core barrels with diamond crows, ???.
- BC: So that was still another development wasn't it?
- HS: Yes. So parallel to the development in geology itself was the development in drilling methods, completion methods and production methods. They knew the meaning of the gas so they knew the gas is the drive so the idea was to keep the gas, oil ration as low as possible you see, to prolong the life of the well. They also, in olden times they left the wells low as much as they could. They tried for gushers in Texas, a well wasn't good enough unless it blew wild. ??? they invented special muds for the hole drilling, that's a fascinating subject for each other. In each of these things, another part of physics and chemistry came into play. So nowadays the oil industry is not only just plain geometry and mechanical power but there is a lot of physics and chemistry in the whole thing.
- BC: Because of that their abilities to discovery oil have increased.
- HS: That also will but that wasn't the main reason. The main reason was really that the parallel development of all the technologies took place. And then they had this acidizing and fracturing came up and so on and so on. All undreamed of in the early times.
- BC: And you've come through all these different things.
- HS: All of that. And for a long time I was chief geologist in Trinidad, what they here call exploration manager. I see all faces of this you see.
- BC: Can you think of anything else you need to add?
- HS: No, I don't think so.
- BC: I think you've done very well and I do appreciate what you've given us Dr. Suter. Again, I leave the door open in case I want to come back with one or two questions okay?
- HS: ??? questions, that's probably the best. If I get the questions beforehand maybe I can research my memory a little bit.
- BC: Good, thank you so much.