PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: Jim Scott

INTERVIEWER: Susan Birley

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SB: It's December 4th, 1984 and this is Susan Birley interviewing Jim Scott at his home in Calgary. Mr. Scott I wonder if you could start just by telling me a bit about your early background, where you were born and raised.

JS: I was born in 1916 in Winnipeg, Manitoba. My father was, at that time, assistant land surveyor to the City of Winnipeg and later became the land surveyor. When I was 4 we moved out into the outskirts of Winnipeg, in the municipality of East Caloonan, which later became North Caloonan and in 1933 I guess it was, I started at the University of Manitoba.

SB: Had you known for a long time that you were going to go to university, was that a conscious decision?

JS: That's a good question, yes, I think it was. I think my family always expected that I would go. There was never any question about would I or wouldn't I go, it was just, I was going. More a question about what I might do when I got there, but with my father's background in mathematics and surveying I was inclined that way. In fact I guess I learned quite a bit about the rudiments of land surveying before I went to university, through him.

SB: Did you go out with him in the field at all?

JS: A little bit. Now he didn't go out in the field in the sense of outside of Winnipeg, the field was Winnipeg as far as he was concerned, and he did some odd things around in our municipality. It's rather surprising that we were out there because I know later on there was a rule that city employees had to live in the city of Winnipeg, we didn't. I was raised as a country kid really, but not far from Winnipeg. I think we were all of 5 miles from City Hall. Which seems kind of ludicrous nowadays, when you compare, what are we 2 or 3 miles from the centre of the city now but you could go for what 10 miles, I guess, and still be in the city here. However Winnipeg is not that large, although it was the largest city in the west between Ontario and Vancouver. Vancouver probably was not any larger, although I'm not sure about that. Winnipeg was the big centre anyhow. It was basically 180,000 as I recall and if couldn't grow much in area, it might have in number of people, because of all the municipalities around it. There was the city of St. Boniface and my municipality and others around so it was confined. But greater Winnipeg I think, was about 250,000 at that time, which was quite big for the west. At that time Calgary would have been about 75,000. This was in the mid 30's.

#040 SB: Did the Depression affect going to university that much?

JS: A lot. It was a matter of earning money to go. So I was mostly supported by my father and it was difficult but living at home and commuting, it was not too expensive. The major

expense, in addition to living was the university fees and he helped me to start with. After I got going with, eventually with Geological Survey of Canada and other means, I was able to help. Talking about surveying, I don’t think after my first year of university, which was 1933-‘34, that there was anything I could do in the summer. I think it was that summer that I put to some use the little bit of land surveying training that my father had imparted to me in running a series of levels through our municipality. Are you familiar with Winnipeg at all, that area?

SB: A little, yes.

JS: It’s very flat country. Our municipality was certainly part of that but it butted on the Red River and we lived close to it. It was very important to . . .let me put it a different way, a slight rise or drop of land was quite important as to its agricultural merit, what it could be used for. So the municipal constable and general factotum, and I spent a few weeks that summer running levels around the municipality. It was very interesting to me because there was, I think, about 30' of total relief from high to low in the whole municipality and half of that was the drop to the river. So throughout several square miles of land, maybe an amount of 15' of difference, maybe less. So what we would do, we didn’t actually survey from a location point because there was a very good map showing all the properties, we didn’t need to know whether we were in such and such a lot or another, so the only thing I really had to do was run the levels. We could locate ourselves you see, by our map. You’re aware of the 3 dimensions of surveying, it’s 3 dimensional surveying but land surveying is. . . I’m not saying this too well. You have your horizontal measurements to put yourself where you are and there’s also the vertical. Later on, in doing our geologic work it was very necessary to keep in mind both. But for this purpose I didn’t need to worry about the horizontal, we could place ourselves, so all I was doing was the vertical. So we would go into a certain field and I’d find it was 2' lower than where I was and so on and we went through the whole area doing that. In a low area, then he was the expert on what the land was like and he would help me put a circle around that area saying this is low, another place high. I don’t know what they ever did with that work but it was supposed to be useful for evaluating the agricultural land in the area. There were people like ourselves that were really suburbanites living outside the city and working in the city but most of the area was farming lands. Or market gardens, it was a very rich farming area, as you probably know.

#086 SB: When you were studying at the university, what had you decided to major in then?

JS: I started at university with the thought of being a mining engineer. This sounded very romantic and it looked like it would keep me outside. I think the Depression did have its effect then because I knew that people like lawyers and architects and so on weren’t doing very well, they were unemployed a lot of them. And at the time the thing that seemed to be most, to look like it could be most rewarding for the country was mining. There is and was then, tremendous potential for developing mining and I thought that would be a good thing to be into.

SB: Mining, what type, any specific minerals?

JS: Oh, I hadn’t got to thinking about that, it was just simply it would be nice to be mining

but probably gold was high on my mind, simply because I got involved with gold mining areas early on. The potential for employment then and doing it in an environment I liked seemed to be more in the mining engineering line. Unfortunately Manitoba didn’t have a mining engineering course so I was going to have to think about that as time went on. But in my first year at university, I encountered geology, I had never heard of it before. But of course, in training for mining engineering you’d have to be looking at subjects like that and I took it and I liked it. I found that I could continue my course at the University of Manitoba in geology and so did.

SB: Were there any professors there that influenced you one way or another do you think?

JS: Oh I don’t think there was anybody trying to influence me to take up the geology as a profession but the head of the department, Dr. Delaurier??? was a very fine old gentleman and very enthusiastic about what he was teaching. One of the things I guess common to most universities is that you hit or get the head of the department when you first start, on the beginning courses, which is a good idea. You get their enthusiasm so I guess I got his enthusiasm from him. I know that, I guess this would be at the end of my second year at university, when I had decided to take geology seriously, and made it my prime . . .I’ve forgot the term for what I’m after. . . major. Incidentally, mathematics was a minor which I kind of laugh now. But I was one of several that he recommended to join the survey for that summer, this was the summer of 1935 I guess. I didn’t make it. It was a very political year. This was the year they were starting to do a lot. . .well, I don’t know that they started to make work, they had started earlier than that with these CCC camps and things like that but they were going to make a lot of work through the Survey in 1935. So about every student of any type who could, who had any political pull, went out. I was amused but also unhappy with the idea, I saw students of law, arts, anything, that were going out on the Survey as labourers. So I didn’t make it. I had been recommended by my professor but I didn’t make it. I don’t think any of the, maybe 4 or 5 were recommended, I think maybe 1 got on and that was through his MP. So. . .

#142 SB: So things haven’t changed much.

JS: So next year we decided we weren’t going to have that happen again so my father approached our MP and I got out. With or without the recommendations of my professor. But there was a catch to it, I started as a labourer, not as a student assistant. They had several categories of work for the Survey, I don’t know whether they still do that or not but you could get out as a labourer and all these political appointees went out as labourers. This was one of the penalties I guess they faced, after all they could hardly be called embryo geologists could they. And you get paid a little more, you’re paid so much a day. I think the pay. . .how did it go. . . I believe it was in the neighbourhood of about $80 for the labourer for the month. And you’re not surprised, probably you’ve heard some of this before. A student I believe, starting out, would get about $75 a month. One that was anxious to carry on in geology didn’t mind that disparity. As a matter of fact, I think now that I say that again the disparity might have been a little greater, it might have been more like between $90 for the labourer and $75 for the student. So that did make some difference in your thinking. Anyhow the first year I went out in ‘36 I was out as a labourer

and I got higher wages but it proved a problem later on in my career at the Survey.

SB: How was that or do you want to go into that?

JS: Oh sure. This probably. . .well, it made some difference, I was out the first year working for a chap called Dr. C. S. Lord, Cliff Lord, and he was . . .I’ll get back to my problems with that later if you’d like to hear a bit about Dr. Lord. He was working on his PhD thesis at the time, so I guess he wasn’t Dr. Lord then. To me he was Cliff eventually. He had come back from Africa where he’d been working in the, mapping like we were doing in Canada, in the gold field area. Don’t know much about it because he was a pretty taciturn type except when he wanted to tell you something and then he was very good. So anyhow, perhaps I should carry on with the kind of work we did this summer, it would be useful to what happened later, I’ll tell you as we go along if you want to hear it. This is the summer of ‘36 then and we were working up in the central Manitoba mining district at a place called Beresford Lake. Canada was probably one of the foremost countries in using aircraft for developing for very good reason, it was the only way you could get to areas quickly. Before it was a matter, in the pre-Cambrian country it would be a matter of taking canoes mostly, and good hard work to get to an area. This are was northeast of Winnipeg in Manitoba, near the Ontario border. The headquarters for planes going into the mining area was a little place called Lac du Bonnet, just outside of Winnipeg. I guess it still is used for float planes going into the north, I don’t know, I haven’t been there for a long time. But that was really the centre then so what we would do, I guess we took a but out to Lac du Bonnet, it wasn’t far from Winnipeg, and then we were all transported to the lake we were going to work out of by float plane. This was very exciting to me, I had never been close to a plane before but I spent a lot of time with them thereafter. So out to Lac du Bonnet and then by plane to our lake, Beresford Lake. And I’ve forgotten how far it was, maybe 75 miles, I doubt it was that but it was up and down you’re there. We camped on the shores of the lake all that summer. On the same lake was a mine that had just been opened a year or two before that called Gunner, it was a small gold mine but it was probably at the time, a model of a well developed gold mine. They were on one shore of the lake and there was a little town formed by it to serve the gold mine. We were across the lake and for most of the time that summer we used our canoe largely just to go back and forth to get out provisions and mail and so on. Cliff Lord’s task that summer, which I presume he had pretty well chosen himself was to do the detailed geology of the area around this gold mine and find out what was the reason for its existence. Now those of us on the party knew nothing much about that and we didn’t get to learn much about it either because the method of surveying that we were using, that he chose to use, was a mixture of things but for the most part it was using a plane table and alidade and rod. Now this method of surveying requires that you have a line of sight from the plane table, which is a table upon which you’re really making a map of the area you’re looking at, by taking readings at points in all directions from the table. Since he was doing a detailed job we had to have a lot of points, which he was going to use you see. So our job, the surveyors, we had a young engineer that ran the plane table and the labourers and geologists were working as labourers primarily, at setting out stakes or points, marks, however we could, labelling them and this would be recorded on the map you see. So we

made a map with all these points which were identified, we didn’t need to worry about height then because this was fairly flat ground. It was up and down. It’s glacial pre-Cambrian. These are old metamorphics or igneous rocks primarily, in hills and lows, which made at times, densely tree covered hills, at times where they were burnt off the rock would be exposed and the lows would have muskegs and lakes in them. And lots of trees in most of the area we were working in.

#254 SB: Did they have to slash, did they have slashing crews. . .?

JS: No, we were the slashers, this is what I’m coming to. I became very expert that summer in doing this work, cutting lines from the plane table. We also got to be very expert or cunning about it. Of course, we didn’t like to cut at trees anymore than we had to. And we had some thought too, as we looked at, what I considered at times to be the desecration that we created. Because the plane table would be sitting in one spot and we had to put in stations, I remember about 200' apart. Now that’s quite detailed. And if you were in heavy trees you would have lines running out like the spokes from a wheel and then you had to also have a line between points that the plane table was set up at. You started at some known point and you took a line out to the next point. Incidentally we didn’t orient with the compass here because the compass could be at fault, there was so much mineraliztion around. So the way you orient the plane table was you set out a line at one point and knowing the right direction we used, there were claims that had been cut, claim lines and so on, and they had been properly surveyed. So we’d take a point like that to start with. The plane table would then be oriented to match the ground. Does this make sense. . . using lines. So now he had the table set up correctly, oriented the same way as the map will be and he has a base. So then we shoot a line out to another spot and this is carefully put on the table you see. And then we will shoot other points from there, shooting being taking observations on using an alidade, which is the instrument the instrument man uses. It’s like a telescope with a parallel edge in which he draws a line from the point he’s at to the point he’s looking at you see. And he can also get the distance by reading on the rods that we were holding up. You’re familiar with how that works? So it’s reasonably accurate if you’re careful with it. So having then set out the line that we’re going to in the next station, we’d move to it, and then he has this line on his map, he knows he’s at this new point, he’s sitting on it and he orients the table again so the line on this map corresponds to the line back to the old point he was at. This you can keep on doing. Then to make sure that you don’t build up a lot of error at the end of the traverse day or whatever, you tie into another known point. This is usually when the fun began of course, because there were quite often a certain amount of errors so you had to go back over your work and find out if there was an error and if there was no appreciable error that you could discern, then you had to correct the whole survey to make it fit with the 2 known points you had. Incidentally, Cliff Lord was very good at all the surveying required to do this and he made sure that we got to be good at it because he needed us to do this work. So we’d spend nights pouring over all these figures to make sure it was all correct, making sure these fit then they’d be set out and he would go about by himself, doing all the geology, which was very nice. So what I was doing that summer was learning a lot

more about surveying and cutting trees, we cut lots. There was some geology of course, we got to learn a little bit, you couldn’t help but get some when you were exposed to it. But basically, we were doing surveying and he was doing the geology. We did got to do things like go down the mine and see what they were doing there and probably learned more about what they were doing from their mine geologists than we would from him. Not that he was adverse to train us, he trained us where he needed it but we were on a tight schedule and we had to cover a lot of territory. I think what happened really was, in retrospect, he found that what we were doing was taking so much time, we had to, to get these points around, that we were pretty well confined to doing that work while he did the geology.

SB: End of side 1.

Tape 1 Side 2

JS: I think it was probably a mistake in retrospect and he may well have thought so too, in using that method of setting out our control points in the area. However it was more accurate. Another method that we did use to some extent and I guess when it got nearer the mine and was going to become obvious that we were cutting so much timber. . .now that’s not too kind a way of putting it, that was perhaps in our minds too but I think a lot of the area we did cut timber in was pretty scrappy type of stuff, it wasn’t all that great timber. But at times I think we got into trees that were just a little bigger than they should have been for cutting. I tell you we got good at cutting.

SB: You could have got a job as a lumberjack.

JS: So in these other areas we used the chain and compass. Now I told you just a few minutes ago that compasses can lead to problems in a mineralized area so that was probably the reason we didn’t start that way. But you can use it if you’re very careful to watch for sudden changes in the compass due to an ore body. And again, you do the same thing, you start at a known point and you go to another point and if you find you’re off you can correct it to match. Like your survey may to you seem to be proceeding, say, straight north from one point to another point. You get there and you’re not straight north at all, you find you’re 10 degrees off, you can swing it, the whole survey as you plotted it can be then just turned to fit the 2 points. And they’re probably close, close enough for what he was doing. So anyhow those were the things that we were doing that summer, plane table work and chain and compass. Those were the methods we used, and this was all by foot. I think I could add something else too, that we had probably one of the hottest summers ever. I think there were records set in that area. This was, what did I say it was, 1936 and it was mid-Depression but along with that was a major drought in western Canada and tied in with it was long days with no rain and lots of heat. So we had temperatures in that area that were recorded at the mine of up to 120, Fahrenheit of course, we’re talking now. And it was at times pretty difficult. I can remember some days when we were out in pretty near bare rock, there would be enough shrub timber around to trap the air so there wouldn’t be any wind but no protection from the sun. When I told you 120, that was in the shade and I think it was a fairly good temperature so I don’t know what it was out

here. I remember we’d at times just be hanging on the rods sort of half passing out and then coming to. And now and again getting down into a little copse of trees in the muskeg and amazingly enough, you’d go down there and you could dig under the muskeg, say a foot or two and you’d get ice. We liked to find that.

#060 SB: So in the summer of 1937 did you manage to get out again?

JS: No, not with the Survey. Cliff Lord was in contact with us. I think that probably me particularly, he was quite happy to have me around as a good labourer but he wrote during the winter, I was still at Manitoba, to say that he was having an operation and wasn’t going to get into the field the coming summer. So I guess I was hoping that something else would be done but nothing did. And this is where this business of being a labourer I believe, works to your disadvantage. If I’d started as a student assistant I think something else might have been done that summer. However, I was lucky, I chased around for a job and I got a job working for a chap by the name of Dr. J. F. Wright. At the time he was a consultant in the mineral business, in the hard rock. But he’d worked for the Geological Survey of Canada for years and he has a lot of papers to his credit in various parts of Canada, in the north and mostly in the east I think. I didn’t know much about him at the time but he had set up an office in Winnipeg and he was working on mineral prospects. I don’t know exactly how it happened, I’ve forgotten but of course, he did have a prospect in that same area, near Beresford Lake where I’d been the previous summer. So here I was, I’d been there all the previous summer so I must have been an expert on the area. I don’t think I told him that I hadn’t seen too much of the geology. I was probably reasonably honest with him but the fact was that I’d been in the area so I was just delighted to find that he was willing to hire me to go out and look after a diamond drilling crew. I’d never seen one in my life. So it was arranged, I was to go and he was going to take me up into the area when the time came. One day I got a phone call from his secretary, Dr. Wright was off somewhere on another prospect and they’d had word from the drilling contractors that they were on the way in so I was to go. He’d left a few notes about things I was to do and I must say this was really quite a. . .earth shattering is a bit too high to put it. Maybe not, for me, I had to go in, get these people started in the right place. I knew nothing about a diamond drill, I’d never seen it before. So I set off with heart in mouth, took the same means of getting into the area as I had the previous summer, going to Lac du Bonet and then flying in. Only this time it was to a different lake, and starting up a road that connected that lake to the one that I had been at the previous summer. I landed with my pack on my back and nothing else. No provisions for anything except for my sleeping bag of course, and my own clothes. And whatever I had in the way of tools, which was not much. Down this road, looking for where they. . .I’m not quite sure how they made their side roads. There wasn’t much of a road. These little diamond drills were small things that they actually wrestled in pretty nearly by hand. The crew leader, I guess he’d be like the foreman, what they called the diamond setter, so he was in charge of the whole crew. I really have forgotten how they made this trail, I think they just simply cut it by hand, chopping trees where they had to and hauling along their diamond drill by main brute force. They didn’t have horses or anything like that and we

were back in the woods away from the lakes. So I went along this road which had been made by I suppose, an early type of tractor or earth mover. I don’t think bulldozers as such, were really talked about then. Reasonable road that a truck could come along, it had been used for mining purposes between the two lakes and I did find the trail where I saw some new activity anyhow, leading off from this little road. Followed it along and then I came upon the diamond drill and the crew and they were all busy moving this drill into a location that they didn’t know yet. So I had to get out ahead of them and do a little scouting around with my rudimentary geology and the notes he’d given me and find the place where they were supposed to start. So I did that with great trepidation. One of the other things I’d been worrying about was, what angle do you tell them to drill. This is not like an oil rig where they set up and they drill straight down usually, or as straight as they can. Vein deposits are not very often vertical, you know, straight down. They’re usually at various angles and the attempt when you’re drilling through them is to drill them if it’s possible, at right angles. Like say that it’s dipping, at say 45 degrees from the surface and you want to set back away from the strike of the thing, the way it’s running across country. So you drill at an angle that will put you in pretty well at right angles to the ore body. I had heard a little bit about this but didn’t know much about it. So the first thing I had to do, I think perhaps I might have had a note about what the angle of this ore body was supposed to be, it was more than 45, perhaps 80. So I had to get out to some distance to the side and choose an angle that was to be right angles to the ore body. The potential ore body, they didn’t know it was an ore body then. One of my worries was how am I going to measure that angle, how do I show them how to set it up. Well, it was very simple, I just simply say drill at such and such an angle and they’re the ones that do that. But I didn’t know that at the time, I went in prepared to measure the machine if I had to. Another thing of course, this was the Depression and it was very important to not waste a dollar. As I recall, the diamond drill, these are very small machines, they cut a core like, you see parts of core over there in my display.

#152 SB: So just a couple of inches wide.

JS: Oh no, it was 3/4", something like that, it was very small. 3/4, I’ve forgotten, it could have been less. At one point later on I think they called it x-ray type of drilling, which was meant to indicate it was small. And the machine could be manhandled by a crew. It was pretty heavy, it took several men to move it along but they could. I suppose they use it’s own motor too by hauling it along on a come along basis from a tree. I didn’t really watch them do that very much because I was usually busy off somewhere else, while they were drilling. Anyhow we set this up and what I was saying is, that part of the procedure was to make sure you had as little drilling as possible to get to the objective. And also, when you got to the ore body you didn’t go any further than you had to. In retrospect it’s very laughable to me of course, but I was quite concerned that we didn’t go a foot beyond where we had to go. Now really, that’s hard to know. You really should go maybe 50' past to make sure that you’ve got through everything. But anyhow, I attempted to cut it off right bang, when they got through the mineralized zone. $2 a foot I think was the cost. So these holes would be maybe up to 500', not that much, 2 or 3 hundred mostly. Then

they'd move along the ore body, I shouldn't use the term ore body, the mineralized zone because it isn't an ore body till you prove that it's commercial. It was very interesting, I had to do that. Then while they were starting their drilling, and of course, they set up camp the same time, a tent somewhere near their operation, I would go out and this is where I really started to learn some geology because I had to go out and look at the rocks myself and decided what was what. I never met Dr. Wright, I think perhaps I met him when he hired me but I never saw him again until about a week later, he finally got to the project and of course, I was there with heart in mouth waiting to see what he would say about what I had done but I guess it was all right. Because we went on with that and then he took me to another project up in northern Saskatchewan, not far from Flin Flon, which was a very big mining project on the Manitoba side of the line. Now that we think of Flin Flon, I don't know whether there's still mining there or not, I think they are. Anyhow Flin Flon was our headquarters and by way of, I guess, a mining road to a lake on the Saskatchewan side, at Amherst??? Lake or Beaver Lake, whichever they call it now. We used a boat along it to another prospect, similar to the one I'd done before and within a few miles of a gold mine that was operating. These were all gold mines, the areas that I worked in at the time.

SB: Had gold appreciated in value with the Depression or what was the. . .?

JS: Yes, in effect it would. It was pegged I believe, at $35 an ounce, which was a very good price then. But it didn't change, it was always that price, which was good for the gold mining business because it was a fixed price they could count on and it was a price which would certainly give them a profit if you got a good property. The first summer that I was telling you about, the mine there, the Gunner mine was new, because of this gold price and it went on for many years at a good profit I think. The cost of mining, I'm not sure what it worked out to because I was never that conversant at the time but I would think that it maybe cost them, on a reasonable mine, $10 a ton or something like that to produce it and $35 gave them a good profit. You didn't pay a lot of labour in those days.

#212 SB: And did you, in 1938, were you doing the same kind of field work?

JS: We were just talking about '37 weren't we?

SB: Yes.

JS: I finished that off with this other project for Dr. Wright. To my mind it was great even though it was not helping me along with the Survey, I wasn't progressing there at all obviously but I was sure getting a lot of experience of various kinds. Mainly managing on my own and hoping that the geology I came up with was okay. Because I hadn't had a lot of practical experience in the field as you can see from the first year.

SB: They put a lot of faith in your ability in a way.

JS: Well, and looking back at it, Dr. Wright in this case, my employer, a consulting geologist, could check out what I'd done and he could easily not bother too much with it if it was far wrong. As long as I had the diamond crew working in the right place approximately and I think there was a bit of necessity of spending money on claims too so if it was misspent it wasn't going to cost them their claim or anything like that. Mind you they wanted to have it right I'm sure.

SB: Was he doing it for the government?

JS: No, this was for private mining groups. I'm not sure what the first one was for, I know that the second one was a group that was headed out of Saskatchewan. They'd be people like doctors, professionals that scrape up some money to see if they could get rich by finding gold or some other metal. I didn't know too much about those arrangements at the time, although I did meet 1 or 2 of the principals of that particular operation up at Beaver Lake during the course of the season. There was a mine near us and it was something we could walk to, oh, it would be about 5 or 6 miles away and it was certainly an incentive to this group because that mine was working and making money I think. Okay, well, '38 was different. I was in the process of finishing my degree at that time and I also, in the early spring had heard from Dr. Lord, Cliff Lord, I don't think he was doctor then either, this next year, he was about to get it. He was going out again and I was being hired again, and this for the first time as a student assistant, marvellous thing. So the project, this next summer, was entirely different from the first one where we'd been at Beresford Lake working in detail on an area that he was to use as his doctor's thesis, we were going up and doing purely reconnaissance work in the Territories. That was fascinating in itself, quite different entirely from what we'd done. I think the best way to talk about it is how we got there. We were going into what was called and became mapped as the Snaring River area. That lies between Great Slave Lake and Great Bear Lake, about half way between. So of course, again, I was very enthusiastic, here we were going up into the wilds of the Territories. To do it we just took a train from, in my case, Winnipeg to Edmonton, and I met Dr. Lord and the rest of the crew there. I had no idea how we were going to proceed the rest of the way. It could have been by plane all the way but for some reason we didn't do that and I was delighted that we didn't because I saw some more of the country. It might have been that plane is pretty expensive, was then and he may have been attempting to keep the costs as low as possible in getting in. Or it might have been that it was just not as feasible for a large group to go in entirely by plane. Anyway he chose to do it differently. So we took the train from Edmonton to Waterways, which is present day McMurray and that was at the time, a take-off place for flying into the north. Also you could from Edmonton, incidentally. Cooking Lake, which is southeast of Edmonton was a place similar to Lac du Bonnet, where float planes took off into areas they could get into where there was lots of water to land on. So was McMurray on a cut-off river called Sny???, it's still there of course. We didn't fly from there either. We took the river boat down the Athabasca and were on it for, I've forgotten how long, 2 or 3 days I guess, going down the river.

#301 SB: Was it one of those sort of steam engines?

JS: Yes. They had set up with cabins, all sorts of things. This was really great for us, it was really living, going down the river and all we had to do was watch our progress. This would be I guess, late May. Getting on to long days, I remember that we reached one point where we had to wait from the river currents, I should really have a map here, on that particular thing. You come down the Athabasca and at the point it becomes the Slave River, in that area, there can be a problem with the currents in the rivers and they needed

to wait for wind or current, whatever. Anyhow we were tied up on the delta, just a mud flat. I was thinking at the time we probably had the furthest north baseball game that was ever played. That may not have been right but we did play it and this was about midnight.

SB: Is that where it connects up with Lesser Slave Lake?

JS: Yes, it is, right in there, that’s right. That’s where I really should have a map again to remember where we got to but we got down, I think, to Fort Smith. And what’s the town on the Territory side, there’s Fort Smith and another place. Well, there’s a long series of rapids there and this is where that boat had to stop. Now, you could have carried on by going over the portage which was, I don’t know, I think it was 12 miles long, something like that, it was quite a good portage. You went over in trucks. Then we could have carried on with the northern part of the system which would take you right out to the Arctic if you wished. But we didn’t do that, we flew from there into our Salmon Lake.

SB: I’ll just change the tape.

Tape 2 Side 1

JS: So from let’s say it was Fort Smith, I’ve forgotten the 2 places, it was Fort Smith and another, we flew then the rest of the way and I didn’t really know why but I was quite happy with what we had done because I had now seen an awful lot of northern Alberta and some of the tar sands or oil sands as we went by McMurray, saw them of course, going down the river. So the first time. I was back there again later on. And had a little experience of the river transport which was great because that didn’t last for that much longer after that, not that kind. They changed the boats to diesel I think, at that time they were still using wood. You’d stop in on the. . .

SB: And would you have to help them load the wood on and things like that?

JS: Yes. Oh I don’t know that I did that but you know, they’d have to stop every so often to pick up wood. I think that was stopped after we made that trip, I’ve forgotten whether it was 2 or 3 years. I think I would have liked to have made the rest of the trip by boat too but you can’t have everything. I managed to fly in then from there to the lake that we used as our headquarters, called Slundum Lake, which was named for one of the early flyers I understand, one of the early ones that mapped that area for the Air Force. Which is probably a good time to mention that we were using, as far as I was concerned, for the first time airplane photographs. And again, Canada was one of the first to do that in the way of their work. So this changed the system of surveying tremendously. We had all these airplane photographs. Now they weren’t as good as the ones that we’ve been using in the last few years, they were oblique. Which was not as good as the later ones where they’re taken vertically and you’re familiar with these I suspect in your archeological training. But they were pretty good. And again, we were furnished with topographic maps that the topographic survey had made, probably just before this, for us to do this work. They had started off with the airplane photographs. And the thing about the method they used was that it could cover a large swath of territory at one time. The plane would fly with. . . be taking one set of photographs straight down and one of each side out to each side, these would be the obliques. Now I think about it, I can’t remember whether we

used the vertical ones or not, I think we must have but I only seem to remember the oblique ones. But it did cover a lot of territory. Now the map makers, the cartographers could use those photographs to make their maps and it was pretty simple in that area because the country is not really very rough. That is, there isn’t a lot of relief in it. There is in places, quite a bit more than I was thinking there would be but for the most part it’s just a few hundred feet, 2 or 3 hundred feet. And a lot of lakes and a lot of streams. So you could make a very good map by getting the lakes and the streams into an accurate position. They didn’t worry about elevations, and didn’t need to too much. I’m sure there have been refinements more recently in those areas if they were doing any extensive exploration because we did encounter hills some places that were, not to exaggerate too much, maybe 4 or 5 hundred feet. That isn’t an awful lot in that size country. So you had a very good map really based on the lakes and the streams and the muskegs. And that’s all you’re mapping, you’re not mapping hills with contours or anything like that. So with those maps and the photographs we had, we could go out without doing any land surveying let’s say, at all, just pay attention to the geology. So our party this particular year consisted of Lord as the chief and 5 assistants, which made a group of 6. We had 3 canoes, no cooks, I might say that first year we had camp set up and cooks. So I really hadn’t had much experience at cooking up to then but I got it now. In the pecking order there were 5 assistants and they were 2 of them senior to me. So guess what I was, I was the #2 man to the chief. So I was his pack horse and labourer for the summer. But it was fun. It was entirely different work, we were using canoes and travelling a lot so we’d move along the lakeshores by canoes, move our camp and for a lot of the time we separated into 3 groups. So there would be just the chief and myself for a few weeks at a time together, we’d go our way, going into various lakes and portaging, lots of portaging. And guess who did

#063 most of that work. Of course, Cliff Lord did his share. That’s amusing now but I guess I wasn’t too amused at the time that we’d have a long portage. The loads would seem to break up into oh, let’s say, there were 6 man loads. One would carry the canoe over and somebody would take some of the material. That would be one load and then there would be another 2 and another 2, making about 6. So he often seemed to work it so that he managed to do something else and he was carrying 2 loads over and I was carrying 4. I haven’t put that quite right, I think it must have been that there were about 5 and I was thinking that I was carrying too heavy a load, I should work it so that it worked out evenly at 6, that was it. Well, when I decided to put this into effect, he took care of it very nicely, we made this long portage, it was about 2 miles and it was a tough one. And it was getting on in the afternoon so after we had taken the 2 loads over, I was starting back with the next one I found that he wasn’t coming back, he had just set up the tent and he started to work on his maps. So he took 2 and I took 4 that time. That was very interesting. However, it was a great experience, seeing all this country and I did get to do a little bit more geology here, although again, it was very difficult. He was a very closed mouthed man and it wasn’t a matter of being at all, what’s the term I should use, I can’t think of the term I want right now, antipathy to me anyhow or anybody that he had out. It was just that he was concentrating on his work. So we’d go along for days where the only word

would be, I'd be at the stern paddling, he'd be at the front you see and we'd be going along and he'd just point in and maybe not even use a word. And now and again maybe, stop here. I would attempt to figure out what was going on geologically so every now and again, I remember the one time, I'd say, Cliff, what's happening here. He looked around and he said, oh, I don't know. And it wasn't again, any attempt to put down, it was that he honestly, of course, he had several things in mind but he didn't know what the answer was so that's what he told me, he didn't know. But it was a lot of fun but I must say that later in the season when a couple of the other assistants were having a little trouble getting along, you can imagine this you know, spending all summer together. We got together as a group every 2 or 3 weeks to check notes and to find out what the other party was doing, for the chief to check notes and find out what was going on I guess and then we'd separate again and go different ways. These 2 fellows weren't getting along so I got put with the #2 man and it was an entirely different things, we did everything together, we cooked together and did the geology together and did everything. It was a nice way for me to end up that season. Not putting Lord down because he was a tremendous geologist but he was not the easiest person to work for. He must have thought I was pretty good because he kept wanting me.

SB: Maybe because you didn't ask too many questions.

JS: Oh, I asked questions, I didn't get too many answers.

SB: And was that for the government that he was doing that?

JS: Oh yes, this was again the Geological Survey that we were doing that, it was still the Survey. The work that we did came out as one of these area reports called the Snaring River. I might even have a copy of it around, I should somewhere. These are preliminary reports. They came out that way and sometimes they never changed from being that, that was the whole thing. But other times they'd be incorporated, several preliminary reports into a complete study of the mining area say. We were looking at an area that was primarily thought to be gold prone. One of the interesting things, now how did we do this. . . I think I'm wrong in what I told you originally that we went directly into our headquarter lake, Salmon Lake. We didn't, we went first to Yellowknife and this was the 2nd year that Yellowknife existed. You could fly in there, have you ever been to Yellowknife and that area?

#130 SB: No.

JS: It was formed because of course, there were some gold strikes made the previous few seasons and the mines had started up the year before we went in. So that Yellowknife was really a tent town, it was like the old prospecting towns that you've heard of. Of course, much what we considered modern then, it was all done by plane. The heavy supplies would be brought down as they could, down the river system and into. . .which lake am I thinking of, the south one, Great Slave Lake. And Yellowknife is on an arm of that lake. So we did go in there and they did have one structure that was made of wood, that was the hotel and we stayed there that night. And then we went on to Salmon Lake. But this is now called the lower Yellowknife, it was right down at the water. The modern town sits up on higher ground in an area where there's a lot more glacial drift and an area that they

can build a town on better.

SB: So did they find any gold. . .?

JS: Oh, they’d already found the gold there. There were several mines already operating. Probably it was a turning point in my career because we went back to Yellowknife before we left the season and they were talking about having somebody work as. . .what did they talk about it, I’ll have to think of the term. They did need an assay assistant at the mine and I went over to talk about it but at that time I was thinking of going to the University of Minnesota that fall to start graduate work. And I probably didn’t sound all that enthusiastic about mining so they didn’t hire me. I suspect had I done so I might never have gotten into the petroleum business. And I think I’m just as happy it went the way it did.

SB: So then when you came out you went back to Manitoba?

JS: No, I had graduated the previous spring so I started at Minnesota. Although Minnesota is quite a bit of a hard rock too, they had everything, as Manitoba had. You could graduate from the University of Manitoba, not specializing in hard rock but it might be a little difficult. At the University of Minnesota you could certainly specialize in hard rock and maybe most of those there did but you could go to other things too. It was while I was there that I sort of decided that finding oil would be more useful to Canada or the world, because I didn’t know where I was going to be working in oil, than gold. Gold was creating jobs for Canada in the Depression as you were noting but I couldn’t really see that it was doing much good economically to just find a lot of gold and then bury it again, put it away. So while I was at Minnesota that next winter I wrote to the Survey and in fact asked if I could go out to the west here and work for Dr. Hume. They surprised me by agreeing to let me do it.

SB: Did you know Dr. Hume before?

JS: Hadn’t met him at all. But I had heard of his work of course. I got to have the pleasure of meeting him in the spring of, what was it, ‘39, here in Calgary. Shall we go on at this point or would you like to. . .?

SB: It’s probably a good point to wind down.

Tape 2 Side 2

SB: It’s December 12th, 1984. I wonder today if we could carry on discussing your year or two at University of Minnesota.

JS: Yes, as I recall, when we ended last time we were just about to have me heading out to Calgary but I don’t think we discussed the University of Minnesota very much. I think perhaps we did discuss a little bit, did we not, why I was at that university, did we?

SB: Yes. I thought maybe if you could mention some of the professors that you thought were more influential or any of the students that you came across later in your career?

JS: I think probably the best known and best respected professor at the university was Dr. Grout, who was, well, he’d be the nearest equivalent to doing the kind of structural work that I later did in Alberta in the foothills. He was, what would he be officially called, I better be careful on this. I won’t say at the moment. He was a world renowned geologist

and probably one of the better teachers I ever had in geology. Another man who was very well known and was the head of the department but due to retire soon was Dr. Edmunds. He was typically off a hard rock mining background and I’m not sure now but I think he was responsible for finding 2 or 3 very large and well known mines in the U.S. in his day. However, when I saw him he was pretty well past his peak. Although we had courses from him and they were interesting, he was not the best of teachers. He was very fascinating to listen to though, and it was, I felt it was like participating in a little bit of history, it was an honour to be in his classes. However, I don’t know that he was the greatest teacher, he wasn’t. I don’t think he knew his students too well either. Although I think he got to know me. One reason, I was a graduate student which helps a bit. Another reason, this must be in my second year because the first year I didn’t have any means of transportation but now that I’m talking about it I remember heading home from the university one day and I had a little 1928 Ford roadster with a rumble seat. And this Dr. Edmunds was a great big man and he also, in the weather, wore a great big buffalo coat. So I was driving along, here he was and I stopped and asked him if he’d like a ride, yes, he would. It was pretty difficult getting both me and he in that car I’ll tell you but we made it. It was an amazing sight. Thinking of that, in that same car, the next year, I’m getting ahead of myself a bit but, my second year down at Minnesota I was lab assistant over at Macalister College, which is in St. Paul, St. Paul is twin city with Minneapolis. Have you ever been there?

#049 SB: No.

JS: You know what I’m speaking of though, it’s not too far south of Winnipeg either. It’s perhaps one of the main reasons I was at the university, it was handy. But it was also a very good university, rated among the top 5 or 6 at the time, in geology. The second year I was there I had this teaching job in the lab over at Macalister College and there was no way for it but in order to get over there from the university, go through my lectures and get over to do my work at Macalister College I had to have some sort of transportation other than streetcar, which they did have. The streetcar system involved going through really, 2 systems. Minneapolis to the outskirts, what they called the midway at the time, then you got into the St. Paul streetcar system and finally to your destination. I’ve forgotten how long it took but I would say 1-2 hours one way. And I didn’t have that kind of time. So I can remember it very well, I bought this old roadster for $45, hard to imagine now isn’t it. I’ll tell you, that was a lot of money to me, and also I just kept praying all winter that it wouldn’t break down. It didn’t except for one occasion when I lost the starter and it was a major expenditure to me to go to a little, I guess you’d call it a dump kind of gasoline station in the midway area where you could buy, what was it, 10 gallons for $2, something like that. It was 20 cents a gallon, that sort of thing. I got the cheapest gas I could, but also I got to know the people and they were able to get me a starter for $5, can you imagine that. A big part of the price of the car though isn’t it. Is this sort of discussion all right?

SB: Yes, sure.

JS: I don’t want to prolong it. Anyhow the reason I’m mentioning the car now, I needed it to

get back and forth but one time one of our classes was to go down to visit the rocks exposed along the Mississippi River, which is what you're on now, and it's classic for Ordovician rocks. I didn't know too much about them either but I was going to learn along with the students. But we had a little field trip to go down and see these rocks. Now my class was not like university, it was fairly small, there was probably, maybe 15 in it. They had been asked the previous time to, if they could, come with a family car. Can you guess what happened. I got there that day and these were all from pretty affluent families, there wasn't anybody there with a car, maybe one. So it ended up, I had that little roadster filled with, I think, about 8 people. But we made it. I took practically the whole class down there and back. It was interesting. It's also interesting, to me anyhow, that at the end of the year I was able to sell that car for $45.

SB: Great, so you didn't lose on your investment.

JS: Not too much. The next year I had to get another one and it was a much, much better car. It was . . .let's see, the first one was not a Model T, I've forgotten the model, it was a little older than that, or a little younger I guess. The next one was a Model A, that's it. This was what you call a clean car, are you familiar with that type of term. Everything is in good shape you see. Mind you it was still very old, I think I had to pay $60 for it. And it broke my heart at the end of that year, I had to sell it for about $50, I couldn't come out even. Back to the classes, there was Dr. Edmunds and Dr. Grout I mentioned and another really well known geologist there too, Theo Edmunds, I'm sorry Edmunds I've already mentioned, Gruner. You had mentioned about what thesis I was working on. I started in on a thesis on hard rock, on implacement of lead, zinc ore and I really couldn't get very enthusiastic about it. I started in on it and I just ended up. . .well, I didn't start that until about the 3rd year I was there but I didn't get really enthusiastic about it and never continued on it. I was more interested in the soft rock, or oil exploration, that type of work. In my class and I got to know as a friend was a chap who became professor at Alberta, that's Bob Follensby, have you encountered him?

#114 SB: Well, his name, I haven't met him.

JS: You haven't included him in these talks?

SB: No.

JS: He wasn't directly involved in the oil business as a participant until later, sort of as an investor. But he became very well known and I understand a good teacher at the University of Alberta. I don't know if there would be anybody else there that you would know. There were other people, quite a few Canadians and quite a few got into the oil business too. Dr. John R. Gardner Gray, who's now retired, living in Calgary, was with Chevron or California Standard. And there were 2 or 3 others that I knew there who didn't come to Calgary but got into the oil business. It was surprising for what was primarily a hard rock school, how many were or did get into the oil business later on.

SB: I guess like you were saying before, there weren't that many opportunities for hard rock geologists were there?

JS: Now that's hard to say, I think there was a fair amount if you were interested in working on projects primarily leading to finding gold. I think that the base metals were probably a

bit in a slump but gold certainly was not. No, I think that if you really wanted to persist in hard rock one could but I had told you already that I had made up my mind when I went down to Minnesota that I was interested in getting into the oil business. Thinking that oil would be much more useful to mankind if I can be a bit pedantic. I probably, while we're on that aspect of the subject, I should mention that while I was at Manitoba and certainly at that time I was working primarily towards a degree in hard rock work. I guess my degree was primarily that but mind you, at any university you should be getting a rounded education and from either Manitoba or Minnesota you could go to hard rock work or oil work or anything else. It was a general education, it wasn't specializing in any one thing but you would have to say that both those colleges would be probably oriented more towards hard rock than they were soft rock. While I was at Manitoba, my classmates were 2 people that are probably known to everybody, including you, Jack Gallagher who was later President of Dome and Jack Armstrong who later was President of Esso or Imperial. I would never have thought the latter would ever be president of anything the way he. . .

SB: Was he a good student?

JS: Oh, he was probably as good as I was but he seemed like a very happy-go-lucky type and you would never think that he would get or want to take on a the serious responsibility of running an oil company. But he did. But Jack Gallagher was different. He was always johnny-on-the-spot to take advantage of any situation that he could. Not saying that in a derogatory way but he always kept his eye on the main chance and didn't miss.

#165 SB: Were people coming around to the university from companies, when you graduated from Manitoba or was there anything on. . .?

JS: No, nothing like that at all, that was unheard of I would say, at that time. I'm sure that before the Depression they probably had. But you do bring up an interesting point because they were coming around to the University of Minnesota, certainly about a year or so before I was due to finish my graduate work. And that was very interesting, I was interviewed by quite a few major oil companies and eventually did get an offer from Shell. However this was a little later in my career. After my first year down in Minnesota and having written to the Survey, I think perhaps I had written, I can't remember now whether I wrote directly to Dr. Hume or whether I wrote to the Survey in general asking to work for him. Anyhow, I was very pleasantly surprised to hear from them saying that I was being invited to work for them out of here, Calgary. So in the spring of '39, I was first of all, how did I get back to Manitoba, probably by car, not mine, that was too expensive, I had to sell it. I think I rode back with a friend in another part of the university, from another college, and then by train out to Calgary. That was very, very fascinating to me.

SB: Was that your first time every in Calgary?

JS: Oh yes. I had been, as I told you before, to Edmonton, heading up into the Territories, that would be the previous summer. But years before, in fact, yes, it probably was years before, not too many, they had actually taken the Calgary Stampede to Winnipeg. Did you ever know they had done that?

SB: No.

JS: I didn’t get to see it but I was very enthusiastic about it and wishing I had. So one of the things that was in my mind of course, would be seeing the Stampede here but probably more interested in seeing mountains. Earlier I had seen quite a few mountains because I went down to Texas one summer, probably my first year of college when there was no work available and worked for an uncle who was a golf pro and was running a golf driving range in Houston. I think he was running probably one of the very first golf driving ranges there were. He’d been in California I believe, and seen one, I guessed this from what he did. Then he went to Houston and saw there was great opportunity there, became pro for a golf club and started this driving range. So I was down there and later on, my father, in fact, Jack Gallagher and a friend of my dad’s came down and picked me up and we went all the way up through the Rockies coming back. So I saw quite a bit of mountains but I wanted to see lots more and I was certainly interested in seeing the Canadian Rockies. I was up early, I can still remember, the train comes in along the Bow Valley and there is a place just out east of Calgary where they stop, it would be just about daylight and I raised the curtain and there are the mountains. It was great. However, there was another surprise awaiting me. Perhaps it wasn’t a surprise to me because I didn’t know what the weather would be like here, I assumed it was fairly sunny and as you know, sunny Alberta is usually sunny. However it was raining and I met Dr. Hume, he was staying at the Palliser Hotel, which was the headquarters for all things in those days if you were the chief. Now mind you, the ones that were not, like myself and the other students, we stayed at other hotels that were a little cheaper but we’d meet at the Palliser. He said that it had been raining for about 2 weeks when I got there and I can attest to the next 2 weeks because it rained solidly, it rained for just about a month without stopping. Now mind you, at times it would be just a very light mist, a Scottish type mist, but it was raining all the time. It was unbelievable and I have never, ever seen it do that again. And this was in 1939, it’s interesting mentioning that rain because it was about the end of the drought period too, it was still in it, but we did have that period. I don’t imagine there was a lot of rain fell but you know, 2 or 3 inches perhaps in that time and what do we get, 11 to maybe as much as 15" all year here. I think it’s more like 13. Anyhow it impressed me. We stayed in town for quite awhile and then at the end of this period it cleared up some, perhaps the Scottish mist I was talking about and we tried to get out. Where we were going was out to Jumping Pound. The present main highway crosses the Jumping Pound and the Jumping Pound field, you’ve been out on the main highway there where you cross the river. That is on the Jumping Pound field. It’s also pretty closely the boundary of the foothills. The Jumping Pound structure is right on the boundary between the plains and the foothills, from a geologic point of view. And topographic too really, because you start west of there getting these series of elongated northwest-southeast striking hills. Well around, let’s say, after I’d been there a week we made an attempt to get out there and this would be out, I kind of forget how those roads go but I would say it would be out Richmond Rd., the way it is now, or about in that location. And it’s extension out but where it goes out and crosses the Elbow, you would carry on westward, staying on the north side of the Elbow River and eventually you would come to the Jumping Pound. The bridge that we crossed it is still there. This would be 3 or 4 miles south of where the main

highway crosses now. Jumping Pound post office was just beyond the bridge, it would be a ranch house and maybe a big of a general store. We couldn't get out. This other assistant and I, it might have been Fred McKinnon, have you interviewed him?

#275 SB: Yes, he's been interviewed.

JS: Well, he was on the party. I was probably the senior geological assistant. Remember I was telling you earlier, my parties to the north I was always down #3 or lower, getting the assignments that were, in that case, working with the Party Chief, Cliff Lord. I was #1 geologist on this, even though I had no experience here but I'd had earlier experience in the Survey. Fred McKinnon was there and we had, as plane table man, Bud Coutts, who's also been quite prominent in the oil industry from a geophysical point of view.

SB: What university were they at?

JS: They came from Alberta. One of them, either Bud or I had taken this Dodge truck out to see if we could get out to camp and we didn't. I think I recall now we'd be out past or as far out as the Twin Bridges but not on that road, just north of it, when we had to turn back it was too muddy. The roads just looked like a sea of mud to me and I didn't realize until later that summer these were really gravel roads. They were not very well gravelled. But in our, as I've learned afterwards, in this climate, they are really basically in many places, natural gravel but it isn't that good to hold up to a long rain.

SB: So were you able to keep busy while you were sort of . . .?

JS: Nothing much, while we were waiting, no. I guess we'd read ??? and old reports and that type of thing. Our area was to go back and map the Jumping Pound structure primarily, the one that was eventually, in fact was being drilled at that time by the Brown's, R. B. Brown, I believe that might have been the initials. So it was quite an exciting place to be. Hume had mapped this area earlier and he wasn't completely happy with what he had done and there was parts that hadn't been mapped completely as well. So our job was to go back and finish the mapping and perhaps redo it with more refinement. So we camped at this camp on the river for most of the summer and worked out from there. We worked in the area west, mostly staying on the foothills side which meant going west from there. If you remember, this is the boundary, but you also went east some too to make sure of the geology. When I'm saying the foothills boundary, the rocks from that point eastward are dipping gently into the Alberta syncline???. Maybe not so gently in places but on the surface they were. And right beyond that you hit, first of all, the Jumping Pound anticline, which is not a simple anticline, it's faulted. Are these terms that it's useful for me to use without explaining?

SB: Yes.

JS: I think perhaps in all your interviews. . .

SB: Yes, we can find out. That's the end of that side.

Tape 3 Side 1

JS: Okay, we're out on the Jumping Pound working on that Jumping Pound area, did that most of the summer. This was very interesting to me. To start with I knew nothing about

the geology of Alberta and particularly the foothills and I was getting to learn that fairly quickly. And I was doing geology this time, I was not doing the surveying, rod work. Well, rod yes, because we still had to map our points occasionally. As I recall we were doing this work without the aid or aerial photographs too. They were probably available here but may not have been. I was telling you earlier that we had used airplane photographs in the Northwest Territories, in the pre-Cambrian Shield area, that was one of the first places they were used. So probably they were not available here at Jumping Pound.

SB: Were there many notes that you could use from original Geological Survey parties or was there anything like that?

JS: Yes, there was certainly background material. In the first place there was Hume’s map of the Jumping Pound. He hadn’t done the whole area but he’d done a lot of it and we certainly went over that and checked it out and then added the parts that hadn’t been finished. And there were previous people that had been through the area but, people like Slipper of the gas company and I think that oh dear, I’m trying to remember the name of the geologist that mapped, McConnell. Much, much earlier he’d been through the area and he’d made sections of the geology. But they didn’t really, two things, they were doing a reconnaissance type of survey and were not going to spend too much time say, in this area of the foothills, they were going to get to the mountains to see them a little more. But they made sections and they could see what they looked like but they didn’t have a very clear understanding of what was happening. In the simple matter of how the faults were working. They did recognize there were breaks and they did draw them, just a section from the top of the riverbank down to the water, that type of thing, maybe a little deeper. So there was really not a lot of detail work that had been published. I suspect that there had been other oil company geologists that had been looking through the area and I’m sure they’d seen the area before we had. And I guess probably, based as much as anything, on Dr. Hume’s previous work on the Jumping Pound, the Brown’s, who had had success at finding oil at Turner Valley. . . if I recall correctly, was theirs the well that first got oil down the flank, I think it was, I may be wrong on that. Anyhow they were well aware of what Turner Valley now held because it was now an oil field and they were looking for structures similar to that. And they were quite right in coming up and looking at the Jumping Pound structure, and Hume’s maps indicated an anticline out in front. What very few people realized, including geologists, was how complicated these anticlines could be. It wasn’t just a matter of, here’s an anticline, my using my hands isn’t helping very much is it.

#044 SB: Well, we’ll assume whoever’s listening has the basic concept.

JS: Here’s an anticline and it’s in cretaceous beds, in this case, the Alberta shales and that if you went down the proper sequence of sections and the proper thickness of sections, that you would come to the Mississippian-Madison, which is where the oil was found at Turner Valley. It just didn’t work like that, you would go down and about the time you were hoping you were getting close to the Mississippian and the limestone you would fault back into rocks just about as high as when you started. And this happened quite a

few times. So geologists and promoters were well aware, or becoming aware by now that this was a difficulty. However, the Brown’s weren’t drilling Jumping Pound simplistically thinking that it was unfaulted, they knew there were faults in there. But there was encouragement to believe that the Mississippian was involved. And it turned out later that it was but it was much deeper than they thought. They were in there at the time drilling and I can recall that the Brown’s would come around and consult with Hume occasionally and one of the professors from University of Alberta, Dr. Rutherford was around occasionally. They were all there, either as a matter of their own interest or being consulted by somebody, will you come down and tell us what you think is happening now, that type of thing.

SB: Did you yourself have a chance to meet the Brown’s?

JS: Yes, I did, I met the old gentleman, I got to meet Bob Brown Jr. about that time and I got to know him quite well in the future. I saw him then that summer, I met him then and then later on when I was working with Shell I got to know him quite well. Because later on with Shell we took over and attempted to solve the Jumping Pound problem and finally did but this was a few years later. Ralph Rutherford was a real character, I enjoyed meeting him. I think I was telling you earlier that I came back to camp one day and there was this man standing beside a huge pile of chopped firewood. Our camp was truly a camp, we had a kitchen tent set up and a cook and the whole bit and we used firewood. I had heard chopping just before I came over the hill and here he was standing, resting his hand on an ax and it looked like he’d spent the whole afternoon chopping that great pile of firewood. Of course, the cook had done most of it and he had just come along, heard the truck coming over the hill and chopped one log. Probably typical of him. He was a fine gentleman and also a great humorist. I suppose that somebody has told the story about the weathering on the rocks before, maybe I won’t do that.

SB: I don’t think they have.

JS: Interested in having it recorded?

SB: Yes.

JS: I think this is quite true. I would love to have been in his class at the University of Alberta because it must have been very interesting. He described and is the originator as far as I know, a term for the glazing effect on the corners of glacial erratics that sit around on the prairies in this area, throughout this area. The large quartzite stones down by Okotoks are some of them and if you go out and them, there’s no question about it, the corners are all glazed, up to a certain height. I’m sure many people speculated as to what had done it. Well, he called it bovarsination???, I guess I don’t have to explain it any more because that’s exactly what it was. For centuries the buffalo had rubbed themselves on these blocks of stone and they’d actually smoothed it off to a varnished surface practically.

#093 SB: Did that become an official term?

JS: I don’t know but I think most geologists, or all geologists understand it. I don’t know if it ever got in a textbook but I’m sure all of Dr. Rutherford’s students remember it and I did too from his students. I think the explanation for why it’s done is quite correct too. You could also assume it was windblown sand doing it and polishing the corners. But if I

remember correctly the polish just goes about as high as the buffalo or the cow would stand.

SB: And there weren’t many trees around that they could rub themselves on.

JS: No, no, they did it, there’s no question. The cows do it right now, the same thing. Old Rutherford was quite a character, I enjoyed meeting him. Probably one of the other things I remember from that first summer was they had a meeting at the Palliser which was the headquarters for most things at that time, most things of that type. People stayed there and meetings were held there. I can’t remember whether it was a meeting of the Alberta Society of Petroleum Geologists or a local or regional meeting of . . . say, the Geological . . .no, it wouldn’t be the Geological Society of Canada, I think it was the local Society. I wasn’t sure at the time but I remember attending it and it was very interesting to meet some of the people I’d heard of. Hume was of course, very prominent in the oil business then, he was consulted by people in industry for what he was doing really, that summer, working on the Jumping Pound structure, other foothills structures. He was consulted for heavy oil matters up around Lloydminster. Dr. Rutherford I’ve mentioned, he was attending this meeting. Another man that I didn’t know till then was Dr. Sanderson who was a consulting geologist.

SB: Pete Sanderson?

JS: Pete Sanderson, was he. . . no, he wouldn’t have, he died too long ago to have been included in this. But he was about on a par with Dr. Hume. Joe Irwin Sr. was around, oh many others, most of the early pioneers. And again, in those days, when they had meetings and somebody gave a paper, in fact I think Sanderson was giving a paper on the area that I later worked on, the area around Nordegg where I had this paper on folded faults, of which I had heard nothing at that time and knew nothing. So he had just given his paper on this area this afternoon and there was discussion and argument, usually argument because no matter who gave a paper the other geologists had different ideas and disputed it. I really couldn’t participate at the time but I could listen with interest and was particularly interested in meeting these people. I remember that and certainly it was most enjoyable mapping in this area. I guess I fell in love with the country as soon as I saw it, loved seeing the mountains, never got to them because you didn’t get to casually go up to the mountains when you were working in those days. You could look at them from a distance and say great but you were stuck with every day working.

#139 SB: What was Dr. Hume like to work with?

JS: He was very good. He was quite a different personality from Dr. Lord, who I’d had 2 other years. It was nice not always working on Sundays, we got Sundays off. He expected you to do a reasonable amount of work and we did but he wasn’t a slave driver. One of the things I really enjoyed about working for him was that he was required away quite often so I would say half the time that summer and the following summer he was away on other projects so I would have to look after it which was just great for me. You learn more when you’re doing it on your own. I mentioned to you earlier about using the plane table, rods and so on. Well, this country is very good for that, there’s no trees to cut and it worked out very well. We did have to use the plane table survey a lot for what we did

when we were measuring precisely. I can remember using it along the Jumping Pound, along the Jumping Pound structure. I guess I must have had the occasion of running the plane table on one occasion too, although I told you that Bud Coutts was the engineer. Sometime or other he was away so I was running it and I had learned it previously of course, from working in the pre-Cambrian. I was also telling you we were still in the drought, about the end of the drought period and it was hot, we had some hot summers here too. I remember being on a hill up above the Jumping Pound just about across from where the Jumping Pound plant is now. I guess the hill would be maybe 3 or 4 hundred feet above the river and it was hot and I was waiting for the other fellows to get me a shot. I knew perfectly well this wasn’t going to do any good but finally it just overcame me, I got so thirsty I decided I was going to run down to the river and get a drink. You could drink the river then, probably still can. I did that and ran up the hill again and I was just exactly the way I was before I went down. However it was satisfying while I did it. I’m not sure what else to tell you about that area. It was very pleasant work, very fascinating work, getting to learn the section and picking out these faults.

SB: Did any of your work that summer become your thesis topic?

JS: Oh no, not even thinking of it at that time. Later on when I. . .at this point I didn’t really need to have a thesis unless I wanted to finish my doctorate. I had done everything for the doctorate except a thesis but I could and did get a Masters degree later on when I finished at Minnesota. But I did have a period of time when I could just do a thesis and I would have my doctor’s degree. But I didn’t have anything then to do it on. Later on with Shell I did but it was something that they didn’t want me to publish on. What I did later publish could have been a thesis but it was too late then. And when I could have done it Shell didn’t want it published naturally because it did seem to . . .

#192 SB: Conflict of interest.

JS: Yes, it would have been. And I didn’t expect to really.

SB: And so at the end of the season then you returned to Minnesota.

JS: Yes, there was one little change at this point. When I’d come back from Minnesota to Winnipeg the previous spring, my wife and I, it wasn’t my wife then, we’d talked about being married that fall and she’d decided we ought to wait because, after all, we didn’t have much money. But one major thing came along I think, the war in the fall of ‘39. She thought perhaps we better get married or we never would so we did. So when I went back to Minnesota she was with me and I can tell you, that was interesting, living on almost nothing. The second year we were there we shared an apartment with another couple in geology and the apartment cost us in rent, I can remember very well, $55 a month and I was earning $54. How does that work out?

SB: Had you made much from working with the Survey the summer before?

JS: Well, it certainly helped yes. We could actually get along pretty well on what I’d made during the summer. Actually she didn’t know that at the time but she found she could work in Minneapolis so she was earning a lot more than I was. I was working by this time as an assistant over at Macalister, the first year I wasn’t you see. The first year I think I made about $15 a month doing a little bit of lab work in the university. I really shouldn’t

have been earning anything because I was in on a student visa, which doesn't entitle you to work in the States at all. But a friend in the U.S. Consul in Winnipeg figured out that if I was already permitted into the States for first year, I was now a resident so therefore I could apply to have a permanent, what was it. . .apply to the . . .not a citizen of course, a permanent resident and that would allow me to work. So the 2nd year then, I was working at Macalister College and making this great sum of $54 a month. You have to remember that people were actually living on as little as $60 a month then. $150-$200 a month was quite good income. Put this in perspective a little bit. Right now it sounds ridiculous, you couldn't do anything with it could you. So when my wife started working too we were in not too bad shape, we could live. And also when I said we were paying $55 a month for an apartment, we were really just paying half of it, sharing it.

#239 SB: So that brings us up to the end of that student year, did you go back with the Survey again?

JS: Yes, I was back with Dr. Hume again. At the end of the previous season we had moved down along the Highwood River, working in a different area. We had finished the Jumping Pound area and we moved down and started on another area. Again, a place that he had done some mapping, this was up the Highwood. But what I do remember that fall of '39 was before leaving it, what beautiful country it was. There was no highway up the Highwood at that time but there was a road. You could get right up to the mountains but it was all just ranch road. You went through dozens of wire fences to get up there. I remember one evening I was working in the hills somewhere and I had been asked by Dr. Hume to go and pick him up that night in our, I think it was a 1935 Dodge as I recall, pre-war model of course. And he had started traversing up the river. Now we didn't always have to use plane table and rods and so on, you could map by the top topography that we had. Or I should say, you could orient yourself and locate yourself reasonably well on a topographic map, particularly if you were along the river. And this is what he was doing. So he had told me where he was starting and I went up the river and I went and went and went for miles. He must have covered about 20 miles that day and that's really remarkable because it's just one series of fault slice after another so you have to pick all this up. What I remember particularly about it was the beautiful, beautiful evening and if you can imagine just going up that river, which wasn't settled much, there were ranches in and heading on into the sunset, it was wonderful. And of course, heading towards the mountains which I had still to get to. I didn't make it that year at all. And I guess I didn't make it until the next year. You were asking about the next summer. We started down in that country, continued that mapping. This would be, I think we called it the Pickisco??? Creek map area. That would lie in the district south of the Highwood and east of Nanton, quite a large area there, it included more than one map sheet. But I think we were basically on the ??? one. It was, I believe, that sometime that summer that I really first got to climb a mountain, a true mountain, not just the foothills, which were pretty high. One Sunday, Fred McKinnon and I took a busman's holiday and went and climbed Mt. Burke, which is just north of the Savannah Creek structure, which I later worked on and mapped and drilled. Didn't know that either at the time. One of the things I do remember though

is the work down in that area is seeing this beautiful road winding through the foothills and I could see it disappearing up into the mountains. And oh, it would be wonderful to get up there. This was the road that Anglo-Canadian had used to get in to drill Savannah Creek, they drilled an early well there and I’ll get back in that later on. I didn’t know they’d done it this particular. . . no, let’s see, this was 1940 so they’d done it the previous year, that’s right. I thought it had been done earlier than that, the road looked so mature and I thought it had been there for quite awhile but they actually drilled their well in 1939. This would be when I was up in Jumping Pound. Let’s see, that was 1940. I don’t recall anything particularly startling to tell you about that field season except it was more of the same kind of work. I became more adept at what I was doing. Yes, I do remember one thing I should say. I first heard of folded faults which is something we’re going to get to talk about more later that summer. Dr. Hume had been told about one in the Pickisco area and he and I went and examined it and sure enough it did. I think he’d mapped some before and I know he’d reported on it. But they were still a type of structure that I think most geologists were somewhat sceptical of and certainly whenever you heard that such and such a place had a folded fault you said, well, maybe it’s right but we better go and check it and see if it is. And we did and this was my first encounter with a folded fault. This was very close to this same Savannah area that I mapped later and probably it was in my mind when I finally picked it out as a prospect for Husky quite a few years later.

SB: I’ll just turn the tape.

Tape 3 Side 2

JS: There’s one item that I’d been overlooking telling you that I think you’d be interested in hearing. I can’t remember whether it was my first summer out here with Dr. Hume or my second but he had to make a trip in to visit some people at Turner Valley and I went with him and it was very exciting. We were driving on, they were all gravel roads at that time, pretty dusty I remember that well, but what I do remember particularly, we stayed into the evening, we were visiting a farmer somewhere. It might even have been Turner, I’m not sure, the Turner Valley, I’m not sure of that point though. Dr. Hume had been doing quite a bit of work on Turner Valley before and he had been advising people and I think he was doing something like that this particular day. What I remember particularly was at night, there were flares everywhere, the whole area was lit up. Looking back at it of course, a tremendous waste, but it was exciting to see. In my mind there were dozens, probably there were a dozen or so. There was 2 or 3 that were particularly noteworthy, one up on Longview hill and another one near the Elbow River and so on. But there were more, they were all over the place. This was a great waste but why it was happening was that they were still flaring gas to get the condensate. It shouldn’t have been done and of course, by now we had discovered oil down the flank and it wasn’t too long after that that they were shut in. You probably heard that Turner Valley had been like that. They talked about Hell’s Half Acre and things like that, I think this was the flare near the Elbow River where it was that big and that hot.

SB: So any direction you looked and you could see these flares?

JS: Yes. And of course, the hills were all dotted with these old fashioned drilling rigs. You know, they built them of wood and they left them. So the wells they drilled and the derrick would remain. Of course, nowadays nothing like that happens. So the whole oil field is dotted with these derricks on the hills and in these valleys. It was I guess, romantic, certainly wasteful and definitely spectacular.

#050 SB: So I guess that was your first vision of the oil field activity was it, in Alberta?

JS: It really was, yes.So at the end of that season we had mapped quite a bit of the country south of the Highwood River. I went back to Minnesota and finished up my work there, not having done a thesis as we were saying but I did everything else towards a doctor’s degree, including all the exams, everything but thesis. And for that they were willing to give me a Masters degree, I made it an M.Sc. Well, during that winter we were talking earlier about being visited by oil company representatives, I was visited by several and it included Shell and did receive an offer from them. I was slated to go to work for Shell down in Louisiana, Shreveport, which was one of the main activity centres for the oil business down in the Gulf Coast at that time. I knew nothing about the area except that I’d been down to Houston one summer earlier so I knew a bit about the country, nothing about the oil business. Although around Houston in those days you saw lots of activity too, there were rigs around there. I probably saw, as a matter of fact, my first oil rig down there rather than Turner Valley. But now up close. Before I got down to Shreveport, my friends all saying, you’ll love that down there, I got a wire from Shell saying, would I mind working for Shell here in Calgary. It wasn’t very hard to say yes I’d do that so I never got to Shreveport and the same friends said, boy you’re lucky, you don’t know how bad it is down there in the tropics or semi-tropics. And I think I was lucky, I really preferred working here. So my first boss was a chap by the name of Alex Clark who should have been on this oral history too but he’s now dead, he died about 5 years ago. Again, I was required to travel out by train to Calgary and meet in the Palliser Hotel, everybody went there and he was not an exception, he stayed there. I met him and one of my first duties was to go to Edmonton and then take the train from Edmonton west to Entrance, which was a, still is there, still is a relatively tiny village, it used to be the Entrance to Jasper Park but it isn’t anymore, it’s out east of the park by several miles. They pulled the park boundary back. One place where they shrank a park. Now that I think of it, I don’t know how much area they took away. What I was doing was picking up a car that had been left there by another Shell party that was working in the foothills. I had never met any of these people at that time, they later became good friends. I got the car and I looked at the mountains to the west and somebody there said, oh yes, you better go that far so I was persuaded. These are the days you don’t fool around you know, wasting time when you should be working. But I decided I just had to get as far as Jasper Park. I guess it would be about 15-20 miles from where we were, to drive like mad to the gate, get inside, look around, say hi Jasper Park and turn around and drive back to Edmonton. It’s a long drive from there to Edmonton. So we started there, now this was a different kind of work than foothill work. I had been doing. . . oh, it wouldn’t be too dissimilar but the work I had done the previous 2 years had been in the foothills. What

you’re doing basically, is you are using Brunton??? compass, have you seen one, I’ll show you one, I’ve got one here. It’s very interesting. It’s one of the field geologists basic tools. It’s quite a precise compass that can be set with the declinations so that when you look through it or point it, you’re getting a true reading, providing you’ve made an accurate setting and providing you don’t have some magnetic interference, like being too close to a body of steel. I think, I may have mentioned, using the Brunton, now I think of it, when I was in the Shield, running a ??? and compass or a chain and compass type of survey. And there the difficulty was if you went over a magnetized rock you could be thrown off. That doesn’t happen very much out in this country so the compass is really excellent. You can get some interference and I’ve had it and I’m not talking just about man-made things either. There are bits of magnetite in the sediments that can throw you off but not very much and not likely. So the kind of work we were doing that first 2 years was using the compass to locate yourself where you needed to. And you can if you have a good topographic map you can pick out points and locate yourself well enough for a reconnaissance type of survey. Primarily taking dips and strikes. Now the dip is measuring the angle that the rock, the angle between horizontal and the rock, the bedding of the rock, which is quite important in working out the structural geology of an area. And the strike is the line that the beds make with the horizontal. Can you picture that? So we were doing that, in the foothills mainly. We also I told you, using plane table and rods to be more precise about our measurements.

#129 SB: Was this part of the Northern Foothills Agreement with the. . .?

JS: No, that hadn’t come along yet. You see, I’m now talking 1940. In the years I was with the Survey, I’m talking ‘41, sorry, ‘39 and ‘40 I was with the Survey and we were using the compass the way I was just saying to map the structure. In my first year with Shell then, having started, we started from Edmonton and this is now serious oil looking. It’s interesting what we were doing and I think it was a good thing. We did a very fast reconnaissance from the Saskatchewan River, from Edmonton and stretching out east almost to Lloydminster. I wasn’t out to Lloydminster then but some of the others were. We were talking about it then, but the prairies from the Saskatchewan River at the latitude of Edmonton, down to the U.S. border. We didn’t cover it all that year but we came pretty close to it. And this meant we were working in very rough reconnaissance and very fast. We used cars. This was a point of interest, it is now 1940 and I don’t know whether we had rationing but, 1941, yes we did have rationing then.

SB: Of gas?

JS: Gas, gasoline. However, it meant nothing to us because we were on a job that was war priority so we could get all the gas we needed. So we just criss-crossed the area, more or less east of the Calgary-Edmonton highway and then over to the Saskatchewan border, from Edmonton, down almost to the U.S. border. And what we were doing was looking for anything we could detect in the way of an anomaly. An anomaly being something out of the ordinary. An anomaly we often think of as being an anticline. It doesn’t have to be but we were looking for something that might indicate that there was something unusual that could be leading us to oil. Basically it was mapping structure, you couldn’t do much

else. And it's amazing, we did see things that if we had been able to drill later on could have led to finding oil. They might not have been direct indicators that the oil was there but had we followed our indications they could have led to some oil finding. Certainly we walked over a tremendous amount of oil, as we know later.

SB: Had Shell actually made any discoveries in Canada at that time, or did it have any production?

JS: No, no. This year that I started was really the first serious year from Shell in Canada. Our headquarters was out of the Los Angeles office. Previously the man that I worked for, Alex Clark, had been up on reconnaissance, when I say reconnaissance he'd done quite a bit too, he'd been up into the Peace River country, where he came from and he'd met some of the local geologists. He'd probably met Hume earlier, he'd met Rutherford. We did use Rutherford that summer, remember I mentioned him earlier when I was with Hume. And he'd met other professors from the University of Alberta and, now I'm trying to think of another man. . . his son worked for me with Shell. . .Ted. . .

#177 SB: Ted Rozsa?

JS: No. Williams, Ted Williams. There were 2 and I've forgotten which was Ted's father but there were 2 of them from the University of British Columbia and they had been active in mapping. This isn't necessarily being in the oil business but they were knowledgeable people who had mapped large portions of Alberta and B.C. We're saying this really about all the professors, they weren't oil experts but they were experts at mapping the country. And doing a good job of mapping the country helps you find oil. So I want to make it clear they were not being contacted as oil experts, experts in oil exploration but they were experts in geology in the areas that could lead to finding oil. So they had been contacted you see. And Clark had done some of that work prior for Shell. And no doubt in the course of the intervening years, I think he had done this maybe 4 or 5 years before, what he had done I guess would come up in the report, is this part of the world a good place to look for oil and the answer was yes. That brought the company up in a serious exploration drive by the time I started working in 1940.

SB: Were they using seismic at all at that time?

JS: Not yet but we're coming to it. Shell was yes, and Shell was an expert at disturbed belt, faulted rock geophysics, more than anybody that I knew of anyhow. But we hadn't quite got to that stage. When you ask the question, at the time a chap that later became a friend of mine, Don Currie was working in the area out of Entrance where I picked up the car with Dr. Sanderson. I mentioned earlier as being a foothill expert because by this time he had now mapped quite a lot of the foothills, he'd mapped in the area around Nordegg that I was later to work on. So he had been hired as a consultant, knowing the country and the geology and my friend and the party of geologists were sent in with him and they spent all that year working in the foothills. When we got through our stint in the prairies, that year 1940, we all went back to California, me for the first time. I was hired, this was one of the advantages I guess to me, that I was working for Shell of the USA There wasn't any Canadian Shell at that time and when we finally moved into Canada I was still such an employee and it was an advantage for me. Although later on of course, Shell Canada

established but this was far down the road. We spent the winter in Los Angeles area which was wonderful for me and I spent most of that winter on training in areas such as Bakersfield. I was there for a few days, couple of weeks I guess. Spent most of my time in the geophysical department, getting taught about geophysics, learning gravity work, quite a bit of that and getting to learn the computations necessary for seismic. As you well realize, this is well before the computer day and everything had to be done by hand, all the calculations and it took quite a crew to do it, I was doing a lot of that.

#236 SB: Didn’t they call the people computors at that time, or was that tied in with. . .?

JS: Yes, you’re right, they did. I don’t think that I was really called one but I was working as one as a geologist. I guess at the end of that winter I had a choice, whether to stay with the geophysical department or carry on in the surface mapping. I don’t think I thought about it too seriously, I think I wanted to get back out on the field. But there was no way of avoiding it in the end that you had to be involved with it. So come next spring we all headed north. I didn’t drive down the first winter, I flew down because they wanted me down there for something early. This was sort of an aside but I remember I came down a particular day, stayed in a hotel near the Shell office and went through my first earthquake. It was important enough that it was in the newspapers the next morning and I don’t think I knew it at all. Anyhow we all came up by car the next summer. This time I went out to where I had picked up the car the previous year and stayed out and worked in that area for about 2 years, 2 or 3 years. We were working the foothills from Athabasca River at Entrance, which is this little spot I spoke of on the railroad. There’s an old Entrance and a new Entrance. When the railroads went through the Grand Trunk was one and I don’t know what the CN was called then, it might have been the CN but there were 2 lines conflicting, or competing lines that went through. They used either side of the Athabasca Valley. Then of course, they were amalgamated, one of them failed I guess or was about to and became the CN. So there was a duplication of railroads and old Entrance was on the other side of the river from new Entrance, north side and the only access to it was the old railroad bridge that went across the river. And there were a few people living there, the old station was there. When I say old, I suppose it had been, well, I think quite a few years, I’ve forgotten what time that was done, it might have been 15 or 20 before that it had been abandoned. And new Entrance was reached by road and it had a store and a building that they laughingly called a hotel, which was a 2 story frame structure with a sort of common room in front and bit of a place for a kitchen in back and at times it served meals and at times it didn’t. You never knew when, it would just depend whether they had a cook or not and upstairs there were separate rooms. There was no running water of course, this was just a place where you simply bivouacked out in whatever you had. They did have beds to lie on but you needed your own stuff. This was our headquarters for 2 or 3 years.

#292 SB: So you must have got to know the town people fairly well.

JS: The town people consisted of the man that ran the whole thing, his name was Thomas Monahan, he was really an old character. His right hand man who really did the work, ran

the store, ran this little hotel, whatever we called it. That was it. There were houses around and as you got to know the area there were probably quite a few, mostly they were trappers, remittance men, this type of thing. Later on, one of them. . .and they’d have their houses, there would be one up in the trees there, another one over there, that’s really what Entrance was.

SB: I guess did you use pack horses out of there?

JS: Yes. Near there, again, up in the trees and hidden some distance away was a packer that we used quite a lot, I used particularly. But the first year I was there we used him, his name was Felix Plante. I went to visit him this year, it was the first time I’d seen him since I left the area and he’s still getting along, he must be in his mid 90's. And if I was to ask him, would you take me out packing now I think he would go. I think he could do it too. He now lives in a house trailer, which is now several years old, near the old house which he lived in at the time and he’s got all members of his family around on his property. This is the man that packed for us that first year. Later on, I think at the end. . . this was Shell’s second year in the area, my first, I think at the end of that year that we decided . . .are we running out of tape?

SB: Yes.

Tape 4 Side 1

SB: It’s December 19th and this is Susan Birley interviewing Jim Scott. I guess today we could carry on with your activities with Shell in the 1941 field season.

JS: Yes, last time we discussed a little bit about the area that my group was surveying that summer but I don’t think I got into telling you exactly what we were doing and this could be interesting. Shell were now moving in to Alberta in a reasonably big way they hoped, however it was still strictly reconnaissance. There was a group now in the foothills that summer, I hadn’t met them yet but I had been there to pick up a car and Shell were definitely interested in the foothills. There was oil and gas, in fact, except for Turner Valley really, all the oil and gas that had been found or was being found in Alberta was in the plains, mostly around Lloydminster and Wainwright and some down in the Taber. Then there were tantalizing shows of oil in the Mississippian down near the border, a carry over from the U.S. exploration. It was probably the success that they were having in Montana that was brining oil companies north into Alberta. Mind you there had been lots of sporadic exploration for years. As you know there had been oil found in one of the earliest wells drilled in Canada, in Waterton, just down at the border. However, now Shell was in and they were busy on the foothills and definitely interested in what the plains might hold. So you’re coming in, what do you do to start. There were geologic maps of Alberta bu nothing too precise that we knew of. You may recall this was before Leduc by a few years. As far as I know nobody had been thinking of reefs, particularly in Alberta. I know I wasn’t and I doubt if any of my associates were. So if you’re going to have a quick look at the plains to get started, what would you do. I guess what you’re looking for is any indication that there’s any structure that might be a little bit anomalous to the regional, pretty flat dip. This would be in the plains dipping a slight degree towards

the Alberta syncline in the mountains. So I’m not sure who thought this up but I thought it was a very good idea that this group of about 4 of us would just go as fast as we could over all the plains area, looking at all the principal outcrops. This meant a lot of driving, we walked quite a bit but you drove as much as you could because you’re doing this as quickly as you could, to see every outcrop that you could find, but quickly. And of course, in the plains there are not a lot of outcrops in places. Now the usual method of surveying, I think we discussed before, the geologist has a Brunton compass, that’s his principal tool and with that you can take dips and strikes and you can also find your location in a sometimes, fairly precise way but certainly well enough. It was the principal instrument of surveying because you do most things with it. Of course, you add to that the plane table which we’ve discussed before and other methods of locating yourself. This time we weren’t going to be locating ourselves, we were using the topographic maps that were available. If you got to an outcrop within a few hundred yards, 100 yards or so, that was close enough for locating yourself. Remember most of the rocks were dipping perhaps one

#050 degree, something like that. Now for our purposes, the ordinary Brunton wasn’t going to be good enough so we took along a level. We also used barometers because there were places where we did want to know our elevation. We were going to check a contact, say it was 3,000' here and if we can show it’s 3,050 here and 3,000 again in another place, you might be showing a structure. We did use that but we were relying mostly on the level. We had our compass there too. I felt that I could detect, with the level, dips of half a degree, something like that. That’s pretty small. And you had to be pretty careful about it too because you’ve seen outcrops and various cutbanks, you can get quite a few different readings that would average out to about the right thing. So what you’re trying to do is get from a large exposure what the dip, it’s pretty hard to get the strike because the dips are so low. So it would be a dip component, you’d try to get a measurement. And ideally it would be nice to have a cutbank that gave you an L shape so that you could really get a third dimension when you’re making these measurements. I think we got to be pretty good at it. We were able, in this whole big area, to go through and pick out anomalous areas where we thought that there was some deviation from the general dip towards the mountains. We certainly covered a lot of oil fields that we didn’t know about at that time. I’ll say this for Shell, had they continued work in the plains, and they did start working, drilling wells, they would have encountered quite a bit of oil. They would have found Woodbend, that is the one northeast of Edmonton isn’t it, I think that’s right. We did actually walk over Leduc, we went as far west of Edmonton as Leduc, although that didn’t mean anything to us at the time. And we did in fact, see an anomaly there. Now I don’t know whether they anomaly had anything to do with the reef underlying but there was a surface anomaly that we did measure. Along the river, there are very few outcrops in a lot of those areas so you can’t do anything too detailed. And remember, we were just doing reconnaissance. We got anomalies in the general area out in Stettler, where all those reefs are there. I don’t recall finding too much further south but I thought it was a very good approach to get a quick overview of the country before you get down into details. Because afterwards, you were talking about seismic earlier, yes, we started using

seismic on the plains. In fact, I’m not sure when it was, a year or two after this, we started across . . .I think I got Woodbend wrong, no, it was Redwater, it was not Woodbend, it was Redwater. I’m getting a bit ahead of myself now but Shell had run a seismic line over Redwater before Imperial drilled it and we had half the acreage on that field. The next well they were going to drill in the plains was going to be on Redwater and this was the time they chose to leave Alberta, just about the time Leduc was being found. This was in 1947, I’m getting ahead a bit. So that was the field season of 1941 to me. At the end of that season I was asked to go down a little bit early, the others were still finishing up in the south, to do some work down in Los Angeles, which was my headquarters. I’d never seen it up to this point but now I was. I got down there and I think I told you last session that I got down there just in time to get in my first earthquake. Okay, so we spent the winter down there and it was interesting, exciting and I got training in geophysics and other things. Came back up to Alberta in the spring of ‘42. Spring for us was April. If you recall how your springs can be, it was really winter, a lot of it. First time that I’d ever spent under canvas at about 10 below zero, Fahrenheit I’m talking about, which we did. I joined the group that had been working up in the Entrance area. They’d had some interesting leads the previous year and we set about the first few months following this up. Then we started a survey north towards the Smoky River, this is north of the Athabasca, where Entrance is and working up the foothills there. In this area, what was exciting to me was, you may recall I talked about using airplane photographs when I had worked in the pre-Cambrian shield with the Survey. I don’t know whether there were any airplane photographs available for the mountains at that time but certainly we didn’t know about them and I don’t think there were available for our type of work. So what was exciting to me was we were pretty well on your own, you’re out there with your own equipment and your mind and your ability to get around and you had to do it all yourself, you didn’t have any help from previous photographic work. Mind you that’s the way to go if you can do it but I was happy we were starting before that was being used. We were doing general reconnaissance which meant we didn’t have to precisely tie ourselves down at first but once we got an idea of something we were interested in mapping we did need to be a little more precise. This is where we started using the triangulation method. We’ve discussed that a bit before, I don’t know whether we did it on tape, did we?

#128 SB: I think so. Where you measure. . .

JS: You use a plane table and alidade and rods and you set out, in our case we set out a base line on top of a long mountain ridge and that was precisely known to us, not in relation to a land survey of any type, just for our own sake, ???. From there you could develop a whole series of control points and do it quite quickly. You could move from river valley to river valley by using the mountain tops, or the hill tops, they’re really mountains in most of this area, at points you would check you see. And you can develop a very accurate grid and tie in features you want to tie in this way, without having to make a very detailed map of the whole country, you can just have your grid and then tie in places that you do want and it can be pretty precise. And we did this. Have you ever heard of a lob stick?

SB: Yes.

JS: That’s one of the devices you use, or can use. This is particularly in pretty heavy forested area and it’s very hard sometimes to pick out a point of reference. So if you know ahead of time and you send somebody on to about the point you want and he goes up and takes all the branches off the tree except the very top, leaving it sort of like a little shaving brush on top, and bark it, then you’ve got a marker. This was the device used by, I’m sure a lot of early explorers, but we used it too.

SB: Even the Indians used it. That’s probably where they got the idea.

JS: Somebody was telling me when I was in Jasper this past year that there was, pointing out where an old lob stick had been and I’m not sure what it was for, probably one of the early surveys.

SB: Yes. I know in a lot of native trails, that’s what they used as landmarks too.

JS: I have an old picture from those days of Fred Kidd, you were going to ask me about him. He joined us in ‘42 and I have a picture of him making a lob stick. I think it was the same year I took off with a crew of my own and this was a very exciting trip because we went north of the Smoky, right up to the B.C. boundary. This would take you up the Narroway River and this was an area that really hadn’t been surveyed at all, in any detail, not topographically either, we didn’t have a good map. So I had the pleasure of going in with absolutely a blank sheet. In other words it all depended on me to pick up what was there geologically. I had a friend, still a friend, who ran the plane table. There was just the 2 of us, plus our cook and our packers and a lot of horses. Because we were away for a long time, I think we had in the neighbourhood of 30 or so for what, 5 of us. That would be about a 6 week supply, carrying our camp and our instruments and food. We continued this triangulation that we’d started further south with Fred Kidd and the chap that was running the party, Don Curry. A chap who, he’s retired from Shell but he’s still busy at geology, he must be almost 80 now, [now out of Salt Lake]???. As I say, this was quite an exciting thing. We had found a structure, what we called the muskeg structure, it got later drilled by the Northern Foothills group. At that time the group hadn’t been formed and we were all competing to find what we thought were good structures. And of course, several of them came on this muskeg structure, I think we were the first ones to find it but they were soon after us. I wasn’t involved in the arrangements but I gather that rather than competing they decided that it was an expensive enough operation in that country that they would get together on it. I don’t know all the companies that were in that, certainly Imperial was and Shell, I think Texaco and there were probably a couple more.

#192 SB: Was Canadian Superior?

JS: They could have been because they were one of the companies that we ran across. I think I may have told you one time, that you’re going down the trail and you see a good friend but you just sort of say hi and pretend you don’t know them very much. They were out there, I remember that. We’d found muskeg so I was heading on north of the Smoky to see if there was a continuation of that kind of structure. And there were similar looking structures. I thought perhaps I had one big anticline because they looked so similar but it turned out in later mapping that they were really 2 or 3. All the front fold where the

foothills meet the plains.

SB: Was anything ever found in those structures?

JS: Not that I can recall. The muskeg structure, yes. Not at the time, this would be 2 or 3 years later that they drilled the wells under that agreement and they didn’t find anything. The found their objective, the Mississippian, Carbonate. You know, everything they’re doing is looking towards finding another Turner Valley, that’s what we were doing. They found that but they didn’t get anything in it. Imperial were back in there not too many years ago and I believe they may have made a discovery on that same structure. I don’t know too much about the details. And people did drill the structures I’d found north of the Smoky and south of the Narroway. One I called Twin Lake, I think they now call it Two Lake on the map and I don’t recall that they had anything there. But again, we’ve discussed our means of surveying there. It was surface mapping of the rocks to find the structure that you could lay, generally, with the Brunton compass. And we used, again, plane table and alidade for doing our triangulation. And also for making some detailed measurements of sections, it’s good for that too.

#226 SB: So can you remember any of the other men in the field party with you?

JS: Fred Kidd I mentioned, Don Curry was the leader of the first party I was out with. I had a chap who worked for Imperial for years, Hugh Naldret???, on this far north venture of ours. Hank Bonet, Lloyd Lewis, Louis Millward, those were the principal ones at that time. We’d be visited every now and again by some people from the head office in Los Angeles. There was one of the old Swiss geologists that came to visit us when we were working at the Black Cat, which is close to the railroad, on the north side of the Athabasca. It would have been in the park when the entrance was Entrance. But it’s in the vicinity of Brule, which had been established as a coal mine in the 20's I guess. At the time we moved into the area it was a ghost town but there were still a few people living in it. Black Cat was one of the Brewster’s branches they used for wintering horses and I guess it was pretty well a dude ranch. But this was now war time and there was no tourist business. We used the ranch for a little while as a headquarters, it was quite a nice place. It even had running water which was kind of great for us. In this community then, there would be, remittance men, old trappers and people running outfits of horses and so on, throughout the area from Entrance back into Brule or Black Cat, that country. There was one old resident there by the name of Tommy Groat whose descendants are still there, I think the whole area is filled with Groat’s now and several other old families. Our second year out, second or third, we decided that we were going to be using horses so much that we actually bought an outfit of our own from him. It was kept by Shell there for many years. Probably one of the things I should mention is about getting around. As you know, we were using horses all the time and that was no problem, except it was pretty slow. A day move for horses would be 15-17 miles. If you went as many as 20 miles that was a long trip to move your camp. The problem we did have was crossing the bigger rivers in flood time. I can recall when I was making this trans-Smoky trip, starting out - I have a feeling it was probably my second year there, not the first one, in the foothills that is - starting out at the same time the others were starting out, my friend Don

Curry was going up to do more work on the muskeg anticline, he had an outfit. He was with Shell. Another friend with Texaco, McCall Frontenac then, Hugh Beech, he was an old hand from the Geologic Survey, he was leading a party out into the same area. I think this was about the same time that all these companies that were going to be the Northern Foothill Agreement group were busy finding out what was going on. And I believe he was also going to be mapping the muskeg structure. They had gotten out on the trail ahead of me and I was passing, I had a long ways to go, I had to go to the Smoky and I think that was about a 5 day trip just to get there. I passed both of them along the way and this was, I think, in early June and this is about the time the heavy rains can hit you and I was doing my best to get to the Smoky before that happened. I was lucky I did. It started to rain like mad and I heard later that both of their camps were pretty well pinned down for a matter of a week or two just because they couldn’t cross streams I had already crossed. They weren’t big ones normally but they were big enough when they were flooding that you couldn’t get across very well. The thing that was good for me was that I knew that the Smoky was going to be too big anyhow for just simple fording so we got to it and the river was of course, high but it didn’t matter really, how high it was because we were going to have to swim it anyhow. But we did have to transport our material across. The place that we chose to cross was at the present location of the mine up on the Smoky River, I can’t think of the mine’s name. I’ll think of it as we go along. Anyhow the mine is now right there where I crossed, at that time it was named Waniandi??? I think, flats for an Indian. A lot of the half-breed Indians lived back in this country. They weren’t reservation Indians. They were pretty well on their own too and we used them. Are we ready to change.

SB: Yes, I’ll change.

Tape 4 Side 2

JS: Did we miss anything there?

SB: No.

JS: Okay. So I was at Waniandi Flats and the Indians had an old boat there that they had gotten from one of the mines down near Jasper years ago, to cross the river in circumstances like this. And when we got there of course, the boat was on the far side. So we built a raft and the packer and I went across. It was quite a job getting across without going way down stream, it was pretty fast. We managed to get it over and hook it to the bank in fairly deep water and got up and found the boat. I don’t know how old it was, I think it must have been, let’s see this was back in the 40's, it must have been 25 years or so then, maybe more. Anyhow what happened, whenever they sprung a leak, they were not very scientific about repairing, if they had an old piece of board they’d plunk another piece on it if they had a nail or two. So when we found it I would say there were several layers of wood on it, you could hardly lift it, it was water logged. But the packer was a very strong man and I guess I wasn’t too bad, we managed together to get it to the water and we managed to get it back to our side before it sank, we were rowing like mad. The

water was just bubbling up in it. So it was raining, we had nothing to do for the next several days so we set to work, took all the extra junk off the boat, got it down to a reasonable size. We gathered tar from our bacon packages, you didn’t have too many things that you could carry out in the field other than canned goods in those days. There was things like dried vegetables but they weren’t too good, we carried fresh stuff when we could. But one thing that was a staple was bacon and I think now you can probably get it in cans but even that would be heavy, so we’d have sides of bacon which were wrapped and then wrapped up in tar, to preserve them until you were ready to use them. That would be a staple. Well, that tar turned out to be pretty useful to us for patching the boat, plus spruce gun which we collected by the quart I think. And we got the boat all patched up and it stopped raining, it was working fine, it was not leaking and we managed to haul all our stuff over in the boat. Still quite a job rowing because you had to keep against the current. I remember I’d gotten tired of rowing, I’d done 2 or 3 trips across, besides Felix Plante, who was our head packer and I think I mentioned to you I saw him this summer, he’s well up in his 90's and he’s still living where he did live around Entrance, when we were there first. And a man, I might say, that if I asked him to go on a pack trip now he’d probably do it, I think he could do it. They were related, his assistant packer was an older gentleman by the name of Adam Yokum. He’s been dead for many years now but he was the patriarch of a large family up in that area. He appears in 2 or 3 histories of that area, local histories that have been got up. Well, he was at this time I guess, in his 60's, maybe he was older, he might have been 70, and he took one of the oars. They made the trip across, he and the head packer, you need one man to an oar, two men doing this. And they were on their way back and I looked up, I was absolutely amazed, they were just sitting in the middle of the stream quite calmly floating down the river. This is perhaps the difference between an Indian and a white man that a white man would get all excited about it and wonder what he could do. What had happened was that Adam had had a stitch or something like that and he couldn’t row. It was no good Felix, the other man rowing, so he just sat back calmly smoking his pipe and hoping they’d hit land somewhere. But I was much more concerned because I didn’t want to lose this boat because we’d spent so much time getting it ready. I could just see it ending up several miles downstream and we couldn’t use it again. So I jumped on a horse and galloped down to a bar, this would be maybe a quarter mile beneath us. I got out and waded out from the bar as far as I could go with this rope and I got there before they did, they were just calmly floating down the river and I managed to throw them a line and got them. Otherwise they’d have been down the river, whatever. We did get our stuff over all right, then we had to swim the horses, which was a fairly exciting little thing too. You’d think that horses would know better but not all of them are as comfortable in water as others. In fact horses I guess are just like humans, they’ve all got their own personalities. Some will just get in the water and swim across and make their way out and others will make a big fuss about it. We had one that got a little low and got up against this cutbank by our raft and he was having a terrible time getting out of the water. He’d get part way up the bank and fall back, I thought we’d lost a horse for sure but he was just excited. We got him eventually. Somewhat amusing to me was when we finally came back to cross and go

south again on the Smoky, guess where the boat was, on the south side. So we had to build another raft to get back over to get it. And the Indians had used it for awhile and it was almost in as bad shape as it was when we first fixed it. But we got back. That’s probably enough to say of that season. Later on, can you think of any questions you want to ask at this point?

#095 SB: No. I think you’re doing well. I guess, did you reach any conclusions at the end of the season about. . .?

JS: You’d spend all winter mapping what you’d done in the summer. You presumably, this was kind of an amusing joke in our company too, by this time our chief geologist was Les Clark, he’d replace Alex Clark who had hired me first. Alex Clark had been moved down to the States, back to Casper I think. Les Clark came up from Los Angeles, he had been working in the Michigan basin, so maybe he hadn’t come directly from Los Angeles, yes he had. And in fact, replaced Alex Clark while I was on this long trip over the Smoky. My first near encounter was coming back to where my friend Don Curry had his camp on the south side of the Smoky and finding a note from him. It sounded almost like he was annoyed, it said, Scott, I was here and you weren’t. I was only on this long trip. I got to know him later of course and he was quite a character, in fact, a very excellent geologist and he’d done an awful lot of work on his own in the mountains here, in his spare time, working on geology, stratigraphy and structure. But I just met him after this. Oh, I was going to say, that winter we got on to this business of length of field season. Clark insisted that the field season was 3 months long and that we had about 9 months in the office and my friend Don Curry would get very exasperated about this. He’d say, well, Les, let’s see now, this year we started out in April and we went April, May, June, July, August, September, October, now how many months is that, to me they add up to about 6 months. Oh yes, he’d say. So the next time they had a conversation, well, now we have such a short field season of 3 or 4 months. My friend Don Curry would just about have apoplexy. However the field season was usually shorter than the winter season and you’d spend the winter working up what you’d done in the summer and preparing for the next season. My next major assignment was down in the central foothills, around Nordegg. In the next 2 years, this would be the summers of ‘44, ‘45, I believe, I mapped what we call the Chungo??? structure, it’s been called the Brazeau structure and that area around that. This is the area that became famous for folded faults. There was a very good section there that had been mapped earlier by a group under the leadership of Hague I guess it was, and they had written a paper on folded faults in that area. Which had been held up because there was some scepticism about the kind of faults they were mapping. These numerous faults all folded together.

#139 SB: Was the problem in how they occurred or just the fact that they existed?

JS: Just the fact that they existed, a lot of people didn’t believe that they did. They were, I’ve forgotten, I think they were writing this article for the GSA, Geological Society of America and the usual thing is that somebody who’s an expert on the subject gets to read the paper you see. And the expert they sent it to really didn’t believe them so he held it up

for a long time. They had done their work back in the mid 30's I believe, and the paper finally came out just about the time I’d started to work in that area. I hadn’t seen it, in fact, Les Clark, the second Clark in our organization made sure that I didn’t see it until we got well under way. So again, I had a pleasure of working an area and figuring it out for myself for awhile. He would come out and join me, he was a very strong physical person and he was able to get around well and he enjoyed it so we worked this over. He finally decided that the work was right. It made a lot of difference to us to know that it was correct. So having decided that their idea was right I went ahead and mapped the whole area in much more detail than they had and a much bigger area. It eventually was a result of a paper that you’ve read that I put out on folded faults. I suppose while we’re talking about this area it’s a good time to discuss the folded faults a little bit. I think you and I have discussed it but not on tape. Folded faults were not unknown by any means. By this time McConnell had recognized one on the front of the Rocky Mountains when he was surveying here in, what was it, the 1890's I think it was. He’d recognized and mapped it and this is the fault that’s now named for him, McConnell Thrust. This was appreciated that faults could warp as they moved, that type of thing. Later on, Link did some work on these faults and he recognized that there were faults like that and he did a lot of experimental work which was quite good, indicating that a fault could fold or warp, I’ll use the term warp to indicate that it was folding as it faulted you see. That was the thought they had in mind. But if you had several faults that were folded together, and in fact, went over more than one anticline and went into a syncline, it was pretty difficult to arrange that folding to happen at the same time as the faults were happening. This is what the Hague, ???, Addison group had found. Up in the tributary of the Brazeau River, called Canyon Creek.

SB: How would you be able to tell that it happened as it was faulting?

JS: You wouldn’t. Link had done experiments in the lab you see, to see how it would work and he made a fault do this, fault and then warp as it went, so he concluded that’s the way it happened. Which is not an unreasonable thought. But if you have several faults that are folded together, they’re just folding like sedimentary beds, you can’t do that. The theory that we’re talking about had such good exposures that you could identify what was happening, you could see these faults, several of them together, folded together. Going over an anticline, or another one, a small anticline and into a syncline. So it was pretty difficult to do that and this is basically what I was able to point out in the work I did. Now even after that work was done a lot of people were very sceptical about it but I’ve heard that the Geological Survey was in there afterwards and other people and they pretty well agreed. Well, they had to, I’d mapped it so well. One of the things that we were certainly very particular about, knowing that this was a controversy in finding every bit of evidence we could to show or disprove what was there. Originally it didn’t matter to us. In fact, I was probably sceptical too that there were such faults. I had been mapping for several years in other parts of the foothills and I’d seen some like they had, the earlier geologists, Hume and Link, one fault. So I knew there were faults like that but the idea that there were many folded together was not being accepted too well. And I didn’t either until I saw them and got mapping them.

#215 SB: Were there any examples of that elsewhere in the world?

JS: Yes, but they were not well understood. One of the earliest that I had. . .well, the papers that I was reading that winter after we had come back was one by Rich on the Appalachians and he showed a folded fault there but he had a different explanation for it. Also quite reasonable. He had one fault and it was because the breaks had gone steeply through some beds and more gently through other beds that you could have a sinuosity to the fault. Which he interpreted to be the reason, in fact it could work, but you appear to have a folded fault. Because after the faulting had taken place and it had gone steeply through some beds and then at a gentle angle through others and steeply again through another. If you then tilted the whole complex, without folding it, just tilted it, you could then get the appearance of a folded fault. And this is what Rick felt was true for his area. I thin it’s more than that now and there’s been a lot more work done in that area. I can’t comment on it any more at this point because I haven’t really brought my studies up to date on it. That principle for causing warping or folding of faults, Douglas used, Bob Douglas from the Survey, down in the Mont Head area. Now this is where he and I sort of conflicted in our thoughts because he felt that this was the way they happened and I didn’t. Although you could see this very definitely, the kind of faulting I’m talking about up in the Canyon Creek, in the Chungo area, they weren’t that well exposed down here. But you could see many similar faults and it was not reasonable to me that they were done different ways. Now in fact there may be 2 or 3 ways it happens. I know that the more recent workers in the area have probably adapted what I did and what Douglas did and others to come up with their ideas as to how the structure finally developed. But you can’t get away from, at least locally, that you did have some folding after faulting, not with it. And I think that applies throughout the foothills and mountains. Now what’s important about that is, if you understand what’s happening you can get a better idea figuring out the structure and remember, we’re looking for oil and gas. So we weren’t saying much about what we found in Shell at that time, it wasn’t till later that I published and other people found these things. Having done this work in the central foothills at Nordegg, I spent the next year down at Waterton and we mapped that area. By that time they’d found the Pincher Creek field. Shell did find Waterton later on, hadn’t of course, gotten around to that fact. I guess mine was the first work there but it wasn’t the work that found Waterton. We just mapped the area very carefully, we hope. And of course, you also encounter folded thrusts like the Lewis thrust, the big one down there. But there’s no evidence to show that these things were folded later because you didn’t see enough of a group of faults in one place at one time to do that. But I certainly used my experience from further north to apply to mapping down there.

#285 SB: There wasn’t any way that it would help you find the oil then, knowing . . .?

JS: Oh yes, we hope so. Later on I’ll tell you about one that I did when I left Shell. Now I should say that while we were working in the central foothills, in the Nordegg area, and later on down at Waterton, we did now have aerial photographs and that changed our method of surveying quite substantially. Instead of a party going out with a plane table

and the rods and so on, you have an instrument man and each geologist perhaps having a rod to establish his points when you were trying to map in detail, you could now, with a topographic map which was pretty good and the air photos, you could go out, each geologist individually and wander wherever he wanted to to pick up information. In this way you could accomplish a tremendous amount more. Like there were three of us working in the field season that I was up there, at Nordegg, I had a chap by the name of Austin Klisky and Ted Williams, they are I guess, both retired now. Both very good and knowledgeable geologists. They shared in all this work that I did. And also we were able to accomplish a tremendous amount more because each man went off on his own. Maybe a wee bit dangerous, you’re supposed to have a companion but really, we were all within areas we knew. So our surveying then, except where we needed to get elevations and sometimes you did for detail mapping, you could locate yourself directly from the photographs you see, and you could mark that spot and take all your readings relating to that spot, with the Brunton compass, dips, strikes and so on. And then later on you could transfer this information from the photographs to a base map which had been corrected. The photographs do have. . .I was going to say inconsistencies but they are distorted because of the view of course, and you have to correct for that.

SB: Did you ever bring rifles with you in case you encountered dangerous animals or anything?

JS: There was always one in the camp, the packer would have one and we did consider, from time to time, carrying them but they were a nuisance. Particularly when you were on foot, you carry a rifle and your other equipment, it was not considered worth it. We decided that a side arm like a 45 wasn’t heavy enough anyhow for a grizzly so we just decided that we wouldn’t worry about it too much. Too much. There would be times. . . are we at the end of the tape?

SB: Yes.

Tape 5 Side 1

JS: So we didn’t use, well we had a gun in camp, the packer would have it. Since we were out for long periods of time and you could only take fresh meat out for a few days or it would only stay good for a few days we had sort of an unofficial arrangement with the wardens in the area that we’d shoot a bit of game for our table. In fact I had a cook for several years who was really excellent at keeping meat. We’d have a meat tent, a gauze tent with gauze sides to let the air in and he was just excellent at it. He would take the meat down and wash it off every day and hang it there and we’d get to keep meat for 2 or 3 weeks in the hot weather, where I know some of the other camps didn’t do that. One packer I had was pretty good I think, at doing a little bit of poaching too. He’d be sent back in to the base, this was at Nordegg, for supplies. We’d hear a shot or two on the day he left and I’d hear later that an elk or two had got back to his place. In fact I think at one time I was at his place for a meal and I had some of the elk he had done that to. I was being a little particular at the time. We were close in to a mining community and I didn’t think we should be poaching. And we didn’t need to that much either because we were

close enough where we could get fresh supplies. So where we could get fresh supplies we didn't use game but when you're out a long time we did, which I thought was perfectly all right.

SB: You get tired of bacon every day.

JS: Well, except for the long trip across the Smoky, you were quite often within say, several days of a base where you could send your packer in and get meat out again. Quite often that would be a week and usually if it was that long we wouldn't send him in unless we'd been in there 3 or 4 weeks. When I was in the Chungo area though, we could get our supplies with a couple of days pretty well. Because I was making use of a road that Home Oil had put in, as a matter of fact, back in the early days. They'd drilled the first well on that Chungo anticline they called it, the Brazeau structure. And that road was very useful to us to get back and forth on, just for supplying. You did the regular horse bit out at the end of it but it made it a lot faster to save 30 miles in going in for supplies.

#036 SB: You were just mentioning you thought of an anecdote about Hugh Beech, did you want to talk about that now?

JS: Oh, the time that I was going across the Smoky and they were all held up by the water of the various streams that they were crossing. As you recall I had got by all this and I was able to use that time to fix up a boat to cross the Smoky. Well, he was being held up at one of the rivers, the Berlin??? perhaps it was, and they couldn't cross it. So to make use of his time he would be in his office tent working on his maps or whatever preparations he could for when they'd get out doing field work again. It was raining all this time. He was a very kind man, also very quick in some ways. There was a big call went out that the packer had fallen off in the stream, he'd tried to cross on a horse and he'd fallen off, it was too tough for him. And he was really right there in thinking, he ran out of his tent and he picked up the first rope he could get and just ran full tilt for the stream. What he'd forgotten was it was a pack rope and the packers fasten them to trees to make corrals for the horses and he got the loose end of one. When he came to the end of that rope I guess he just went horizontal fast. I can see him doing that because he was such a quick man and also a little bit absent minded. There were lots of stories like that. They told one on me which I guess was reasonably true. My friend Fred Kidd, if you ever have a chance you can ask him this one but I'll tell you it anyhow I guess because he thinks it so good. We were up in the north end of this Brazeau area, in Pembina River country and we were getting in an area where there was a lot of distance of forest and muskeg between the streams. We were trying to tie down these folded faults as well as we could so I was looking everywhere. It didn't matter whether it was muskeg or not because every now and again you would come across a little stream or a cut that would give you an outcrop that you could use. So that meant we looked at everything. We were trying to get into this remote area off the regular trails and I had sent a young geologist along the previous day before I moved, I'd shown him on the map or on the pictures really, aerial photographs, where I wanted to get. You could tell by the photographs there was grassy areas. What you didn't know was whether or not it was too muskeggy to support the horses for feed. I was pretty sure I could, anyhow I asked him to go and scout this out. He went down a trail

which may be about 10 miles and then he was suppose to go, it was going to be a long move, another few miles, maybe 8 or so, to this location. He came back that night and reported that he couldn’t do it. Of course, I didn’t believe it. So we packed up the next morning and I went out ahead of the outfit and there was no trouble of course, following the regular trail but I had left instructions that if I had went off to this other location I would blaze a spot and blaze my way in so they could follow me. And if it wasn’t any good I would try and get back before they got that far down you see. So I hurried off after breakfast at a fast trot and got to the point I was turning off, marked it and I found that I could go and I kept marking and marking and I got to the place I wanted. It was getting well on in the day, it was a good place, it was quite satisfactory. So after I’d cursed him a little bit I proceeded to start cutting poles, you need a lot of tent poles. I did all the things I could think of in preparation for the arrival of the outfit because I knew they weren’t going to be very happy at making this long move and then having to cut poles. So I did everything I could, and I couldn’t think of anything else. I was pretty well worn out by this time and I decided to lie down and wait. There was a game trail and I knew they’d be having to come along. Pretty soon I could hear the horses, they had muffled bells, you could hear a slight tinkle every now and again as the clapper hit the bell and you could hear the heavy beat of the hoof as they were coming along. It got louder and louder and I heard one plaintiff voice saying, do you suppose he’d have stopped soon. My cook was quite an old iconoclast I guess, and he had a nasal twang and he said, naw, he’d go till he dropped. At this time he just came across me, here I was on the trail, dropped. He was a little embarrassed but we all thought it was funny. I think we were talking about guns, we discussed that. We didn’t really need them, occasionally we had encounters with bears. I never did meet a grizzly face to face. I was often in his territory and I was often apprehensive because what do you do. I’ve made a study of grizzly encounters in the course of the years from then to now and there isn’t really much you can do. If you had a gun I suppose you could fight it out with him but unless you’re a good

#102 rifle man that would be dangerous. So we had decided that it really wasn’t a good thing for us to do and besides they encumbered you. A revolver wasn’t really heavy enough. The best thing you could do I guess, was play dead. However, the first thing you do is consider a tree but there are very few places that you can find a suitable tree to climb that are handy when the time comes. We did have 1 or 2 not really run-ins, we never really had a run-in with a bear but we had, when we were in the muskeg country, a black bear that was snooping around. It was amusing to me on one occasion that we were working up the side of a canyon, it was low brush, jack pine had grown up about 10' in an old burn and there was a lot of downed timber in between, the kind of stuff you don’t get around very well on and we were working up the side of this ravine which was quite, it would be about 1,000' or so I guess. Fairly open and I was looking for outcrops at the time and there were 2 or 3 others and this one chap, Lloyd Lewis running the plane table. We were all geologists and took turns on the plane table at this point. It was amusing to me to be way above and watch this thing like looking at it from, like a movie theatre. Here he was on a little knoll with his plane table and he was looking out at somebody down below and he was taking readings from him. And I saw this bear come up the little ravine and he was

just curious, that’s all. He was just poking his way up and I saw him come and see this man at the plane table who didn’t notice him at all and the bear sort of wandered around behind him and had a good look and then disappeared back into the ravine, heading upwards towards me, at which point I had to start thinking about it. But the man on the plane table never knew he was there. And of course, I didn’t call down to him because all it would have done would be just possibly create a problem. As long as the bear wasn’t attacking it was better he didn’t know. So that was probably our closest bear encounter there. So if that answers the question. I think the last talking, we were down at Waterton, about the geology. We mapped that area and I guess Shell didn’t do too much about that at the time because this was now 1946. Somebody in their wisdom high up in the Shell organization had decided that the place to go would be the Maritimes, that would be a good place to find oil. It was during that winter, after the decision had been made, the winter of ‘46, ‘47 and on into the spring, that Imperial found Leduc. We hadn’t moved yet but we were all set to go but I think the organization was just too ponderous to turn around that quickly. So we all went. In the course of the next year or two, this is where Shell got rid of a lot of the acreage I had spoken of earlier, like Redwater, they would have drilled it that summer of ‘47. But they didn’t, they gave up the acreage. I must say this about Shell, to their considerable credit, that when they came back that they were able to pick up and do as much as they did do. They came back, found Waterton and they are considered to be one of the companies with the greatest expertise on foothills geology. Of course, they’ve done a lot more than that since. But the came back and really got a good position again. I think I may have missed, in all this time in between field seasons we did a little work on other things too, locally. Shortly after we got established in Calgary Shell got active on the Jumping Pound structure, which is the first place I had worked on when I had come out with Dr. Hume originally, in ‘39.

#159 SB: Had they drilled it at that time?

JS: No, no. The Brown’s had drilled 1 or 2 holes I believe and they hadn’t had any success because the structure is far more complicated than they thought it was. The repetitions of strata kept meaning that the objective got deeper and deeper. They’d start off with the idea that we’ll reach the Rundle by say, 7,000' and get to 7,000 and you’d be in beds that probably weren’t much deeper than the ones you started at the surface. So we recognized the problem, that it was a complicated structure. I wasn’t recognizing this particularly, we, Shell did. They set to work and did a lot of seismic work across Jumping Pound and I would say that there’s was one of the first fairly sophisticated jobs of seismic done in the Canadian foothills. It was very tough to work on, I and many others worked on these problems in our spare time in the office and occasionally would be sent out to do little bits of work in the field too. In fact I was interested in finding out that when we’d been working earlier on the Survey, we had missed what looked like a folded fault on the Jumping Pound structure. It was very difficult to tie in with the rest of the structure. This is one of the reasons incidentally, why I think people ignore it if they can because it’s very difficult to fit in unless you’re going to make some very, what look like radical assumptions. But anyhow, Shell went ahead and did drill the structure and did make the

discovery. I’ve forgotten what year it was, it would be about ‘44 or ‘45 I believe. And it was a great disappointment, it was just wet gas and that, at the time, was just like drilling a dry hole so they thought. However we weren’t entirely put off because Turner Valley had started the same way and all we had to do we thought, was go down the flank and get into the oil leg. They drilled the flank and I’ve kind of forgotten how it went now, I think they went too far down, they were in the water and then came back about halfway and got the gas, water contact. So it was wet gas still, not an oil field. And it sat shut in for quite a long time but as you know now, it’s quite a profitable thing.

SB: Was there a concern at that time for the sour gas, how they were going to process it, or did they realize?

JS: There was always a concern when you had sour gas that you had to be careful with it because it was and is very dangerous. You’ve been hearing the news just lately about Amoco and the Pembina well, the final sum up there. No, you just were careful and you felt it could be handled. Probably the most dangerous level of H2S is in the lower percentages, 5-10, that type of thing because there might be a tendency to be a little bit more careless but also, it may not be so obvious it’s in the air. And a small amount can do its damage just as much as a big amount. No you just had to be careful in your work. You could have, well, a blow out of the gas like the sour gas at Jumping Pound would be a problem but I don’t think it would be all that serious if you were careful with it. I mean you’d have to make sure that people weren’t downwind of where it was blowing, if it did. But it wouldn’t be as great a concentration as it was at the Pembina.

SB: You also mentioned before that Con Hague was a geologist ???.

JS: Yes, well, he had been with Shell for a little while. I never worked directly in the field with him in Shell. He worked out in other areas, we worked in the same company for awhile. He left, I don’t think Dome was formed, where did he go first, I’ve kind of forgotten. He had been in the Survey a long time. Have you had an interview with him?

#222 SB: Yes.

JS: I saw him yesterday. He must be well into his 80's now and he’s still getting along well. I first encountered him when I was working as a student in Manitoba. He was a student assistant for Dr. Stockwell, who was the man who was responsible for Dr. Lord who was my boss. Dr. Stockwell was an older man and well established and Cliff Lord was working on his thesis, I mentioned this before. So he was really running a sub-party under Stockwell and at the same time, Con Hague was there. I met him first, didn’t see him again for quite a few years until he showed up in Calgary, I guess with Shell. I was quite happy to see him join us.

SB: So in ‘47 then, when Shell decided to pull out of western Canada, you went with them to New Brunswick?

JS: Yes, I spent a summer and a half there. We lived in Ottawa in the winter. That spring of ‘47 we lived there for awhile, getting ourselves organized for New Brunswick, Ottawa being the place to get all the records, geologic maps and aerial photographs, which we were using completely there.

SB: Had Shell done any exploratory work offshore there or . . .?

JS: Oh no, no, this is all on land. We were not at the offshore stage at this point.
SB: Oh, I see. But they had a hunch that there would be something there?
JS: On land. You see, at Moncton there was a heavy oil field. It had been found quite a few years before. It was Stony Creek they called, it was just south of Moncton, along the Petticooliak???. I suppose it had been found largely because there had been seeps. Wells had been drilled around it and they’d had a small amount of production. The source of the oil was the Albert shale, which is a formation there. It was really an oil shale. Almost like our. . .well, not like our tar sands, like the oil shales of down in the States. Quite rich and there were some sands there that the oil accumulated in and they were able to produce small amounts of oil. You must remember that Leduc had now just been found but really, it hadn’t had any impact. In fact it hadn’t been found when the decision was made for us to go to the Maritimes. We were still very far from being sufficient in oil in Canada. There had been this great war time push but we really hadn’t found a lot. We were spending a lot of time looking in the foothills, we’d found Jumping Pound and I guess some other gas discoveries, yes, Pincher Creek had been found of course. And I’m not sure what else at the time, Waterton was later. But we weren’t finding any oil and there was more oil being found on the prairies but nothing that was tremendously encouraging. The heavy oil at Taber wasn’t that great. Cal standard was working down there and then all the Lloydminster, Wainwright, these were really small potatoes. So the thought had occurred to somebody, we’ll go into the east, this is where the market was and that there was potential because you had this Stony Creek field, albeit a heavy oil one and not much production. So we went down and we mapped as we had been in the west, we were using aerial photographs and we had good topographic maps. You didn’t really have to do surveying to locate yourself much. It was mainly mapping the structures and there were structures to be mapped. The only trouble is that they weren’t any good, they were pretty well barren. We could map the formation that was the Albert shales into the areas we were working but they were different facees and really, it looked pretty bleak indeed. We spent the winter then, of ‘47, ‘48 in Ottawa, which was very nice. And cold I might add. And went back out for the next field season of the summer. I was working out of Sussex, New Brunswick, with a chap by the name of Bob Brown. We were each a Party Chief and we had others working for us. Some of those we brought from the west. In fact everybody in Shell left except one geologist from here. I wasn’t too happy with Shell having moved out of what I thought was a great area and I had been led to believe by Alex Clark, when he was in charge that any time I wanted to I could go to the States. I’d really been hired in the States you see. However I never heard about such an opportunity, he never heard that I was unhappy. So my friend Les Clark, who’d been my final boss in the west here with Shell, he had been left here to sort of tidy up and get rid of things and he didn’t like that very much either. So after awhile he left and went to the Honolulu group but he kept in touch and he was anxious to get me to work for him I guess. But being an old Shell hand he didn’t really want to come out and steal me from Shell. So he’d call to say that if I wasn’t working that he thought he could provide me with a job. Well, I was a bit too cautious for that, I said, Les if you want me to work for you, you’re going to have to make me an offer, I’m not going to quit and then hope. Mind you, I knew he would do it, or I

felt he would. But he was very good, he wouldn’t do it but he heard that Husky were starting up in Canada and they needed a Chief Geologist so he called me on that and they did make me an offer and I left in the middle of ‘48 and came back here, where I thought the action was.

End of tape.

Tape 5 Side 2

SB: It’s January 11th, 1984 and this is Susan Birley interviewing Jim Scott. Last time we just finished talking about your move to Husky. I wonder if today we could cover some of your activities with them, what your position was when you first started?

JS: Yes, when I joined Husky I was brought in as their chief and only geologist. One of my first duties was to get acquainted with what Husky was, what they had in the way of land and what they were trying to do and also to get some staff. So one of the first persons I hired was a chap who’s since died, but he made himself a great reputation on being an expert on heavy oil exploration. John Johnson was his name. He and his assistant, Bob Cutherbertson, who John hired, were in Lloydminster for many years, looking after our developments in the heavy oil area. Husky had just the previous year, this was in ‘48 that I joined them and in ‘47 they had started a refinery for heavy oil in Lloydminster. So we set up or I set up, with a chap by the name of . . . So when I arrived Husky did have a landman, Alec Bailey, who later went on to form Bailey, Selbourne Oil and become a rich man. He was land man and had hired or was about to hire an assistant. Stan Murdoch was his man and he’s now in the Conservation Board, what do they call it now, the Energy. . .

SB: Resources. . .

JS: Resources Conservation Board, something like that, for the Alberta government. So we operated out of Calgary with this small nucleus of people and with our even smaller staff of John Johnson and Bob Cutherbertson in Lloydminster.

SB: Who were your responsible to then, at that time?

JS: I suppose, my boss was a fellow by the name of Johnson who was the Chief Geologist for Husky in the States. But we were pretty close to Glen Nielsen, who was the founder and the owner of the company. We saw him, well I didn’t see him for several months but shortly after we got going we had been looking at property on the first, no, this would be the second sale I guess, the first one had been at Woodbend. No, sorry we were looking at property on the first sale, just at Leduc, first Crown land sale. I had worked up a bid and an evaluation of this property and decided that I liked it and so did Alec Bailey and so did our local boss and so did my boss, Mr. Johnson, Mel Johnson. We had Mr. Nielsen up and I met him for the first time and we talked about the bid. It’s kind of ridiculous now because now, when you’re talking about presumable productive property you could be bidding millions of dollars. This was the first sale, we had no idea how much one should bid but obviously you weren’t going to bid more than you thought it was worth, taking

into account the risk and all. Anyhow I’d decided that the bid, I’ve forgotten what it was, it was something like $180,000 or maybe it was $280,000.

#067 SB: For how much?

JS: For a quarter section. . . would be quite in line and possibly take it. This wasn’t quite along the lines of Mr. Nielsen’s activity, I think, up to this time. He was more interested in refineries and wheeling and dealing than buying, I think, than buying possibly productive property. Anyhow, after everybody was asked and everybody said yes, they wanted it, he said no. so we didn’t put in our bid and it was rather, I guess it was annoying to me, certainly I was very dismayed because our bid would have been the highest, we would have just beaten out Anglo Canadian, who got the property, drilled 4 holes on it and had all their money back within 6 months. It wasn’t a very good start as far as me and Mr. Nielsen was concerned. However, we had other fish to fry. Before I had come along they had taken out reservations in the vicinity of Leduc. Kind of amusing things like the sales manager had been asked to go and get a reservation somewhere near Leduc when Leduc was found, this was the year before. He went to Edmonton and made his application and his knowledge of maps was so poor that he thought he was looking at sections when he was looking at townships. So he got a reservation, it was a substantial one, at Westerose, which was not, what did he have it, 3 or 4 miles away from Leduc, it was about 18 miles away from Leduc. However, it was a very good selection because we went to work on it, Husky didn’t have a lot of money to spend on exploration. This is possibly one reason why Nielsen wasn’t willing to bid on that parcel we were looking at at Leduc. However, they took advantage of the opportunity of getting a spread of acreage in places they could relatively cheaply and this was one of them. So it was immediately farmed out and then after I came along and we’d finished doing the seismic, California Standard, who’d taken the farm in, drilled a well for us and we made a discovery there. Westerose is a very important field in the Leduc reef trend still. So that was pretty good. And we had other blocks east of Red Deer and various other places that we had to explore. None of them were too successful, thought we thought at one time east of Red Deer that we had another discovery like Leduc. But it was just a flash in the pan, it didn’t turn out. Over in Saskatchewan I had went ahead and took out several large reservations in western Saskatchewan, in the Weyburn, Yorkton area and further up to the northeast, around Hudson Bay Junction. That land served as a basis for a lot of exploration, we farmed this too, later to Phillips. There were several good discoveries made in various parts of Saskatchewan that we either did or participated in. We were doing it in partnership with other companies, like Phillips in this case. And around about 1952 I had been interested in a structure that I mentioned earlier that I had seen when I was working for the Survey, west of Nanton. Anglo Canadian had drilled Savannah Creek in 1939 and later on, through

#114 my work with Shell in the Nordegg area I had become familiar and written my . . .I hadn’t written it at this time, but done my work on folded faults. So I had a pretty good idea what was involved in this Savannah structure. I think it was 1952 this chap by the name of MacIllride approached me about taking on a reservation he had covering this structure.

It was a rather complicated history because he had been the first one to be interested in it, back in the mid 30's I guess. And he’d gotten a very well known early consulting geologist here, Joe Irwin, to look at it. Joe Irwin is a good man and did look at it and it is definitely a surface structure. So the end result was that Anglo Canadian was persuaded to drill a well on it. Their Chief Geologist at that time, Jack Webb, who was part of our old timer heritage, had agreed it looked like a good feature. But what they were looking at was the structure that was formed on the surface by the Mississippian, which is the reservoir for Turner Valley. The Mississippian was pretty well the goal that was intended for all these foothill plays in those early days. they knew the couldn’t find anything there because it was exposed at the surface so they were looking for the Devonian underneath, which was quite an advanced idea at that time. Unfortunately what happened when they drilled the well is they just barely got started and they went through a major fault and they were back in young sediments. So this really ended the thing, although they drilled the well down into the Blairmore to see if they might find something and then they abandoned it. Well, the road they had built in was the road I was speaking about, I had seen earlier when I was working the Survey out of Nanton. Well, I guess Mr. MacIllride, who was, he turned out to be a doodlebug type of promoter. He later on was telling me how, it was lucky he didn’t tell me till later too, how he was sure there was oil there because he’d gone out with a bobbin and something in it and string, he’d go around in circles you know. This was all quite ridiculous, I was surprised at him really because he had originally picked this block because there was a structure there. And he had Joe Irwin work on it and it was all a good, valid looking picture for what they saw on the top. Anyhow he came back to, I guess got the land once more and was peddling it again and he came to me and I realized, I had been thinking about it ever since I’d done my folded fault work, that the structure above probably represented structure underneath too. Which would again, give you an opportunity for finding Mississippian oil or gas. So I took it for Husky. Again, we didn’t have a lot of money so the first thing we did was look around for somebody to farm it too. We got Northern Natural Gas, and a small company that was formed at the time to promote Savannah Creek called Savannah Creek, to help pay for drilling the well.

#159 SB: Who was with that company, who were the promoters?

JS: Bob Lamman was the manager of Northern Natural in Canada. Northern Natural was a substantial company and they were legitimate explorers. He understood what I was trying to do and agreed and decided to take the farm in. Savannah Creek was more a promotional type company that just came along to participate and put up some of the money. Yes, I think one of the principals was a chap by the name of Bob Brown, but he was not the Bob Brown of the Home Oil fame. He was a chap that I’ve kept in touch with throughout the years, he’s not in that business anymore. He’s an investment consultant in Houston now. But at that time I considered that they were pretty wild promoters. However they were on to a good thing naturally because I felt it was a good thing. We went ahead and drilled the hole in 1952 I guess, with limited funds and we did find the Mississippian underneath the surface block. Down below where Anglo Canadian had got

to, in the block that they had drilled into but they didn’t get down to it. We did find some gas but it got a bit deep for us and we were running out of money. It’s rather expensive drilling. This location was, I was telling you before when we weren’t on tape, was along the road from the Highwood River down to Coleman-Blairmore. So it was geologically a sound location and pretty reasonably easy to get at, just being off this highway. We suspended the well and looked around for some more backing to go deeper. In the meantime Phillips had come along and we had made an overall farm out of a lot of our properties, in Saskatchewan I’d mentioned earlier, to them and really, all our properties, they got in on Westerose too, the discovery we made there. I do not remember whether Savannah was part of the block that they took on but anyhow, it might have been a specific separate farm out. So we all farmed out to Phillips and deepened the well in ‘84 to a third Rundle block and this time we made a discovery of what was considered to be a major gas find. Although I was the instigator of this project I was a little bit sceptic about how major it was because the porosity was not too good. As it turned out it’s not been a major field. It’s still producing though, they’re still producing gas, they had built a pipeline from it down into the Crowsnest Pass, joining a Northern Natural line I think, or a West Coast line, going through that pass down to the States. Anyhow, having made the discovery we then proceeded to develop and this was where we drilled 2 or 3 wells on top of Plateau Mountain, one of them being at 8,210' I guess, being the highest well in Canada and the British Empire. Still is I think.

SB: So what was your production at that time?

JS: Just gas, sour gas. It took awhile to put that on, I don’t know that they even had it on by the time I left Husky, which was in ‘63.

SB: Do you remember what the rate would have been?

JS: The flow rates, they were talking about 50 million, that’s what we were testing. The wells tested at high rates. How much reserves perhaps you’re asking about and there were some pretty high numbers put out by Phillips but it really didn’t have that because it was poor porosity. There’s a lot of gas there but the problem was in getting it to flow at a good rate. It might be producing for another 50 years but not at a high rate. So it is not a major gas field. However it was technically successful and it was a great joy to me since I’d worked it out.

#227 SB: And your theory on folded faults. . .

JS: Helped in that, yes.

SB: And that was when you published this bulletin was it, as a result of that?

JS: Which one?

SB: The one. . .

JS: No, not really. It was separate. I think I published largely at the urging of Les Clark, who had been my boss at Shell at the time we did the work. He remember it and he felt it ought to be put out and he pushed me hard to publish that paper on folded faults. That was about 1955.

SB: ‘54.

JS: Yes. I suppose the discovery at Savannah may have pointed out the validity of what we

were talking about and perhaps the importance of publishing on the subject. We couldn't really have done it much before because it had been private information to Shell. But by this time others were pretty well conversant with what we had found and what we were talking about.

SB: Did you want to talk about the paper now, maybe bring in the reaction of other geologists to it, like Ted Link for instance?

JS: I recall, we had a field trip down into Waterton, I guess, this book here is the one, 7th Annual Field Conference of the ASPG to Waterton. By this time we had found Savannah and in fact, were drilling development wells. That's odd, I didn't write it, it must have been an earlier trip. It was because I remember, it was a small trip going down through there because we had discussed earlier, Link had come up with an important paper, several papers on folded faulting and his thoughts were that basically, from experiments he had done, that faults warped or folded as they faulted, it was a continuous process of faulting and warping. He'd had lab experiments showing that and it certainly was a legitimate point and legitimate mechanics. However, the work I had done up in the Nordegg area and the Chungo-Brazeau structure, indicated that this didn't happen. In at least the case that I was looking at and I was pretty confident that my examples carried out over much broader areas. Hence I felt that the Savannah structure did involve several folded faults, which turned out to be true. And thus we found the structure and the gas underneath the upper faults. We were on a field trip down through there, I guess we were just starting the second well, or continuing the old one that found a little gas in a higher block and Link had assumed the thing was a failure. He made some slighting remark to that effect on the field trip. I was very grateful to Bill Gallup, who died here a couple of years ago, who was the field trip leader, for really springing to my defence. A lot of people did know what was happening and of course, it turned out after all this that it was a success. Which it would not have been had it been faulting the way he thought it was. In fact he'd already written it off, so I was quite happy with that.

#292 SB: You mentioned that Ralph Rutherford also, was not one of Link's fans I guess you could say?

JS: No, that probably wasn't right. I think they were good friends but they were friends and antagonists. You're remembering my comment about a meeting when I gave this paper on folded faults in Banff, which would be certainly after Savannah had been discovered. After my paper, we hadn't discussed this before?

SB: Not on tape, no.

JS: You want me to?

SB: Yes.

JS: I gave the paper at Banff and Rutherford was the chairman. After I was through Link got up to make his comments, basically to suggest that everything I'd said was wrong, hokum if you wish. He put it more nicely than that I'm sure but he didn't agree. Link was a man with strong Roman features, big nose and so was Dr. Rutherford. Both very outgoing, outspoken people. After Link go through and was moving off the platform, Dr. Rutherford announced to the assembled audience that they were seeing a momentous

first, they’d never before had 2 men on the same platform who looked so much like one end of the horse and talked like the other. He was referring to Link and himself of course, not me. This brought down the house. End of discussion.

SB: I was also thinking, you mentioned also that at that time geologists would challenge each other and you said there seemed to be more discussion than there might be today.

JS: It seems so, I’m not sure how the current crop of geologists react. It depends on the size of the meeting. This meeting as well, perhaps it was a little bit more like the old ones, that people got up and if they dissented, they got up and said so. Many meetings after this, people would give papers and they are just accepted and that’s that. People may, other geologists may disagree but they wouldn’t usually get up to challenge. This has been what I felt the history of the last 2 or 3 decades. What I was referring to when you were asking this was earlier meeting I’d been to, when first I’d come to Calgary. I guess the first meeting maybe of the CSPG. . .

SB: Could I just change the tape.

Tape 6 Side 1

JS: At perhaps my first GSA meeting happened in Ottawa while I was living there, or stationed there for winter, this sort of discussion would take place, somebody would give a paper and some old timer would get up and challenge it, usually of course, very negatively. I mean, positively, he was against it for his own reasons. One of the first meetings I attended in Calgary the same sort of thing. In fact, it might have been on folded faults, although I knew nothing about it at the time. Dr. Sanderson got up to give a talk on probably, the Nordegg area that I worked in later and others would be up to claim that that was absolutely wrong. It was a real give and take. This seemed to happen, to me, in the early meetings and you don’t see so much of it, or I haven’t, since.

SB: I guess we got up to about 1954 then.

JS: And a little later I guess, if you got up to where I presented this paper on folded faults. I think we’ve discussed the folded faults principle enough.

SB: Yes. So you were still involved in other areas beside Savannah Creek.

JS: Well, as Husky we didn’t have the resources really, to follow along on the foothills structures. It took quite a bit of money for things over than that one. That was an obvious structure to me, from the surface. Many of the others that have been worked in the foothills are not that obvious and it took a lot of geophysical work, which is quite expensive and time consuming. So Husky wasn’t involved in the foothills, beyond what I did on that. But our efforts were out on the plains and the areas that had possible ability of reef production, like Westerose. The production in the Paleozoics out in Saskatchewan and probably half of Husky’s effort and therefore mine, would be on the heavy oil development around Lloydminster. We spent a lot of time on that. The man that became particularly expert on that was John Johnson, who was the chap I had installed up there in Husky’s early days, ‘48, ‘49. We did branch out, we got involved in plays in Alaska for awhile, we were there with others for 2 or 3 years. That was following the major discovery, by Chevron I believe, of what was it, Swanson field, I think that’s right, up in

Alaska. We went up looking there and again, it was a matter of going in, taking large blocks of acreage while it was relatively cheap to do that and persuading others to work on it. And we were successful in doing those things, quite successful. However, we were not successful in finding any great discovery in Alaska. So that was eventually given up. My duties at one time, later on in Husky, was to look after the exploration in the States as well. That went on for 2 or 3 years. Very interesting, it involved Wyoming, Texas, mainly Wyoming and Texas as far as I was concerned. However, in 1963 I was offered the job of exploration manager for Pacific and this looked to me like a major opportunity, I accepted.

#044 SB: How had you been chosen, was it though Les Clark?

JS: Not really, he had retired a year before. The chap that took his place for a year or so didn't get along too well for various reasons. He was an American and I think he wanted to go back to the States and also I don't think he got along too well with the people running the company. So the job was open, I don't know whether Les Clark had mentioned it to me or not. It would be interesting wouldn't it, he had been the one that got me into Husky. I think he was less directly involved in this one. But I was in fact, sort of following in his footsteps here. He was the man who the McMahon's had chosen to take care of their exploration when they were opening up northeastern British Columbia. So all the credit of the early Pacific exploration and the finding of economic gas in northeastern British Columbia went to Les Clark and the people working with him and the McMahon's of course, who were promoting it. When I came along the McMahon's were not that active in the company.

SB: I guess Kelly Gibson had taken over.

JS: Kelly Gibson, he'd been there for several years and was the President at the time.

SB: Did he interview you for the job?

JS: Yes, he did.

SB: What were your impressions of him?

JS: I regarded him as a pretty sharp man and pretty hard but I felt that I could stand up to him. I'm not sure that I really could, he was pretty tough, however I managed to survive.

SB: I guess he'd really been overhauling Pacific structure since he joined the company.

JS: Yes, several times and this might have been another one. But we got along pretty well but he was a hard man to work for. Probably harder for others than it was for me. I was aware of so many other cases of people that were really significantly by working with him. It was too bad really, but he did a good job for Pacific. My business with Pacific was interesting in several ways. One was that a lot of the work, the exploration work that Pacific was doing was based on work that I'd already been involved in in Husky, you see. Pacific inherited Phillips acreage, in fact they took over everything that Phillips had. At one point it was an arrangement made where you'd say Pacific was buying out Phillips holding in Canada. Of course, what was really happening was that Phillips had a large stake in Pacific. So it was a subsidiary company if you wish, to Phillips. But it was independent, except that Phillips was a 50% shareholder. But a lot of the properties that they had were properties I was already familiar with because of the previous deals that

had been made with Husky, like Savannah Creek and all of the properties in Saskatchewan and Westerose etc., all the way through Alberta. However Pacific was not so interested in the heavy oil. They had holdings in that area but the emphasis or work as far as I was concerned when I got to Pacific was probably northeastern British Columbia, which had had nothing whatsoever to do with our Husky operations, and further exploration in Alberta. We carried on Saskatchewan but I think by this time we were having a problem with the Saskatchewan government and not pushing too hard there, but we did work.

#095 SB: So were you tied in at all with helping them develop more gas fields to meet the demands of the pipeline?

JS: Oh yes, that was one of our high priorities in British Columbia. But we were wanting to find oil as much as we could too, everybody was then. Let's see, it was '63 that I joined and on about 1970 we started to get interested in foreign operations. By '73 we had decided that we would in fact, go foreign and I moved into that exclusively, I think it was 1973 I became exploration manager and later Vice-President for our offshore exploration. Offshore included the U.S., and anywhere else in the world, but practically it amounted to United States quite a bit, Great Britain, Norway, Germany, Spain, Italy. We were looking at other places all over the world but these were the places we actually undertook exploration, with other partners.

SB: How much of a budget did they have for foreign as opposed to Canadian operations?

JS: You ask a delicate question. It was never very much, I think we perhaps had about $10 million a year at our highest, in that order. So we didn't do work entirely on our own, it was with partners and we'd be participating with maybe 25 or thereabout, percentage, in whatever the operation was.

SB: What was the reason for going into foreign operations?

JS: Because it looked like it was a good opportunity to find a lot more oil and make money, basically that was it. We thought we were going to be successful in Britain the first 2 or 3 holes we drilled. We did make discoveries but so far they haven't held up and are probably not commercial. I think perhaps our 3rd or 4th hole drilled in Spain, this would be perhaps our 4th, this is offshore drilling you understand. . . We had drilled a couple in the North Sea, in the U.K. jurisdiction and we had taken on a farm in Spain along with Cal Standard, Chevron, whichever you want to call it, and other partners and our second hole there found Casablanca, which is in the Mediterranean, it's about 30 miles south of Terragona. That has developed very successfully and is now, just about, it's 90% or more of Spain's production. It's not a lot, it's something like 50,000 barrels a day but that's all they have.

SB: Was it difficult to you to adjust to working offshore as opposed to onshore?

JS: No, not very much at all. It was very interesting to me, I was the last few years of my career working on foreign work, it was some of the most and perhaps the most interesting work I've done. It meant that you weren't able to go and look at structure on the surface and drill them but you had to rely entirely on seismic work offshore. But you'd get your leads by what you saw onshore. The geology onshore Spain for instance, gave you a

pretty good idea of what you might expect offshore.

#147SB: Did they use seismic or anything like that?

JS: Oh yes. You’d be exclusively seismic once you’re offshore. Seismic or geophysical but when you say that, it really is seismic. So any play you had offshore, one of the first things you had to do when you got serious about it was run a seismic survey over it. And you might do it again and again. At Casablanca, after we made the discovery, we shot it I’m sure another time, and the work we did was probably the third time it had been shot. And then after we’d made the discovery, we were one of the first groups to use what they call 3-D, 3 dimensional seismic to try to outline the structure better than you were with the more conventional seismic up to that point. When we did do it, it didn’t workout too well. I understand since I’ve retired that they have reshot it again 3-D and it’s been very good. So that you can really see the whole structure in 3 dimensions. Were you asking something else about the. . .?

SB: I guess you worked up until what time with Pacific then?

JS: Oh, up until it was taken over by Petro Canada, which was when, it would be ‘79 I think, sometime in ‘79 that we were taken over. I was interested in what they would want me to do when they took over and what they wanted me to do was the same thing I had been doing. So I continued as Vice-President of offshore exploration until I retied in ‘81.

SB: And when had you started with that position, what year?

JS: I started offshore in ‘73. I wasn’t Vice-President then but I was made on after, a little later. Probably after Casablanca was found.

SB: So after ‘73 you weren’t really involved with northeastern B.C. or anything like that?

JS: No, no, not very much. For awhile, I think from 1970 til ‘73, I was looking after everything and when it became obvious that we were going to spend a lot of our time on foreign work we separated it.

SB: Who took over that part of it, do you remember?

JS: A chap by the name of Sid Smith. He was an old, not an old but a former Phillips geologist. In our Pacific days there was quite a ready exchange of personnel and information between Pacific and Phillips. At one of the points I suspect there was a time when Phillips were having trouble placing all of their people, they were asking us if we could handle some of their geologists and we went down and picked our 4 or 5 and brought them up and this chap, Sid Smith was one of them. He advanced very well and by the time I moved to the offshore he was ready to take over my job.

SB: Were you involved in any of the problems getting gas deliverability problems in northeastern B.C.?

JS: Not really. These would be more engineering problems and possibly political problems. I wouldn’t be too much involved. Basically we were involved in finding oil and gas, working as hard as we could to do it. Of course, what we did and how we did it would be depending on what was what. For instance if you couldn’t sell any gas there we might not have been working so hard because there would be no reason too.

#200 SB: Were you involved with the Pointed Mountain and Liard Basin fields?

JS: Well, I was involved in all of the things that Pacific did in exploration when I was there

but a lot of the things, the earlier things were done before. The Clark Lake field, the big gas field up near Fort Nelson was found before I came on. Les Clark, the names don't mean anything, they don't relate I don't believe, but he was responsible for finding that field and all of the early work. No, it was just from '63 on that I was involved but I would then be involved with all the things that they did then, tool 1973, 10 years later when I went strictly foreign.

SB: Did you get much chance to know Frank McMahon or George McMahon?

JS: No, not at all. One of them was not active with Pacific at all when I came along, I guess that was George. Frank was, I may have met him on one occasion but really I had no occasion to see him and then he was very quickly out of the picture then and by the time I was attending operating meetings and management meetings he wasn't there. So I really can't say that I got to know them at all

SB: What about when Petro Canada took over Pacific, how did the staff feel about that or the employees at Pacific?

JS; Not very happy. Naturally, any disturbance is a possible cause of anxiety and I'm sure that most of the people or a lot of the people felt that way about it. However, most of the staff stayed along with the new organization. They probably expected they would.

SB: Were they all given the opportunity of joining Petro Canada?

JS: Pretty well. I think that didn't apply perhaps, to some of the top management. It would be obvious that that would become a matter of duplication. So the President, who was Merrill Rasmussen at that time, didn't. My immediate boss, who was Executive Vice-President, McIntosh, didn't. But there were several others, including myself, Vice-Presidents who did go over. Speaking for myself, I wasn't really anxious to but I couldn't find a good reason not to because they were offering me what I was doing before and I liked what I was doing. I was also near retirement.

SB: Was it a different type of operation from Pacific, was there any change that way?

JS: Yes. I think it would take a volume to discuss this in any detail but it was extremely different. It seemed like a much, it's a funny thing to say but a more easy going, maybe more permissive type of thing. It seemed like spending money was no worry. We'd been pretty austere type in Pacific, you didn't waste money. I'm not trying to say that they were wasting money in Petrocan but they were not concerned whether a project was going to be several millions more than they had thought of. Mind you budgeting was always done and still is, there are a lot of good people there, but they were less concerned at that point about the bottom line I would say. And Pacific particularly, you were mentioning Kelly Gibson, you had to account for every nickle. Yes, it was a very different regime.

#264 SB: And who were you responsible to at Petro Canada?

JS: Bob Meneally. It was kind of an oddball type of arrangement, I was the Vice-President but I'm reporting to a Vice-President who was an exploration man. I suspect you're just dealing in semantics when it comes to titles when you get into that situation.

SB: I guess they'd had people from other takeovers joining as well.

JS: Oh yes. There hadn't been for awhile, I guess the previous one was Arco. Some of the people at Arco, well all the people that came over from Arco I got involved with in the

exploration line. Here I'm having trouble with names again. The chap that's presently holding I guess, what would be, my job, is I can't think of his name. . . oh dear, you remember the big fuss just a few months ago about a couple of people that were CIA agents.

SB: Oh yes.

JS: He was one of them that was fingered for this. Fred Rare??? was the chap. I'd known Fred before, we'd both been in Toastmasters years before. When we had the merger he became my right hand man then and a very good one too.

SB: Do you think there was any basis for the. . .?

JS: None at all. I think they were talking about it happening around, shortly after Petrocan was formed. That would be shortly after Arco got in there. Well, at that time Petrocan had no foreign operations at all. The only excuse I can see for even thinking of it is that Petrocan now go into many countries, third world countries. Fred Rare goes there and it would be quite possible for him to see things happening, which would not be at all secret, that he could tell anybody. That was a possibility but it was ridiculous. There would be no reason for them to want to use him, no reason why. . .he wouldn't have had time for such things. No, it's been . . . the man has apologized for it and taken back his words, it's was ridiculous. But what I was really trying to say, he was talking about a period of time when it wouldn't have been pertinent at all anyhow.

SB: So up until the time you retired, were there any major projects you worked on that. . .?

JS: I think these offshore ones I was telling you about. We made other discoveries, some in Norway too, but nothing so far that has been shown to be economic except Casablanca. So that would have to be our major achievement in that period.

SB: Since retirement have you been involved with any societies or anything like that or tied in with the industry?

JS: No, I keep up my association with the Alberta Society of Petroleum Geologists and all my other professional ones but I'm not doing any professional work. Nobody asked me but I'm not really anxious to. I've got lots to keep me busy.

SB: You were also President of the CSPG in '55, what were some of the issues that were pertinent at that time, do you remember?

JS: I think really, just trying to keep up with the exploration activity and our growing numbers. I've forgotten how many members we had when I was President, I think it was in the neighbourhood of 1,200 or something like that. And that was a tremendous growth from just a few years before.

SB: I'm going to change the tape.

Tape 6 Side 2

JS: When I first joined the Society back in my Shell days I imagine we had all of 25 or so geologists in the Society. And all geologists would know each other of course, so it was a pretty close companionship. You had perhaps a dozen, maybe at the most, exploration companies in the area. You'd practically meet every week at a luncheon and you would be quite close. Now we had, I've forgotten what the latest number is but I think we must

be talking about 3,000 or more and it's big business. So back in the time when I was President we'd grown quite rapidly and we were, well, our major struggle was getting ourselves well organized or attempting to. The Society has always, in my mind it's a very good society for scientists because we don't really concern ourselves with anything except promoting the science as it relates to finding oil, primarily that. Our meetings are all based on that sort of thing, there's not very much boondoggling. I know there is an annual golf tournament and things like that but most of the activities that the Society undertakes are related to scientific business. I think it's one of the best ones I know of. We'd have an annual meeting of course, still do. I guess not too long before I was President we'd started making more formal, our annual field trips. 1953 or '54, I guess, I was assistant editor of the guide book for that particular year and I was editor the next year and so on. We put out, for several years, a series of guide books that were very good. And that was still going when I was President, 1955 I think was the year and our meeting was at Jasper. We had a major meeting there. So I guess our activities would be having monthly or weekly meetings, which were well attended, to be addressed by somebody on a subject relating to the oil business, or geology in general. And putting on our annual field trip. It's expanded a lot since. The Society now does something I think is very good, they finance students from all the universities of Canada that have a geologic department, they bring them out for several weeks to get familiar with the oil industry every year. So there are a multitude of committees now doing a multitude of things. Then we had perhaps, maybe a dozen committees doing the things I was talking about.

#057 SB: I was wondering if you could think of who some of the people are who maybe influenced you the most in your career, or who impressed you?

JS: Well, that's hard to say. I guess I was first impressed by the head of the department of geology at the University of Manitoba, Dr. Delaurier, who was a fine gentleman, he impressed me enough to make me want to go into geology, I was taking the subject at the time as one of my engineering courses. Because of him and taking that course in geology I decided to make a career of geology. Later on, at Minnesota when I was doing post graduate work there, there were several good men, I guess perhaps the most impressive to me was Dr. Grout, who went on to be head of the department later on. I would have to mention Dr. Hume, who we have discussed before, as being certainly influential in what I did in the geology ??? western Canada. However I had heard of him and asked to be sent to work for him and I was glad to do that, he was a very nice gentleman. We didn't always see eye to eye and get along but I guess one that would have had to have had quite an influence in my career would be Les Clark, who we've been talking about every now and again. Because, although he didn't hire me to Shell, again, I was hired through recruiters at Minnesota and as I told you earlier, destined to go to the Gulf Coast and because of my first Shell boss talking to Dr. Hume and being told by Hume that I was going to join Shell he hired me and he was a very good friend, Alec Clark. Then Les Clark too over later on and as we've discussed, he was certainly influential in me moving on to Husky and indirectly at least, to Pacific later on. So I seemed to be following him around all the time and he was really an excellent geologist, no question about it. Or oil

finder as you would say in the industry. He was a funny man. Talking about not wasting pennies, when I was mentioning what was the different style between Pacific and Petrocan, we didn't waste any money in Shell either. When I was working in the Nordegg area, this is where I was doing that folded fault work. Did I tell you this earlier, I might have done this, we were depending on a car to take us out to the end of a road, it was about 30 miles long but it wasn't a very good road. It was an old one built to drill that first well in Chungo Creek. And invariably you would get stuck travelling along it one time or another. That usually meant labouriously pulling yourself out with a rope and tackle type of thing, a rope and a crowbar. Getting a lot of mechanical advantage, but very hard to work with. I'd come up with the idea over one winter season of getting a load mover, which was something that cost, maybe $10 or $15 then. Mind you that would be maybe $100 now but then it was $15. He wouldn't agree to me buying it. He was very, very tight in many ways. All my friends go it of course, at other companies, Texaco, Hugh Beech and so on. But he'd have this characteristic of being so penny pinching. But he still was a good hearted man. After I stopped working for him I got to be much better friends than when I was working for him I guess. I'd have to say that those are the people that had principal influence on my career.

#108 SB: Are there any events that were very outstanding that you remember?

JS: There were all sorts of ones I guess, but I guess what, in looking back, that I appreciate so much is that I was able to be part of that era of exploration. At the time when I came here I thought, oh gee, I've missed it. There were people that had been here when they found Turner Valley. You recall that they had drilled down at Waterton back at the turn of the century and so on, those are the real old times and the old timers that I would think of in the oil industry would be people like Joe Irwin and Jack Webb and Slipper and Hume, Link, and Sanderson and some of the professors from the university, those are the old timers really. Our group weren't. But in looking back, we really were still in the forefront of the exploration for finding oil in those days, in that manner. I was delighted that you could still go out in areas that hadn't been properly surveyed anyway, land or geologically and be on your own to do it. Probably that would be the one single thing that I appreciated the most. That dates back quite a long time, I haven't been involved in that for many years as you now know.

SB: Are there any other things you'd like to add before we wind up?

JS: I seem to me I've talked an awful lot. It's possible that if you go through the notes and you see things that I haven't properly explained you can come back and ask me and I'll be glad to clarify if I can. I don't know whether, I think we did, whether I had properly told you about our surveying methods during those times, I think I have. But if you find that it is not clear or sufficient, let's talk about it later.

SB: Okay. Well, it's been interesting and I'd like to thank you for taking part.

JS; Thank you very much Susan, I enjoyed talking. Too much.