

PETROLEUM INDUSTRY ORAL HISTORY PROJECT
TRANSCRIPT

INTERVIEWEE: James Warke

INTERVIEWER: Betty Cooper

DATE:

BC: This is Betty Cooper and I'm at the home of Mr. & Mrs. James Alexander Warke, 1628 Scotland St. in Calgary. Mr. Warke, I'd like to start right at the beginning, where you were born, your family background and then we'll just move on through that early history and your schooling. Where were you born?

JW: I was born east of Innisfail, Alberta, a place called Pine Lake, a rural area. I was born in September 1907, in a snowstorm.

BC: What was the date in September?

JW: 16th.

BC: In a snowstorm. So were you born at home then?

JW: Yes, they did not have hospitalization for maternity cases in those days. My father was a rural doctor.

BC: That was convenient.

JW: It was convenient. But like a shoemaker, the shoemaker's children have the poorest shoes. We didn't get the doctoring that maybe the neighbours got because I guess we were too close to home. But we survived.

BC: Where had your mother and father come, were they homesteading or was he doctoring there in Pine Lake?

JW: Both. They came from England in 1905 and like many thousands of others, came to the new land to settle it. As a result I grew up on a homestead and my father did the rural doctoring. We did have a telephone though and even when I was quite small I can remember him getting called out at night to have to drive 20 miles to doctor somebody that thought they were dying. I do remember also that the same people when they got better figured that the doctor hadn't done anything therefore he didn't deserve any money for it.

BC: So they were lean times?

JW: Very lean times. When World War I came along, Father left for the war, had a pretty rough time in the war and never did come back to Pine Lake to practice.

BC: He was a medical doctor in the war working in the trenches?

JW: Yes, a medical doctor. Oh yes, he was blown up several times. Blown up 4 times and torpedoed 3 times on a hospital ship, so he had quite a rough time during the war.

BC: You weren't an only child?

JW: No, I had 2 brothers older than me and 1 sister, and 2 sisters younger than I. Large families were necessary in those days because not many of us lived through it, but luckily all of us grew up. Although 2 of my sisters have now died but my 2 brothers older than me are thriving even though they're up in their 80's.

BC: Your older brothers would have looked after the farm of course, when your father went

away to the war.

JW: Yes. My oldest brother wanted to join up because everybody thought they should. But Father said no, that he could save lives and all Charlie could do was lose his. So I think Father was right. It was pretty rough on a teenage kid to look after a farm and look after all of us.

#038 BC: Right. Where did you go to school then?

JW: We had a country school called Glen Ellen School 2 miles west of us but there was no road. We had to wander around through the hills, there were no road allowances cut out or graded for the first few years. We had ponies to ride at times or sometimes enough of us could ride together. So it was really about 3 miles to get there.

BC: Were there many other families around?

JW: In the homestead days nearly every quarter section had a family on it, so it really was quite a heavy population. But all on the subsistence level. But there was a lot of open range in that country, so really it was more or less a ranching country and very little land was farmed. We put up hay with the old pitchfork method. The Weltzer??? people had what we used to call bucks, to buck the hay up but as far as I remember, we had to push it around with a fork.

BC: This was a little one room school was it, that you went to?

JW: Yes, and only had a teacher part of the year. During the war the only people they could get were high school students. Girls would come out just right out of high school and try to teach us something but you just couldn't get anybody to come out and teach. And only for the summer.

BC: So you had school in the summer then?

JW: Yes. Very seldom during the winter, it was just too cold.

BC: Did your mother have to look after some of your early schooling then, did she supervise reading and teaching you. . .

JW: Oh yes. My mother was quite well educated and quite musical but foolishly I never took the opportunity. Although my grandchildren now, some of them are quite prominent in music.

BC: Did you have a piano at your homestead?

JW: Yes, we did.

BC: That would be quite something.

JW: It was. I can remember Mother playing Gilbert and Sullivan and all those sort of things, which I still love. So in lots of ways we were privileged in having that.

BC: You certainly had a rich education, a lot of it from the home. But your parents having come from England with that background of education make quite a difference.

JW: Yes it was. And also they were travelled quite a bit, which helped, which is something I have acquired the desire for and have done quite a bit myself.

BC: When you got past grade 8 then you would have to go into high school?

JW: Yes. I went to Edmonton and stayed a year or so up there, getting grade 9 and then I went to Innisfail and sort of worked for my board and got pretty well through high school.

BC: When you went to Edmonton where would you stay, was it at a boarding school?

JW: It was some old friends of Mother's that had kind of a downtown eating house. People used to come there for lunches. That was the only meal I can remember them serving. I walked about a mile to school from there, it was the same school that the commercial grads won the world championship, I went to school with them.

#075 BC: Did you really? Then when you were finished high school had you thoughts of going back on the farm or did you have ambitions?

JW: No, I had ambitions for other things. I heard of the Institute of Technology in Calgary and by trapping muskrats and working on a thrashing crew I got enough money to take some of the lessons there.

BC: How much would the year have cost you to go there, do you remember?

JW: It was pretty rough going because my board and room cost \$30 a month and I only had \$1 or \$2 over that to spend and I had to leave then, before the first year was over, to go and get some more money, in muskrat season. Then after that I got a job at Drumheller firing the boiler and got enough experience to get a provisional certificate.

BC: As a stationary engineer?

JW: As a stationary engineer.

BC: Is this what you had thought you would want to go into?

JW: At that time I thought that was the ultimate. And with working in the mines down there I acquired enough money to go back after Christmas to finish up till spring. So that I did not get all the time in but I did pass all the exams for the 2 year course in mechanical engineering.

BC: Tell me, what year would this be, so we can place it?

JW: From the fall of 1926 to the spring of 1928.

BC: Mechanical engineering, the fact that you were able to work in Drumheller which helped you, what were you doing in Drumheller, were you down in the mines, did you work in the mines?

JW: Not at that, well, I never did work in the mines except later I'll tell you about. But there they had steam hoists to hoist the coal out of the mine and had 2 or 3 boilers. I shovelled coal into the boiler firing is what I was doing. That way I got some practical experience, I earned enough time to warrant getting a provisional certificate which is one of the only things. . .you had to start someplace.

BC: Then when you came back, you came back from Drumheller and you took some more schooling. Did you get a chance to. . .?

JW: Yes. Drumheller was in the fall of '27 and I came back to the Tech, to the spring part of the course.

BC: Do you remember any of your instructors, were there any people there that were particularly influential in your career?

JW: I'm just trying to think. Dr. Carpenter was quite a brilliant man, headed it. Just to digress from ???, why I remember him was that I told him that I'd run out of money and had to leave to go, this was the last year you see, to trap some muskrats to go on with the course. No, I'm sorry, it was the first year, so it was in the spring of '27. He suggested that he'd get some funding for me from the Rotary Club. I didn't know what the Rotary was but I

was so proud I didn't want to accept charity. So at least I got some recognition from him, even at that stage.

#120 BC: Obviously he felt that . . .

JW: I'll tell you, if you don't mind this time, why I say this. So many of the boys sent there. . . there wasn't any girls in our class. . . to take engineering, mechanical engineering, they weren't doing any good at home and they weren't doing much good there. Anybody who would do a little studying got a little recognition. I had no trouble with the studying because I passed all my exams without attending more than half the lessons.

BC: Yes, this is something I want to go into later Mr. Warke because you are a professional engineer, in fact, have been honoured with a life membership in the professional engineers, which not everybody is honoured. . .

JW: You only get that after a certain age.

BC: Yes, but you also have to have other qualifications I think.

JW: I think if you joined when you were 74 you'd get it when you were 75 so I don't think it means much.

BC: But you got to be a professional engineer but working and then studying at home and then taking. . .

JW: Yes, I was studying at home when everybody else was ??? around and I was kind of ridiculed.

BC: Was this fairly soon after you finished Tech, or was it after, well, you were married shortly after leaving school anyway?

JW: From the time I was married I started studying and it took 20 years.

BC: Before you finished.

JW: Before I got professional.

BC: That's marvellous. Can we look at your first job. Drumheller was your first really, engineering job. But that was really just a temporary job was it not?

JW: Yes, but I got enough experience then and a lust for steam engineering. That after taking a little tour of the northern country in the summer of 1928 I remembered one of my contacts and he recommended that I go to Sheerness, which is south of Hanna, Alberta.

BC: What was there there that you could. . .?

JW: There was an underground mine and. . .

BC: Coal mine?

JW: Coal mine. There was a boiler and a hoist and I had to get up early in the morning and steam up the boiler and pump the water out of the mine and then hoist coal all day. So it was kind of a 5 in the morning till quitting time at night and look after it on weekends too. For \$100 a month, but still that was a lot better than getting \$30 or \$40 on the farm.

BC: Did they supply you with a place to live too?

JW: I boarded with the mine owners there at first.

#160 BC: Would there be many other people doing that job or were you the only engineer there?

JW: I was the only engineer. There was an old gentleman there from the southern States that

was able to give me a little guidance but he was beyond the age of working.

BC: So you were on duty 7 days a week?

JW: Oh yes, but of course on Sundays you only had to pump the mine out.

BC: And then you had the rest of the day off.

JW: Yes.

BC: During the rest of the day off, this is when you met and courted your wife isn't it?

JW: Yes. She lived there locally, she had lost her husband in a mine accident so in the fall of '28 I married her and acquired a 3 year old daughter at the same time.

BC: And your wife's name, just to put it on the record?

JW: Gertrude.

BC: And your daughter's name?

JW: Ida.

BC: Now after you were married did you continue to work there?

JW: I worked out the winter of '28 and in the spring of '29 the prospects were very poor because there wasn't going to be much coal moved during the summer and there was a real oil boom on in Turner Valley. So I quit, you didn't resign that size job, and came into Calgary to get a job in Turner Valley. But by certain opportunities I ended up getting a job just east of Okotoks.

BC: What job was that?

JW: It was on the Ranchman's well, where I started firing the boiler and soon graduated into being a tool dresser on a cable tool rig.

BC: Were they drilling at this point?

JW: Yes, they were drilling with a cable tool.

BC: So this was really your introduction to the oil patch?

JW: That was in about May of 1929 and I've been tainted with oil for fifty some odd years, going on 54 years.

BC: Can you describe what it was like working with cable tools at that time?

JW: It was before the age of the specialists on it. In my day it was customary for rig builders to get loads of plank and a hatchet and what they call rig irons, and start nailing and chipping and build the rig. They even built the wheels, they were real experts at that sort of thing. I never got into that of course, but I did work on several wooden rigs. Things were really started, maybe 100 years before that with just basics. It wasn't until after that time they started to get these ??? together. But at the same time the rotary rigs were active.

#205 BC: There were rotary rigs at that time?

JW: Oh yes. They were operating in the Turner Valley field, but I actually got my introduction on a cable tool rig and acted as tool dresser, which is the first man under the driller. And we had to pound those big bits out by hand, heat them in kind of a furnace and pound the thing out with a sledge hammer.

BC: It would be pretty slow and hard going?

JW: Oh, very slow, but it was where you learned some basics.

BC: Was this a productive well, this first one that you worked on?

- JW: No, it never was. They drilled on it for years. They did find traces of gas but they never got down, never got any commercial production.
- BC: This is one of the things about the oil drilling at that time, particularly with the cable tools, they seemed to go on and on. They'd get a little money and do it for awhile and then come back 2 years later. Was this the same with Ranchman's.
- JW: Very much an example of that. If you're interested in that well, if you go south on #2 highway, after you cross Sheep Creek, just east of Okotoks, maybe about half a mile south towards Aldersyde, there's a farm on the east side of the road and directly across from that, if you look beside a little rise in the ground, you can see the wellhead sticking up out of the ground. That was the Ranchman's well I worked on in 1929.
- BC: For goodness sakes. When did they stop work on that well, finally give up on it?
- JW: It was hit and miss for a few years after that, I can't remember.
- BC: You didn't stay with it though?
- JW: No, I left there in the late summer to get a job in the glamour of the rotary rigs in Turner Valley.
- BC: So what was, where did you first get introduced to the rotary rig and what company was it?
- JW: It was south of Black Diamond, a few miles at a place called Hartell. It was right across the road from the little village of Hartell on the East Crest wells. East Crest was a cable tool, already an old timer there, not down to the medicine line yet, which was the source of the wet gas. But this was a rotary rig and it was a contractor called, there were three of them, Bowler, Sherman, Bowler from Oklahoma. And it was a brand new rotary rig and they had brought up the drillers from down south because there was none of us around knew anything about it. By that time I had got higher steam papers, because I had to keep studying all the time to get it. Now I was able to fire on the big boilers. There were 3 big boilers there, it was a big steam rig.
- #249 BC: This would be quite a thrill for you.
- JW: Oh yes.
- BC: Because you were up there pretty high very quickly.
- JW: Not really, because I was pretty low on the totem pole according to the southern drillers. They looked at firemen as the low end of the scale.
- BC: Oh did they?
- JW: Naturally.
- BC: While you were doing the firing, did you have a chance to study and learn more about the drilling, the rest of the operation? Was it a team work. . .?
- JW: No, you were kind of isolated when you were firing on those boilers. Because you weren't classed an engineer, You were classed as a fireman but you had to have engineers papers to fire it because it was 250 lb. per square inch and quite dangerous. And so you were sort of isolated but naturally, being curious, I did get a little bit of knowledge. I used to see some of the things that were going on, although I really had no idea then like I gathered as the years went by.
- BC: Where did you live when you first went down to the valley?

- JW: As soon as I got the job we bought a little skid shack, I showed you the picture. I moved Gertrude, by the way my first son was born while I was working that Ranchman's well.
- BC: Was your family with you then or were they still. . .?
- JW: No, I'd left them in Sheerness and went alone. In fact, that's ??? I had to leave the family and go alone to get enough to eat. While I was on the Ranchman's well our oldest child was born.
- BC: Boy or girl?
- JW: Boy.
- BC: And his name?
- JW: Alec. He's a petroleum engineer now in the oil industry. We moved out, hired a truck to move our stuff out, the basic stuff, and moved into a skid shack, which eventually moved right across the road from Hartell, right beside the rig. As the custom of the day, you tapped a local gas line and got gas for heat. I attended quite a few funerals for people who got that high pressure gas and couldn't handle it.
- BC: Yes, this would be very dangerous.
- JW: It was. Very, very dangerous but it was a way of life and you weren't going to hunt for wood and chop it when you could get gas for nothing.
- #292 BC: Having your engineering background, would you know how to pipe it in a little more safely?
- JW: Yes. But still when you get 350 lb. gas coming to a cook stove it's pretty hard to. . .
- BC: It can blow it up, and blow you up with it. These skid shacks, this was the forerunner of the mobile home of today really, that follows around in the patches, isn't it?
- JW: Yes, but now they're up to date. We just had a shell of a house and it was set on about 2 or 3, 4x4's or something, that we would just hook a big tractor on or something and drag it along to the next place and dump it down.
- BC: How big would it be?
- JW: Ours was 16 x 20 I believe.
- BC: And inside, divided into what?
- JW: We divided it into one big room and then a subdivision that we were able to make into a kitchen and a bedroom I guess you'd call it.
- BC: This would be actually partitioned or would it be just partitioned with material?
- JW: No, we had wood partition.
- BC: This could be a little cold in the winter.
- JW: It was very cold but with gas then, it didn't cost us anything, we could keep the stove red hot. But it was just bare boards, there was no insulation. The floor would be cold but when you're young. . .
- BC: Not having even a basement, all the cold would come whistling through.
- JW: Oh yes, we'd try to bank it up so wind wouldn't blow under. But with the good wages we were sort of the light of industry because we found that out when we came to Calgary, everybody thought we were millionaires and sure ran the prices up.
- BC: Is that right?
- JW: Oh yes. For one thing they could smell us because the smell of Turner Valley was on

everybody because of the noxious gas out there. Even our clothes smelled.

BC: So when you'd come in you'd find they actually would put the prices up for you?

JW: Oh yes.

BC: Can you give an example, can you remember anything in particular?

JW: Not in actual detail but it was the general consensus of all the people that came into town that they really got stuck.

#336 BC: How did you find living with that gas? Today you know, we have all these environmental studies that say that this is very bad for you.

JW: We had lived with the rotten egg smell for many years but there was no money involved. Now anybody that can get some of that gets glitter in their eyes. ??? like us, but it was just part of the way of life, they wouldn't think anything of it. It's psychological, a lot of it I think.

BC: Your children were never ill from the smell of the gas?

JW: No. And it was toxic there, only if you got it in bad quantities. Our very clothes smelled of it, our automobiles and everything. I do remember driving out to Sheerness and we drove into a farmer's yard and he was stone deaf. But he happened to be laying out on the lawn having a sleep in the summer sun. He jumped up, smelled it and said, oh, somebody from Turner Valley. He could smell it right away. And that was the way when we came to Calgary, our clothes reeked of it too, so they could smell where we were from.

BC: So they could adjust things accordingly. Now you worked in Turner Valley for quite a number of years.

JW: I went there in 1929 and we were away for awhile during the Depression and I went back there and worked there till the spring of '47.

End of tape.

Tape 1 Side 2

BC: You mentioned about the Depression and I think it is important to chronicle what it was like in the valley in the Depression. You went there at the height of Turner Valley's boom and suddenly it wasn't.

JW: It stopped dead. But not till a month or two after the drop in New York. We were talking about all the wells we had lined up to drill but it ended up that we finished up that first one and we were on the second one, which was East Crest #3 when the slump came and everything just died down, there was no work at all. No rigs running, everything shut down completely. It was a case of what we were going to do, there was no work there.

BC: How many children did you have by this time?

JW: We had 2. So we decided we'd do like everybody else, go up into the north country. So in the summer of 1931 or '32?

Gertrude: '31 we went first. Went up to stay in '32.

BC: You went out to have a look around in '31?

JW: You're sure of that eh?

Gertrude: Well I came back in '34 and I was there 2 years.

JW: I guess it was. Anyway. . .

BC: Why was everybody going north?

JW: Well, what do you do?

BC: Were the government's subsidizing a homestead, was this what it was?

JW: No, they would give you some help on the freight taking your stuff up there. Half of Saskatchewan moved up, it was Grapes of Wrath time.

BC: This was Peace River.

JW: Going into Peace River, because there was open land and good land and very fertile, but way back. If you could get settled there, at least you could raise enough to eat. There was a certain amount of hunting in that. So literally thousands moved up, all sorts of caravans and everything else. We went up in 1931 with a little trailer behind us and toured around and found a place. By the way, I had saved a little money, I wasn't quite broke. I was able to buy an approved of homestead. The people that I got it from, it was quite a big family and they had a lumber mill and had built an enormous house on it. At least enormous to us. It was the coldest place in the world you ever saw. We bought that place and moved up in the spring of. . .

BC: How much would it cost you, do you remember how much you paid for it?

JW: \$750 for a quarter section.

BC: Including the house?

JW: Oh yes.

BC: Was there anything to work the farm with?

JW: It was in what they call the Battle River area, it was a few miles north of the present town of Manning. About 2 miles north of, there was no town of Manning at that time, it was just a river crossing and there was the town of Notikewin, which is just about a couple of stores on a corner. And a Chinese restaurant and a United Church was really the town and a school and a post office.

BC: And you were quite close to there?

JW: About 3 miles, 2 miles north, a mile east. We bought this quarter and moved in there. Had a real rough time because of the cold. Our second child was born that winter. It might interest you that the doctor in the country was one of those sent out from England, and [worked for the government]???, woman doctor. And she lived down on the river, right where the town of Manning is now. If you wanted her you had to go and get her and take her back home. So our second child was born in this house, the third. My second child, our total of three, but anyway, was born at home there in the house. We had a lot of bitter weather up there and I had brought some horses up so we had to go many miles to get wood and cut it up by hand.

#047 BC: A little different from the free gas.

JW: Yes, very much different. And a lot of hard work, but being young and that, it was quite rewarding.

BC: Was your farm productive?

JW: Yes and no. There was a little bit broken on it. We planted a garden the spring of '32 and

we had one of those things that is supposed to never happen up there, we got a hail storm. It just looked like a plowed field. Wasn't it close to your birthday?

Gertrude: Day after my birthday, the end of July.

JW: And you know those long days and everything, that stuff just grew so fast that we harvested quite a garden.

BC: It just came back.

JW: Oh yes. Remember in midsummer up there it never gets dark at night. There was still a glow in the sky and the farmer's could run their tractor all night at that time of year without lights. It was that far north, but that way the lights never got ????. And if you ever talk to anybody that's been to Alaska, it's fabulous the gardens that grow up there. This land was very productive. The winter's were very long, the summers were short and hot and you could grow things so much better. Nothing like Calgary, it's the poorest place for a garden.

BC: You stayed there homesteading for how many years?

JW: That was the spring of '32 and we were up there all that winter, '32 to the spring of '33. Just about the time we started getting a crop put in in '33 I got a telegram saying that they started up the rig in Turner Valley, could I come back and fire a boiler.

BC: Was this the same people, Bowler, Sherman, Bowler?

JW: Bowler, Sherman, Bowler. And two dollars and a half a day, that was supposed to be half the wages and then I was supposed to get the other half when the well came in. It never did but anyway, the \$2.50 a day was an enormous amount of money. We had a little car that we managed to keep going by . . .

BC: Bailing wire.

JW: Well, yes.

BC: Was it a Model T or a Model A.

JW: No, it was an Erskine????.

BC: Oh my goodness, that's a new one.

JW: It was a Studebaker, it was supposed to be a small Studebaker. But it took a lot of coaxing to keep it running. What was I going to do, I wasn't able to come out. So I put the tent, had an old tent that we'd had years ago camping, and loaded that in the car and started out for Calgary by Edmonton. Into one of the worst rains they'd had up there, it took me several days to get to Edmonton. I arrived down at Turner Valley about the time they were rigging up, so I set up the tent and lived for quite a bit over a year in a tent, batching in a tent.

#080 BC: Throughout the winter?

JW: Oh yes. I was tougher then.

BC: It would be pretty cold wouldn't it?

JW: Not when you have gas. I made a stove out of an old half drum, and put a stovepipe out through the top of the tent and I was able to keep. . .

BC: Did you have a wooden floor on the tent, did you put a floor down?

JW: No.

BC: You know, you do have these tents with wood around, you didn't have that?

JW: ??? I was posh to what some of the people. . .

BC: So you were really working down in the valley when an awful lot of people were not, it was still Depression time.

JW: Oh yes. Our rig had started up but there were still a lot of people weren't. But a lot were fly-by-nights that had come and gone. Most of the drillers had gone back to the States. Some of the hardy ones had stayed up here, they liked it up here.

BC: I understand that some of the people that were working at whatever you could do on the rigs, some of them had been drillers on other rigs during the height of the Depression, that you had some pretty smart people. . .

JW: I guess so, I can't remember those details. It's happening now, I've got a nephew, one guy who's a driller, the next time he's back doing something else, he can't get a drilling job. But that's the luck of the draw, you take what you can get when you're hungry.

BC: The well that you had been working on, they did complete that. Was it a success?

JW: Oh yes. But it was wet gas. You see, Turner Valley is an anticline and the top of the reservoir is wet gas and the bottom was oil. At those stages you didn't know the oil was down there. So they only drilled and they only expected to go deep enough for that. The oil was further down, later on in my story I'll tell you how the oil was found down there. Anyway, this well I came back to in '33 was up in the gas part. We drilled a couple of them there. Then I was lucky enough to get. . .oh, my wife came down in the summer of '34.

BC: Did you sell the homestead then?

JW: No. We kept it for reserve because we didn't know when the next Depression would come. It was the nicest thing to have a place you could go back to because it was bought and paid for. Because I took most of my money to buy it and owned it and we kept that, as we called it, our ace in the hole. We rented one of the vacant shacks around there, which wasn't a bad little company house for awhile. Then we bought kind of rough lean-to place, I mean, a ??? place with a rubberoid??? top that leaked most of the time. We were able to patch it up. And we lived in that for several years and it was further south than Hartell, about a mile east of where the town of Royalties grew up in the later boom. I worked on this production battery for awhile and then the BA were building an absorption plant. An absorption plant was to take this wet gas and let it bubble through kerosene and the kerosene would pick up the liquids, which were quite valuable, and then they'd distill them off and circulate the absorption oil they called it, and then the dry gas was flared. So they flared just billions of dollars worth of gas in those days because it. . .

#124 BC: They say you used to be able to read by the light of the flares down there.

JW: Oh yes. Not only that but you could see the light from Turner Valley in the sky when you got 100 miles east of here. There was a glow all the time. I read at night when I was working on those separators we called them, read the newspaper at night just by the light of the flares. It was one of the most horrible things that ever happened but that was done.

BC: It was in the early days, they didn't realize what they were doing.

JW: No. I'll tell you about a little bit more of that later. But anyway, those wells went on and then they slowed down again so I got a job on this BA plant where I was firing boilers.

BC: Were you helping to build the plant, then you worked in it?

JW: Yes.

BC: So what were you doing when you were building, what was your job?

JW: Pipe fitting on the instruments and all sorts of things like that.

BC: What was your wage at that time, were you getting \$2.50 a day still?

JW: 35 cents an hour. Which is about an 8 hour day. Then when the plant started up I was put on staff firing the boiler, a lot of money, I got 75 cents an hour there. So I was one of the prestige people. But we had 3 boilers in there which my certificate would cover. Then they decided to move another boiler in so legally I could not work there. But by that time Turner Valley Royalties had been discovered and a real big boom started so I got itchy feet to get back working on the rigs. I wanted to work up on the rig this time. I mentioned earlier that the first wells were in the gas cap but R. A. Brown from Calgary, who was an entrepreneur, he's also head of the ??? Railway here, a grand personality, he thought that they should get down structure. Actually there was one well at the north end that had been showing oil but nobody had paid any attention to it. So he got down structure, he figured that there's gas up here, there's probably oil down the slope. You see, Turner Valley is a sloping thing, it was formed by the mountain. And he was right. When it came in crude oil it was the greatest thing that had hit western Canada at that time.

BC: Were you there when this happened?

JW: I lived just 1/2 to 3/4 of a mile east of there so we watched it burning. So I soon got itchy feet to get over where the action was. Then they started drilling up and down, a real boom hit. That was 1936 when that was discovered. So it was in 1937 I guess wasn't it, when I quit the BA and went and got a job. I tried to get on the rigs but it didn't turn out very good. I didn't have enough rig experience and the stigma of just being a fireman. But I got a job on this Turner Valley Royalties, working on there, because Brown was drilling a whole series of wells.

#168 BC: What were you doing there?

JW: I started with the Brown organization as a production operator, what we now call a battery operator. It wasn't too long till I had a crew looking after all maintenance and well repairs. I stayed with them for 9 1/2 years and during that time I had a tremendous amount of experience in well work and production. And I was studying all the time. I was actually studying to get into the professional engineers.

BC: That would be very difficult to do on your own.

JW: It was, it was very difficult to do.

BC: How did you do it?

JW: 20 years of night school, correspondence and practical experience. Things got quite slack in 1946 and I think if there was any rigs running it was 2 in western Canada.

BC: Do you remember which they were?

JW: Yes, I'll just come to the one that I know of. It appeared to be that I had reached as far as I was ever going to go there and I had noticed that when people went and got foreign experience, they came back so far ahead of us local people that they left us standing still. I was at the age where I had to do something. So I quit my job at Turner Valley and

actually did a little bit of consulting, just a few hours. And I applied for and got a job to go overseas to Bahrain Island. Before I was through all my medicals and everything to go, Leduc was found. Then I was in a quandary. I talked to my wife and she said, you don't have to stay very long, Leduc's going to go on, all this is going to be a big boom. Go and get your experience and come back. I'd heard that nobody stayed very long on Bahrain Island.

BC: Why was that?

JW: The conditions were so rough. In fact, I had applied to Socony to go to South America but it took so long for the job to come through that I got tired of waiting and accepted this job in Bahrain Island.

#205 BC: Who were you working for in Bahrain?

JW: Bahrain Petroleums. But before I left, Socony, the job came through with them but I told them it was too late. So they sent word back to New York that in our experience nobody stays very long in Bahrain, in the Middle East rather, and when he comes back, ask him to reapply. I stayed 6 years. But when I did come back I applied to Socony and since I had practical field experience they put me on as a production foreman.

BC: This was not overseas though?

JW: No, it was here in Alberta. They had just made a discovery and they needed to staff up.

BC: We've jumped very fast forward. I don't want to interfere with this story of Bahrain but before we get into it, because I know there's a lot of experiences and the way you found all the background that you needed to give you the position. I want to just drop back if I can, to the Turner Valley days during the war, because you were in Turner Valley during the war years. That would be a particular kind of work I think, because there were certain things happened in Turner Valley.

JW: Very much so. We were frozen, we could not change our jobs. We were very short of help, all the young men took off and the rest of us were frozen. It seemed to me that I never saw my children except on Sundays, for months on end. Because usually the working day ended up about 16 hours, with 12 hours on Sunday. Just unbelievable the work we had to do to keep things going.

BC: Were they still discovering and exploring because of the war effort?

JW: Yes. The government started up what they called, War Time Oils, which they subsidized secondary locations. It was one of the really successful, the government, those wells actually paid out and put some more oil on the market that they never would have got on if they'd had to go by just competitive operations. I worked on some of them. They weren't big wells but. . .

BC: Did you work them for the War Time Oil Company or did you work for. . .?

JW: No, War Time Oils was a name that they were drilled under. Brown drilled 2 or 3 of them

BC: Oh, you were with Brown all this time.

JW: Oh yes, I was with Brown for 9 1/2 years and I worked on several of those wells. But they did give a little shot in the arm which ordinary money couldn't afford to go in. But surprising, it was a success. I met a man years afterwards, he said, you know, they got their money back on that and got the oil out when we needed it very bad.

#248 BC: One of the things that they had to do too was they stopped the flaring too didn't they, or was it at that time that they stopped the burning of. . .?

JW: Actually at this time they had really shut in the gas wells by then, because it had dried up till there was very little liquid coming. They did put in gas conservation schemes at this time so they pumped the gas back into the ground. That went on for several years and then I guess they pretty well abandoned that because there wasn't enough gas left around. They didn't pick up the small gas from around the crude wells, so there were still some small flares around until later. But the big gas wells were a thing of the past. They didn't produce enough liquid to warrant it.

BC: You mentioned a little earlier about getting the wet gas but the oil, they hadn't even thought about that or expected that. You were going to come back to it, should we come back at this time to it.

JW: Turner Valley is a type of a formation that was once laid down horizontal and due to mountain forming it was pushed up at an angle. So it is sitting there with quite a top end sealed by the formation where it had broken off. It collected the gas, that's where the first wells were drilled, they were fairly shallow. But as they went down dip they got the crude oil as located by the Turner Valley Royalties. That brought a real boom so all along the west flank of the field they were getting oil. But they drilled deep enough. And if they went to the east side there just wasn't any formation there because it had broken off and sealed just as the mountain building.

BC: When you say drilled deep, how deep were they drilling then?

JW: I seem to remember one that went around 9 or 10 thousand feet and it got down into the water. But 6 and 7 thousand feet seemed to be fairly safe.

BC: Did the drilling techniques change during that time, from when you went in there with the first rotary's in there, was it pretty well the same throughout your 10 years?

JW: When we first went in there we didn't have the cone type of bit, they were just coming on the market. They had a solid bearing and we had to lubricate them with a heavy black oil, rather cumbersome. But soon after I got there somebody developed a roller bearing bit, 3 cones. As you turn, these cones roll and they crush the rock, then the circulating mud washes it out. And they were a great improvement. That's still the technique they use, of course, there's lots of variations with diamonds and all the rest for coring but that is still the basic way they do it. Although the technique is greater, the horse power of the rigs is greater.

#300 BC: That's really the biggest difference though, is the. . .

JW: The principle is still the same.

BC: All right, let's move on again then to Bahrain. This would have been quite a decision for your family and I think this is something that we haven't discussed too much in looking at the petroleum industry and the fact that there's a lot of separation of family, when you're working right in Canada, never mind when you're going overseas.

JW: I was lucky to have a very brave wife. She knew that I had to do something. So she was content to stay and raise the family at home. I went alone to Bahrain . . .

BC: 1947 was it?

JW: April or May, 1947, in the spring of 1947.

BC: Did you have to sign up for a certain length of time?

JW: Yes, a 2 year contract. Of course, if you required to break it they'd send you back home but I mean, I'm not made that way.

BC: Was the salary very good?

JW: It was tremendous of what I could have got locally. I went over for \$350 a month and that was enormous. \$200 was big money around the Turner Valley fields.

BC: Were you making \$200 at that time?

JW: No, I think I was making \$175, in the fall of '46. So it was quite a big jump.

BC: So out of that did you have to supply your living accommodation in Bahrain or was that supplied?

JW: No, that was everything found. I lived in a company accommodation, I ate in the company cook house. I had to stay alone because we were short of housing, right after the war we were very short of everything. But they offered me a house and so I sent for Gertrude and the 2 youngest children. We put the rest out to go to school. Our oldest girl was going to university. Oh, she had graduated by then as a dietician. The oldest boy was going to take a course at university, which he did for one year. The next boy was still in high school and the youngest boy and Margie, the youngest girl, came out with Gertrude.

BC: This was during that first 2 years.

JW: First 2 years. I went over in the spring of '47, she came out in September after we thought it started to cool down, '48 she came over. She just could hardly stand the heat. We thought gee, this is when it's starting to get cooler. But when I landed there in the spring of '47 I passed snow on the way over, I could see it out of the plane and when I landed at Bahrain it was humid and what was the temperature. . .I forget now.

Gertrude: 110.

JW: Well, it goes up to 110 in the daytime. Anyway, I think it was 97 the night I arrived.

End of tape.

Tape 2 Side 1

BC: Just continue right on.

JW: The summers were terribly hot, you know it's going to be 100-110 every day. The nights are hot and humid, being right on the gulf, very damp. So that I remember sitting at an outdoor show one night and the temperature in the air was hotter than my body temperature and 97% humidity. And the water was actually condensing on me at the table I was sitting at so that it ran down me and my shoes ran over just from the sweat. A lot of people can't stand that, it's very hard on you.

BC: Did you have to have a lot of medication or shots or that before you ever came over?

JW: Oh yes. I hear a lot of people say they'd like to live in a warm climate but do you realize that you don't live long in a warm climate. If you worked out there for 15 years, if you're still alive they used to send you home. But now with air conditioning you can live longer.

BC: You didn't have air conditioning at that time?

JW: Well, we did in parts. Soon after I got there they had a bad fire in the power house so we

- had no air conditioning in our bunk house, it was terrible.
- BC: What was your job, what was it that you did in Bahrain?
- JW: I was production foreman.
- BC: What did that mean?
- JW: There were 2 other Canadians they'd hired there. Quite a few Canadians came over when they moved out that refinery up north here. . .
- BC: Edmonton, no?
- JW: No, it's up in the Yukon. . . Whitehorse. They had built one there for the war and they were so short of material that Bahrain bought the whole thing and all the Canadians that would go out there. So quite a few Canadians. The refinery was part of the thing and we had a small oilfield out there. So 2 Canadians and myself . . .
- BC: What were the names of the other 2 Canadians, do you remember?
- JW: One was Willard Kemp, a Calgary engineer. And I can't remember who the other one was . . . Reg Wilson, yes, he was a local boy. I worked with both of them in Turner Valley and then ??? we land in the same place that they were.
- BC: What jobs were they doing?
- JW: Willard Kemp was the engineer and Reg was a field roustabout. The labour we had was local Arabs. What I liked about them, once you taught them how to do anything, that's the way they did. They didn't sluff or anything. If you showed them you wanted it done exactly so, they did it that way and that was delightful. Because you had to, we used to say, if he gets trained wrong we'll just get another one, don't try and change it.
- BC: They were just starting their oil. . .
- JW: They'd come right in out of the desert with nothing on, just kind of a toga, no shoes or anything. Once they got making a few. . .by the way it was Indian type of coinage, anas you see, they'd get a few anas a day and they'd start buying tea and coffee and stuff they'd never had before and then they were spoilt. They were stuck to work for the rest of their lives. Before that they could live on just the desert.
- BC: They were nomads.
- JW: Oh yes, there were nomads there, even though it was an island, there's quite a few nomad camps around there.
- #038 BC: The government was just really developing its oil industry there at that time were they?
- JW: The oil was found there about mid 1930's. Then the war came along right after that and what they did was secured all the wells and just used a little bit. In fact the Italians ran a bombing raid over there one day, the longest flight a bombing raid had ever had. But it didn't do any damage, just scared everybody to death. So it was a very critical area. If you read the story of Saudi, it was the same thing. They had found it and they were trying secretly to get it prepared and. . . But anyway. . .
- BC: One of your jobs would not only be to do the job in the production, but to train the native Bahrain people so that they could then, not necessarily take over your job but certainly do the. . .
- JW: Well, that is the policy of the company, train up the local populations as fast as we could.

So before I left they were getting into schools and all that. But starting from scratch we were lucky to get 1 or 2 boys that had gone to school in India or something and could understand pretty good English.

BC: How would you communicate when most of them wouldn't speak English?

JW: Well, the Arabs couldn't at all. But the odd one, like I say, like my foreman, he spoke pretty good English. And I went and took it, I never did learn it, but I learned savvy a little bit, so I could talk and tell them what to do. Which brings up an amusing story, one day this fellow, of course, I was friendly with all of them and ??? marriage. You know, they'd each have 4 wives, if they had more than 4 the Koran said that they were greedy. But most of the coolee??? were lucky, you had to buy your wife by the way, you had to pay as much as \$100 and some of them would starve themselves getting equivalent of about 20 cents or so a day. It would take a long time to get enough money to buy a wife. Anyway he was talking about a marriage and I couldn't make out so I asked, what was all this about a marriage. He said, oh, he was getting married again, I said, he can't, he's got one wife already, he can't afford another one. How come he can buy another wife. He said, oh, he's getting her cheap, she's second hand. But they did buy their wives and when you ???.

BC: Did you find this, having to learn the native customs, was this part of what you were expected to do too, and respect the native customs?

JW: Actually there's quite a cultural shock at first. You were just frightened to go anyplace. But after awhile it was just as routine, in fact I felt safer than going on the streets in Calgary here, down those back alleys. And when my wife came out, the kids, they just took it like duck to water. They'd just wander around those streets. Even saw our little daughter getting down with one of the weavers when he sits with his feet in the pit and she'd get down and see how he was working the pedals in the pit and all this sort of stuff.

#076 BC: A marvellous opportunity for the children.

JW: Oh, it was the greatest education.

BC: Now you went there for education for yourself. So how. . .

JW: Very much so. It was the greatest thing that ever happened to me.

BC: Why do you say that?

JW: I had worked many years in Turner Valley. I was pretty smug that I knew what an oilfield was and I knew quite a bit about it. I wasn't over there one day till I found I knew very little. Things were so much different, the wells were tremendous, the conditions, there was nobody to turn to. If you wanted to get approval to do anything you would have to, we had a manager you see, go through him and he ???, he'd have to wire New York and wait. Then there would be an argument about it. So you kind of circumvented that and did the things and then told him about it afterwards. You have to, you can't just wait for things to happen. It ended up that I found by a lucky way how to work with this guy. He was one of those real tough nuts that everybody hated because he'd cut you to pieces. But it was just because you surprised him with something, you gave him a chance to think about it, ????. So I had a ball.

BC: What was the name of your manager there?

JW: Godfrey, he's dead now.

BC: Was he from Canada or America?

JW: No, he was English I think originally, but he'd worked in Trinidad. He had some sort of a technical education, I don't know what it was but he was the manager of all our production operations there. Quite a grand guy but just difficult to get along with. And the drilling crew were American drillers, they were experienced. They were an excellent crew, knew their work.

BC: How far were you drilling before you hit oil?

JW: Bahrain Island is a dome pushed up from something underneath. It has a classic rim rock, your husband will know what that is. The highest point in the island is the relics of the centrepiece,, ??? hill, so this was the ??? in the centre of the island. This was some kind of an oval shape all around it and the edge of the field was out where this rim rock was. It had eroded over millions of years. As you drilled down you didn't go more that 2 or 3 thousand feet before you started hitting coral zones. There was various ones all the way down, we don't know how deep it went. Before I left they had drilled quite deep and it was quite difficult because the pressures were tremendous, the volumes I guess down there were tremendous. And the temperature is so hot that the mud from drilling, turning, would scald you. So that you had to be very careful that you didn't get scalded. But the oil zones were above that and they were very prolific. But we had secondary recovery and all that stuff, it's another story. But anyway, the way I put it simply, I grew up there. Before that I thought I knew something. I found I didn't and I learned a lot.

BC: Is this why you stayed the extra time, because you stayed certainly for 3 tours I guess?

JW: No, 2. The first one it should have been 2 years, it was over 3. Because the boss that I mentioned, Godfrey, took ulcers and they asked me to stay over another year because he wasn't in shape to work and they didn't want to lose all their people.

#117 BC: So you really were on your own then, making your own decisions?

JW: Well, the engineer. But he wasn't quite active in my line, he was helping the other angle more. As the years went by we did get other staff but while I was there they never did catch up. We had green graduates come out from England and they had no chance at any experience. We had to teach them how to drive a car on the left side of the road, the English type of thing. But you know those boys were highly educated technically and that and gee, they really took hold after they got the chance. So it was just 2 strikes against them, not knowing what it was all about, just the theory but they got a chance out there and they did very well.

BC: What schools would they come from?

JW: Universities in England. Of course, remember they got their schooling in the war years, it was just right after the war so they had some terrible conditions there that they went through. And there was an awful lot of the women staff were senior ladies, they didn't have much future in England because there was such an excess of women there that they came out and quite a few of them got husbands out there too. So I guess it was success for them. The competition was awful rough in England after the war, for any man that could walk.

BC: I'm sure. So when you . . .

JW: They were from Scotland and Irish and we developed some very good friends. There's a letter here today just came from one of those Irish girls, still a great friend of ours.

BC: Is that right. So with your travels of course, your contacts in the oil patch expanded tremendously too.

JW: Oh yes. But another thing, Bahrain had the biggest conglomeration of nationalities and none of them dominated. The general manager of the company had started out as a bottle washer and worked his way up. That was the philosophy of the American companies. Up the way a little bit in Persia, you started out different, you had to be the son of somebody and you had to ??? to a certain thing if you were in a certain group. And from what I heard, across in Arabia it was, if you were in a certain wage category to go in a certain group. We had none of that. Even the local labourers called Russ Brown by Russ. There was no class distinction, it was a marvellous place.

BC: That's very unusual for foreign service in the oil patch because usually there is this strata that you move through.

JW: This was a lovely place, there was just no strata at all.

Mildred: [And we had every nationality, with maybe the exception of Chinese or Japanese.]???

BC: Is that right?

JW: Yes, it was tremendous what we had there.

BC: Why did you decide to come back?

JW: This is getting in a little deeper. I got dehydrated there. Now at that temperature I would drink all I could, take a gallon of water and most of my time I was out in the desert all morning supervising something or doing something. By noon the water was all gone and I was thirsty. Without realizing I let myself get dehydrated so bad that I developed some sort of urinary infection. They brought me into the hospital for awhile and when we came back it was still bothering me, that was in the first leave, I came back in 1950.

#165 BC: On your leave, did the whole family come back?

JW: Well, there was just my wife and 2 children, we came back. And when we got back here, looked around and decided, if I went back, with the family getting into university and that, they'd be spread all over the world. I mean, by ??? Canal or Beirut or somewhere, going to school. And even though I got, in those days, tremendous wages, because there's no income tax and you got a living allowance as soon as your family came there, as soon as you moved out of the cookhouse sort of thing, then I got a living allowance which was ample to keep us going and a lovely home to live in. So actually, you could save all your wages. So it was very lucrative. I came back with enough money to buy a home in Edmonton in 1950 and I went over practically broke in 1947. Other people, some of them didn't even have enough money to come home because easy come, easy go, they blew it with these big parties. But I never did go for that stuff. But anyway, when I came back I still didn't have my strength back. Rather than face not having my health properly back, I was in the hospital and I was home here getting cured up, rather than face that I decided that better I go back another 2 years. So we bought the house in Edmonton, got all the

family into university, my oldest son was about to join the Air Force because he didn't see any sense him going to university and me over there. So he just took it right off at the chance to live at home and go, so he went through and got his engineering degree later. But anyway. . .

BC: Did you feel that being down in Bahrain Island, with this problem, was better there in the drier climate?

JW: No, I just learned to drink more. I just hadn't bothered and the doctor insisted, in fact he used to take a glass of water and put it beside my bed. So I woke up in the night I drank more. It was all just a chance to flush yourself out. I used to be able to play 6 or 7 holes of golf in the evening there and lose 10 lb. of weight, just wringing wet all the time.

BC: Is this the way most non-native people reacted to the climate?

JW: No, because most of them would drink a case of beer in the evening so they kept lots of fluid. I'm practically a tea totaller. And I got this infection, which I thought I was cured of but if you want to listen to anymore of this later on there's more of it. But anyway, I went back for 2 years. She looked after the house and when I came back then it was a case of, quit Bahrain or else split the family up for good. That wasn't very attractive. She was doing such a whale of a job looking after it, better than I would have if I'd been around. Anyway, I resigned and I went back to Socony and talked to them and they remembered me and gave me a job right away. So I came back to Canada here.

#212 BC: What was the job you got with Socony ?

JW: Production foreman.

BC: Production foreman for where?

JW: Actually out of Edmonton. But they'd found oil in Saskatchewan, at Dewhamel???, which is southeast of Edmonton. And I did work both in Saskatchewan, I was based in Edmonton.

BC: As production foreman what were your duties?

JW: After the wells were drilled I was responsible for putting all the. . . we had contracts to put in equipment but the operation and techniques and so on, looking to see that the oil was properly handled. I had quite a few employees under me. But being in Edmonton, based there, I had the whole northern Alberta to look after. One day a fellow I knew in Calgary, I met years ago, was head of the drilling, drilling superintendent for Socony . He told me that they were going out west of Edmonton to stake out a new location, would I go along. So I went with them, and we staked this location in the Drayton Valley area. It was quite cold and snowy but we got out there and. . . We actually didn't stake it, they went to see where it was.

BC: Did they have the property at this time?

JW: Well, they knew it by section lines.

BC: Yes. They didn't have the drilling rights or anything like this at this point?

JW: Oh yes.

BC: Oh, they did have?

JW: Socony had a big reservation there. They earned a big tract of land by drilling this one well. They earned 50% of an enormous tract, you never see them anymore. Anyway, they

had to drill to the Mississippian formation to earn their rights. And we couldn't walk into it because it was heavy timber, I have pictures from there if you're interested. But we arranged with the Survey to go back out and mark it and I hired a cat to go and cut the road in to make preparation for well site. Without being there, I was kind of the local supervisor, the only contact they had up here except explorational geologists. Then when they sputted in I went out and took the place of a district engineer, whatever you call it. I ran the surface pipe and looked after that, and then they went on drilling. So I was right in on the ground floor. I have a picture hanging up somewhere of that, that I took that day of the bunch of us there, gone away out with my little coupe.

#256 BC: This was not a proven area at all at this point?

JW: Oh no, it was a wildcat. I don't know how far you want me to go with this.

BC: What I thought I'd like to do, I'll just stop it for one second.

JW: Well, while this was going on I was working this Dewhamel field, doing dual completions. Which I was back in the kind of work I was used to doing, well work with rigs and all that. When I came back Socony as it was called then, didn't have a way of setting up programs. I had learned that in the Middle East, I could do everything so that you know what you're going to need and when you're going to need it and when you're going to do it. So I started out setting these programs out. By having everything pre-arranged we did 6 of these dual completions, just tic-tac-toe, without a single miss run. It quite startled some of the service companies because they'd never hit anything like that before. Well, it was routine in the Middle East. You planned what you were going to do and then you did it. Of course, out there you had to be darned careful because there's such pressures and volumes. Anyway, I actually wrote that up and it was published in a magazine, you could arrange if it's available.

BC: Perhaps what I'd like to do, from your magazine article, perhaps get some of the particular details and put it on the tape with you telling about it, which I think it. . .

JW: Well, maybe we should do that another day. But after the publication of that, I heard very little except that I heard some time later that it was being used, this article, as a text by the people that made the equipment, the Baker Tools and all the other stuff, to teach lessons. They'd use this article. So I felt pretty good about that. I kind of got the recognition indirectly.

BC: I should think so. You've really pioneered in so many ways. I think the fact that you are one of the very few professional engineers who did all your studying away from, you took some night courses but you never had any formal engineering courses.

JW: I've no university at all.

BC: That's very unusual.

JW: Of course, I regret it but. . .

BC: Obviously didn't need it.

JW: No, it's kind of interesting, not having that, quite often now I'm telling PhD's what to do. Because I had 50 years of practical experience. And they have everything but the practical experience. That is a later story though, where it has paid off.

End of tape.

Tape 2 Side 2

JW: . . . she was born in September 1925, 24th of September, 1925. Our son was born in August 1929.

BC: That's the first son and his name was?

JW: Alec. Chris, our second one was born, well, Christmas time, 29th of December, 1932.

Mildred: That was the year we left the Peace.

JW: Yes, 1932. Then our third son was born, I forget the date now, in 1936, June 28th. And our daughter was born '38, 2nd of November.

BC: There was another little correction that we wanted to put on the tape about the actual time that you were at Bahrain. Originally you had said 6 years but then. . .

JW: The actual correction was because we always count the summers, the winters were nice, we didn't count them at all. But out there it was the custom to refer, not to the summer but to the date season. So if you were getting rather hard to live with, or if somebody else was hard to live with you'd say, that guys been out here too many date seasons. So really, you might say I was there for 6 date seasons.

BC: Were you getting hard to live with by the time you came back?

JW: No. But we came home on vacation in 1950, so I had part of a date season that year. But I went back for '51 and '52 because it was October when I came home, '52.

BC: And in January of '53 is when you went to Socony . Who hired you at Socony .

JW: After having been approved to go to South America as soon as I came back, I contacted Socony . They had the record or remembered me. Just at that time they had found, not only the oil in Dewhamel but they'd found some prolific oilfields in Saskatchewan. So they were pretty desperate to get people with practical experience. Otherwise I was rather too old for them to even hire a person that old. Anyway they put me right to work as a production foreman.

BC: And who hired you, who was your boss?

JW: Mr. Len Stevens.

BC: So do you remember anything about Mr. Stevens that perhaps we could . . .?

JW: Oh yes a lot. He had worked in different parts of the world. He had actually visited us in Bahrain but I hadn't met him. He had seen some of the things we were doing out there, they're too technical to explain here but he had come back and told them when they were in difficulties here, how they did it in the Persian Gulf. They wouldn't believe him but they went ahead and did it and it worked.

BC: So you were really coming into a company that appreciated that practical experience which you'd had.

JW: Oh yes. Mr. Stevens had worked in South America and different places and travelled a lot. He went way up the ladder afterwards. He was transferred from here to take over one of the major portions of the operation in the United States. Now he's retired and lives in California.

#040 BC: What did he look like, was he a tall man, short man.

- JW: Fairly tall, well built. I don't mean he was fat or anything like that.
- BC: Was he American originally?
- JW: English. He went to school in Birmingham and I think, probably was an honours student. He was very brilliant actually, 2 things, brilliant and personality to go with it.
- BC: Can you think of any anecdotes that involved Mr. Stevens, that we should perhaps take note of?
- JW: You caught me short there. Not at the moment.
- BC: If you have some, perhaps when we go through the different ones you've worked with. Now, you were the production foreman, who were you working with when you first started? Was this when you started working with Arnie Nielsen?
- JW: Yes. But a big company has divisions, there's a producing division and the exploration division. The geologists like Arnie, who are in exploration. And there's 2 separate guys at the head of the company, the head of production, the vice-president of production and the vice-president of exploration. Arnie worked in his side and they had to do all the exploring you might say. When they got to a certain point where they needed a certain type of expertise, the production people helped them out. So the Pembina discovery was an exploration well and I, as the production foreman, had no business in interfering I'd say. But it turned out that the engineers were short staffed at that time, and rather remote from it. So I did do the completion. And since it was my idea the engineers were glad to let me do it.
- BC: Let's talk about Pembina because this happened not too long after you came to Socony . Was it in June of '53?
- JW: Just in the few weeks after I started with Socony , now Mobil, the drilling superintendent for all the Socony operations called me from Calgary to say that he was going out way southwest of Edmonton, to stake out a wildcat location. Would I go along because I was working, based in Edmonton you see. They would probably have to get a cat to clear the timber and all that. So we went out there in 2 cars.
- BC: What was the name of the . . . ?
- JW: Ted Thurston. So we went out there in 2 cars with a surveyor and an agent of the company that we was thought was going to be the drilling contractor, actually they didn't get it after all. We went out there and found it was bush country, timber country, logging country, but there were some road allowances open. With everything being frozen we were able to get right along the side of the land on which the well was going to be drilled. All we had to do was look it over knowing that 600' back in that bush was the location. So we commissioned the Survey to stake it out, the right position. I hired a cat to go out and clear the well site and get the ??? ready and that's about all I saw of it until the rig was put up, by a drilling contractor called Reging and Dates. When you're drilling a well you go down a few hundred feet and you have to set what they call surface casing, quite big casing to protect all the water zones up on top. So they sent me out to supervise the cementing of this surface casing, which went very well. Then they started with a smaller bit working inside that casing and drilled on down.

#088 BC: Did you stay out at the . . . ?

JW: Oh no. I went back, working on some dual completions at Dewhamel. The prognosis, what they call it, what the geologists make up, required that they watch for the Cardium formation and if they found any oil stain in the sand, to take a drill stem test. The well site geologists name was Fred Trollop, and he was watching for it. But at the rate they were drilling they were probably a little bit past the actual zone before he picked it out of the samples. But he shut them down, they took a drill stem test. As you see in here, they got nothing but a small rise of mud and about 1 pint of nice clean oil. So they saved that pint of oil and brought it in to Edmonton. Of course, everybody found that oil all over the country and nobody paid any attention. I put it in the little sealer, I don't know what size, maybe a pint or a quart, took it to Calgary and said, here's our next oilfield and I left and went out of the office.

BC: What made you feel this was the next oilfield? What were the things that you could see that others didn't really?

JW: Well, I knew about hydropacking, I'd had my worldwide experience. I knew the design for the Cardium was such that if you could get a channel broken into it, it could weep into the channel and flow. Now there had been about 30 hydrofrac jobs done. They called it hydrofracking, now we call it sand fracking, in Canada. I don't think any of them were successful but they did it in the wrong kind of place and when the thing broke down the formation it broke it down into water. Therefore the thing was condemned. But in Pembina, it was between good tight shale and no sign of water that we knew of. Now in looking back it was really obvious but at that time it was condemned without even a trial.

BC: But they did do it.

JW: Well, I told Arnie Nielsen about fracking, he'd never heard of it. So when I explained it to him he was all for it. So he went to Dr. Spivac who was the head of his exploration department. I did not work for the engineering department, I worked directly under Stevens. So I phoned him up and suggested that we try a hydrofrac. Because I told you he was world wide experience and that. And he approved. We had no support from the engineering, it was a very unpopular decision. Even some of the geologists, one person who's now very famous as a professional consulting and engineering, teaches engineering, he even wrote a memo that it shouldn't be completed. So there was a lot of opposition.

#126 BC: How long did it take to get the okay?

JW: Well, when you get the 2 top bosses to okay it the rest couldn't do anything about it.

BC: They could just complain. And wait, hoping that you'd fall on your face perhaps.

JW: I said, there was a dotted line around my neck waiting to be cut. And it could have been. But it turned out that it worked. Do you understand what hydrofracking is?

BC: I would like us for the record, to put it on, just what you did.

JW: The easiest way to explain is, after it was a success and we had a booming field, about 6 journalists from worldwide papers came on a term. And when I mentioned about fracking wells, hey guys, what are you talking. So I picked a little pocket book out of my pocket and I said, see, if you can imagine the formation laid down in layers like this paper, they can understand that. Now if you put pressure on it, see what happens and I blew into the

edge of the paper. Of course, the paper spread, now, if you stop pumping it shuts right down. Now suppose you had crumbs or sand or something and I also blew it in there. Oh, we understand.

BC: Ah, a very simple explanation, of course.

JW: Yes, and they could understand that where if you talk about fracturing the zone and putting sand channels through it and all that sort of stuff.

BC: Why did you feel it was necessary to do this at Pembina? What was right about the formation there that made it work?

JW: We had found Cardium many time, even Turner Valley with the old cable tool rig and it only weeped a little bit into the hole. Nice oil but just a quart or two a day, which is certainly not commercial. It is found in heavy shale beds and there's nothing, if you broke down it would just stay in shale. So the laminations??? and stuff suggested it would go sideways if it could. So it's easier to explain in that respect. It is a natural, there's a lot of places you wouldn't be able to try it, it would damage the well and just ruin it. But in those days, since it was new and untried successfully, it was condemned out of hand. And justifiably on all the evidence. There was older than that work around luckily.

BC: Which is really what the oil business is about isn't it?

JW: Oh yes, I've seen that quite often.

#158 BC: Now was this the well that you were telling me before, when we were just talking, before we started to tape, where the oil kept sort of coming up fairly flowing, a little more than they were expecting it to and that's when you . . . was this the well?

JW: We had practically nothing after we ran. Let me give you the chronology of it. The well went to total depth and they found nothing down there, ??? water in the Mississippian. So in line with the approval we already had we sent a string of casing out to go just below the Cardium. While the big rig was still there they ran that casing, cemented it and it was just about break-up in the spring. So they got Schlumberger out there and they shot the holes, which brings up an interesting. . . The engineers in Calgary said, you're to shoot here because if you shoot higher up on this thing it is gas and they showed me on the log where it was gas. Of course, I don't know anything about logs so [I'm a believer]???. So we shot it in the lower part and it only made a few gallons a day. We swabbed it and I was working at Dewhamel and they didn't have an engineer on the job out there. So they phoned me up to go over and see what was going on and send in a report. I got out there and we ran a swab or two and that was all that it was. It was just about breaking up and we had a great big ring in there and if it ever broke up it would be freeze up the next year before we could get it out. So I phoned Calgary and said, we've got to go ahead with the frack, we won't have time for this work if break-up comes. I'd like to release this rig and just bring the little service rig over after the roads dry up. Okay. So I released the rig and they started pulling it out, I got most of it out of there. The well was left shut in. We went back in in June with our service rig and completed it. That's another story.

BC: Let's have that other story right now, we can just have it all together.

JW: As soon as it got so we could move in light equipment with the engineers ??? Calgary, I

sent the wire line equipment with a pressure bomb over. The pressure bomb is an instrument you run into the bottom of the hole and it records on a chart, the pressures down there. So Harold ??? was running the tool, he was a helped, he went over there, tested it, no pressure. So he took the top out, looked in, it was the emptiest well. He thought, how stupid to run anything in here. So he ran the bomb in on a wire line, he could feel it hitting some fluid down the hole, took his test and pulled it out, shut the well in. And it was getting late at night and he didn't want to start out for home, which is a long way across country on bad roads. So they took a screwdriver and took the window off the geologists shack, it was still there because a lot of the stuff hadn't been moved out. Slept all night and went out to rig up his equipment in the morning, he looked and there was several hundred pounds of pressure on the well. He thought, that's funny there was nothing there yesterday, it was clean empty. But he told me this and I said, that's nothing, when you ran through that ??? oil in there you just stirred up some gas and the gas leaked up and was under pressure. I believed it, even believed it myself. When we got the service rig out there I laid a line to the well, I had a little tank there and I opened the tank up and I got about 23 barrels of oil. What had happened you see, when you get oil with a little bit of gas in it, it was kind of stable, when it got up to the top under pressure and I took some off the gas below started to come out and it kind of moved a little bit of oil out of there. Theoretically I should always run the bomb first, I got kind of reemed out. But there was no bomb within 75 miles you see and couldn't keep the rig like that, in fact I never thought of it. Anyway, we started swabbing and we still got the same few gallons a day and we ran quite an exhaustive test. Now the engineers gave me a program which included the frack but first of all, I thought I should clean it up by putting a barrel or two of mud acid in. It's a special kind of acid to try and break down the gel in the mud. So we swabbed that well about a mile deep, swabbed it right to the bottom. We dumped, incidentally, the tubing had to sit with a packer on it so that we were just swabbing. . . I can't remember who it was had the packer ??? but anyway we swabbed it right to the bottom. Pumped the acid in, so the acid practically went right to the bottom, then we followed it with oil and built up pressure. And I set on the pump with the Haliburton man, who incidentally, is now quite famous. He was hurt in an accident and he's blind.

#241 BC: What was his name?

JW: Just a second, it'll come back to me, I know it quite well. Anyway, let me come back to that.

BC: Yes, that's fine.

JW: We watched it and the pressure went up about 1,350 lb. and then we got a little break. In other words the ??? were shutting down like that. I let that acid sit there for an hour or two, it was getting on into the afternoon, the we let the pressure off, it was still dead looking it seemed, and started up swabbing again. As we swabbed out the dead oil it was getting a little gassy. It was along about 5:00 in the afternoon, I told the crew to go on home, there was no signs of being an oil well. And Herb Runce???, who I'd brought over from Dewhamel to help me on the job because he had the most promise of anybody I saw out there for helping me out, he and I sat around there till dark. It being the 13th of June it

stayed light pretty late. About 10:00 at night, we heard a little noise, went out and here was a stream of oil running into the tank. We set up till about 3 in the morning, measuring it every hour and after it got light in the east I told Herb to just fill that little tank, it was just a few barrels, maybe 75-100 barrels or something. I got in the little coupe I had there and started off for Edmonton because I wanted to get the report to Calgary you see. Now Herb went to bed and of course, he knew it was flowing that much. The crew had all gone home, they didn't know anything about it, the neighbours didn't know anything about it. So I was going down the highway, I passed a little country school called Moon Lake, there was a wedding dance on. I didn't know it was a wedding dance then and as I went by the couples were just breaking up and coming out to get in their cars. Gee, the looks I got when I went by there you know, what the dickens was he going by. Of course, they probably knew the coupe from being around the area. I thought, what a change is coming in your life brothers, you don't know what's happened. And I got into Edmonton, I got on the phone and phoned Arnie that we had an oil field. He immediately phoned his Dr. Spivac. I phoned Len Stevens, got him out of bed, it was 6:00 in the morning or something and told him we had an oilfield. He said, one swallow doesn't make a summer, and I said this time it does. We said we could go ahead with the frack job so we had to get a couple of tanks built in there in a hurry. A few days later, I forget just how many days, probably in the next week we were going to get the trucks in there. Anyway we got the sand in too and it came in bags. Haliburton brought out 2 trucks, one to pump oil to mix the frack oil they called it, which incidentally was not diesel as it says in that little book there. It was a heavy oil we got from a place called ??? especially trucked in, a gooey sort of stuff.

#298 BC: It was a special grade of oil?

JW: No, it was a heavy oil, just a gooey sort of stuff, not diesel as it says in there in the little town of Drayton Valley book. It mixed by putting a ??? of this oil from one pump into an oil drum and Herb and I cut these sacks and dumped sand in, poured it in and let it mix with the oil. The man on the other truck ran a pump that picked that oil and sand mixture up and pumped it down the hole. I don't even know how much pressure it took to break but a little over 1,300-1,400 tops, because we had already sort of opened it up. We pumped that, nowadays it would be a very small sand frack, then we shut the thing in for several hours, what we call let it heal, let the formation get used to that pressure build up. Then when they opened it up, we didn't open it wide, we held it back about 20 barrels an hour. So it was quite exciting. So we filled up the tanks and it started to rain. It was so wet then till the end of June we couldn't get in there. We did haul some out, we had to pay a bill of \$1,500 to the government for road damage. Anyway, we had to leave it.

BC: It was raining that hard?

JW: You've never seen that country. It's practically a ??? of muskeg all the way along. The roads weren't roads, they were just trails. Any kind of a load just broke right through.

BC: How many days did it rain?

JW: I don't remember that summer but it was enough we couldn't test the well till September. Of course, the company was quite interested. We actually did drill a well west of Drayton

Valley and also one north of Drayton Valley. The one north of Drayton Valley we hit a very thin sand and we abandoned it.

BC: This was after this discovery?

JW: No, before this tested. Because for the simple reason, that if you having further studied the leases, if we'd completed that well we wouldn't have had to take the lease around it. But by the geometry of how you could take lease blocks, to fit the patterns, the greatest game of chess, how we could get the best grouping for leases. You see we were only allowed to take half of the reservation on lease. It was better to abandon that well and take a big block further south and we were lucky we did because the block we took south of that turned out to be a dandy. Where if we had taken that one we would have had a string of small wells you see. So it was a good judgement when they decided to abandon. But they did drill one west of Drayton Valley.

End of tape.

Tape 3 Side 1

JW: I had to take the position of district engineer to sort of look after these things. They were still kind of depending on me rather than send an engineer out of Calgary, which really, I was doing an engineer's job so I went out there. We had a very intricate kind of test to run on it but the test showed, without any fracking or treatment, that it had a natural flow about equivalent to what we discovered at the discovery well. So that really opened people's eyes, they were ready to really go then because this was many miles away from the discovery well. Of course, we knew from the geological picture that this cardium sand stretched for miles and miles. In fact, they've proven it over 100 square miles now. Not always quite continuous as the shale breaks but it's just enormous, I call it one field in a sense that it's the largest probably in North America.

BC: It must have been very exciting for you to be in at the discovery. Can you remember how you felt?

JW: Smug. I was a little bit, I can see it now, a little bit obnoxious because I had just come back from the Middle East where if I had to do anything I went ahead and did it. I can't say that big companies like that too much, they like to tell you what to do from town and then go out and do it. I was in a little bit of hot water one time from gravelling a road without ??? but they passed that up afterwards and forgot about it. It was a little bit dicey, but when you had to do things, go ahead and do it. I got my head shrunk down in time. At least I pretend it is, it's still pretty swelled.

BC: Who else was there when the . . . was Arnie Nielsen, had he come up by this time . . . ?

JW: No, I think as soon as the drilling was completed Bert Trollit??? was moved back to town and there was another engineer there for awhile. They sent me over to replace him and except for Herb Runce and I, we were Socony . There was nobody else around. Because the drilling contractor was just . . . and the little service rig crew was just . . . well, they worked for Socony but I mean, they weren't, you might say, production people or anything.

BC: It was still called Socony at that time?

- JW: Yes. Socony Vacuum. I think one of the reasons they changed it, too many people stopped and asked if they would fix their vacuum. Do you know why it's Socony Vacuum?
- BC: No, let's put that on. . .
- JW: Do you want it done now?
- BC: Yes, indeed.
- JW: Well, 1911 I think it was, when the Standard Oil Company was broken up into many parcels. The Standard Oil of New York, which spells our Socony was left with a service station type of operation. No production, no nothing, refinery or anything. So they were smart enough to make an alliance with the Vacuum Oil Company, that had the famous lubricating oil called Mobil Oil. That, they really went to work, they went into the Midwest States and bought the Magnolia Company and built it up to a large organization and then they went to the west coast in California and got General Petroleum they built up to an enormous organization. And in 1926 they started going ???, oh and by the way they changed the name along the way 2 or 3 times to end up with the final name of Mobil, in the name of the famous oil.

#042 BC: Did they change the name while you were with them?

- JW: Yes. But to Mobil Oil Canada, Mobil Corporation. Now I think the last fortune magazine showed them about the 4th largest corporation in the United States, which is sizeable.
- BC: Indeed. After Pembina, I presume that you stayed working in that field, did you?
- JW: Yes. Somewhere along the line, I don't know when, they changed my name from production foreman to production superintendent and they had a northern Alberta division. So I had Pembina plus all the other operations and I was based in Edmonton. Later they gave me a field superintendent to put out at Drayton, mostly to look after the drilling. There was enormous drilling, an awful large crew of civil engineers, building roads and all that stuff. But the geological end was still handled out of exploration. And the engineers was really handled out of Calgary, although I had a district engineer sitting in the next office to me. But there was an enormous amount of road building to do and we used to tramp that country a lot, looking for likely locations. But I did not live in Drayton Valley. We set up camp out there, a cookhouse and all that, it was a very nice place to eat when I went out there. On top of that I had my wildcats. One year we drilled 210 well, you can see the size of the operation.
- BC: In Pembina or all over in the northern part?
- JW: Well, it was 95%, just the odd one somewhere else.
- BC: That was pretty big. How many drilling crews were you hiring at that time?
- JW: First of all we had, Ted Thurston I think I mentioned once before, he had a very good organization, the drilling people were fantastic. But I'd just come from the Middle East where it was doggone ???. I told them if they were slopping around like we'd seen at these blow-outs, we'd get another drilling contractor. So they had the law laid down to them and they prevented having blow-outs and stuff. Because I'd seen too much in the Middle East to take that risk. And we've seen quite a few blow-outs now that could have been prevented if they'd been more strict, I think.

BC: When you say more strict, what does that entail?

JW: Well, they have a lot of equipment on. It used to be, before Pembina, that if you had the hole full of water it was perfectly safe. But Pembina is higher pressure than the natural weight of water. I found that out from the first pressure on that well. I did some calculation that if you filled that hole with just water, the formation would hold about 400 lb. on the surface. So therefore you had to have heavy mud to hold it down. I warned them all that they had to keep that mud . . . and they had to keep these blow-out preventors. If anything went wrong they could shut anytime, frost or not. And test them every day. And we did have mud start out of the hole one time, just a little bit light. We just shut it off and there was no problem. But if there had been a few people around that weren't used to that and they didn't bother about it, then there's blow-outs. There were several bad ones around the province, I'm not talking about the recent ones. So they did get an education but they weren't used to over pressured ???.

#085 BC: Most blow-outs are preventable with care?

JW: Well, are they?

BC: I don't know, I'm asking you that.

JW: Well, we drilled out in the Middle East where the pressure were terrible. But when you're prepared you can handle it but even there they did have accidents once in awhile. Especially up in Iran, it's unbelievable. But it's an entirely different thing, there's ??? over there and the pressures and the volumes are so enormous.

BC: After Pembina was sort of moving and doing, were you still always involved with that part? Because being the production, then you would have the other worries about what do you do, how do you get that oil from the wellhead to somewhere.

JW: I had to truck, for the first few months we had to test those wells, and before anybody would build a pipeline in, so we had to truck it. First of all to Nisku to test it and then the Trans Mountain Pipeline was being built as Pembina was being discovered. The first place they could put a connection on was at a place called Granner??? or something, out say, half way to Edmonton. So they built a tank there, Trans Mountain Pipeline did and we were able to haul to that tank for awhile until Pembina Pipeline was organized and built. It came right through to the terminals at Edmonton.

BC: Who was it built by, by Mobil?

JW: No. Mobil started out to build one and then we ran foul for some reason or another so we lost it, Mobil apparently wasn't in the pipeline business so we lost that. Pembina was a branch of the Mannix Company built it. They had a tremendous complex, many hundreds of wells to connect up on that.

BC: How many wells would you estimate were drilled in the Pembina field?

JW: It may be in the records somewhere but it must run into the thousands. I know I put one unit together out there, with I think, 580 in it and that was only just a fraction.

BC: You mentioned putting one unit together. This is unitizing which you became really. . .

JW: Could I go into that later?

BC: Sure, that's fine, I just wanted to make sure that we could put it here or put it later when we finish this part.

JW: It was a kind of sequence of events that's rather interesting to me. But anyway, I had all this massive paper, I used to go down early in the morning and sign all these trucking tickets and everything.

BC: How many trucks were you using a day?

JW: I don't know, dozens of them I guess. They were getting the roads built and all that stuff. Our building crew was enormous, our road construction was just unbelievable. The ??? we had to do and the laying out and the batteries we built and all that stuff.

#122 BC: And it would have to be done rather quickly.

JW: Yes. It was dollars. We had a very nice drilling system. We'd schedule, say, 200 wells. It didn't seem to matter much where we drilled, we drilled outpost wells to prove it was there, jump out 4 miles at a time. So we had a pretty general picture that there was just about ??? down the field but other than that, so it really didn't matter. We just tried to drill them up and we gave the contractors a group of wells to drill. Then we prepared the sites in advance, so the contractor knew where he was going to drill next. So that he would pre-prepare, while he was finishing this well, he was pre-preparing the next so the moment this one was through he was halfway over there. They never had it so good.

BC: What an assembly line.

JW: It was a real going concern.

BC: Why was it necessary to do it that quickly?

JW: Money. I mean, if you're going to do it.

BC: But this wasn't always the way in oilfield. . . was Socony Vacuum needing to get the money from the production, were they sort of in a bind?

JW: It's a big organization, it was a field to drill up. The logical way is to do it on a mass production basis. So I think we had 14 rigs running all the time. I'm not sure they were all in there but I remember I had 14 rigs running at one time, all contract rigs. We had our own rigs somewhere else doing special work, in Saskatchewan or up north or someplace. Anyway I had nothing to do with that.

BC: By this time Socony had had to give back, I presume, certain. . .

JW: Yes, they could only take half the land in leases.

BC: Right. So who else was in there.

JW: The government started selling the in between stuff. Every man and his dog. Amoco moved in and got a lot, Texaco took . . . there was a big area came up for sale just west of Pembina and some of it went we thought, for outrageous prices. It turned out to be quite nominal prices and Texaco got in there.

BC: Like outrageous prices, can you name a figure, can you remember any of them?

JW: No, I can't.

BC: It would be interesting.

JW: But you see, we got ours for drilling a discovery well and earning it. So it's probably the cheapest big spread that Socony even got. But they did go out and buy a few parcels at public auction you might say. It was all Crown land on that side of the river, there was no free hold except once in awhile, up north, you'll find some places, once a trading post had the rights. But pretty near all north of Saskatchewan River is Alberta Crown land,

practically all of it. Now you get this side, you get CPR and Hudson Bay and all the rest of it. But on that side we're dealing practically only with the Crown.

#162 BC: That would make it simpler in some ways wouldn't it?

JW: Yes. And another thing, I lived in Edmonton and my kids went to school with some of the Directors families, Premier Manning just lived down at the corner. Not that I ever knew him but I got to know him and they got to know me and that helps quite a bit. That's still a wonderful relationship, I can call them up there, those have all moved on but I still kept the relationship and it's nice that they call my wife here sometimes and ask where I am. I've got 2 or 3 of them up there that still do that. It gives me a warm feeling to know that I have that rapport with them.

BC: I'm sure. After Pembina, is that where you concentrated most of your effort in the next few years after. . . ?

JW: Pembina started out as a branch of the Edmonton office. That was in '53, in '54, in spring we moved in a lot of drilling rigs. I think the worst years in the floods came on. If I remember right it rained for 68 days. A lot of the people, we even got a doctor to move out there to look after them, that was one of my chores. Work on getting a hospital built and then getting a doctor to. . .

BC: A hospital, would that be like just a 6 bed hospital, something like that?

JW: It eventually grew into quite a little thing but of course, it was one of the things we had to promote, but mainly to get a doctor. You get lots if you built a clinic and had it all ready. This fellow was an English doctor and he took a chance to go out there. But what happened right away, nothing moved. You couldn't get in except with a cat in some places. So it was just terrible all summer, it wasn't till the fall came, so we really lost that year. Then as soon as the fall came we started to get roads built and all that. We couldn't even build anything in that mud.

BC: Once that muskeg, I would think in the summer you would get a lot of mosquitos and black flies or whatever.

JW: Yes. Have you ever worked around muskeg?

BC: No, I have not.

JW: It is peat mostly, on top, which acts to hold the moisture. And you can get muskeg on top of the hill???, all it needs is a place that it cannot drain away. This peat moss on top holds the moisture and underneath it gets a muck. We didn't have any of that stuff west of us but somebody found a place that you could put a pole down before it hit bottom, through this muck, 90'. I guess they put tubing or something down. But we had lots of 10-15-20'. You can't go into a mud hole like that. But we did develop a way to work in it but that's another story still.

#203 BC: Well, let's have it, how did you develop, what did you develop so that you could work in it?

JW: Have you heard of directional drilling?

BC: Yes.

JW: Well, they had great plans to drill out beside a muskeg and end the hole up under the

muskeg. Whoever designed it didn't realize that some of our muskeg was several square miles. But anyway, this was a nice theory for small muskegs. But I happened to be driving down the road one day with my civil engineer and I saw the government building a highway, or a road you see. They had a ball pit and they were taking dirt from that and pushing it out in front of a cat onto this muskeg and then they pushed some more. I said, what are they doing there and he said, they're floating a road across that muskeg. I said, what do you mean by floating, oh he said, if they get 2 or 3' of clay on there and get it packed down it will carry any ordinary traffic. We're driving right down the road, if you're ever out there with me I'll show you where it is, right down the road, right beside the muskeg. I knew we were going to have to directional drill on it and I said, I wonder if we couldn't build a similar thing, like a pad in the summer time and then in the winter time, after it's frozen, drilling it. So I called up and proposed it to Calgary to get permission to try it. They said, try it. So I got the engineers, actually the construction people to work and I got hold of our drilling superintendent, who was a very expert person and I said, now, you tell us how big you want that so that you can handle it without wasting any time and what you're going to do about it. So we built it the next winter and moved in there, without any problems to the well. After that, nobody ever drilled a directional hole. But we did have one area called block 3 that was just unbelievable muskeg, just as far as you could see. We drilled one well right on the edge of it, one spring just before break-up and found there was oil out there. The winter before we'd had the crews out there going punching all over this muskeg and plotting on a map, where the thick and thin was. The civil engineers then designed a system of roads to the wells. After we proved there was oil there, they got in there with a drag line, do you know what a drag line is?

BC: Yes, indeed.

JW: And they pushed the ??? and dug up the clay from underneath and built a road just big enough to carry this drag line along and drilled it through. And built up these pads and then along about February, I forget now, that must have been either '56 or '57 by then, we got every rig you could get and moved them all in there, drilled everything up and got them out of there before break-up.

#247 BC: That must have been quite an organization too.

JW: All that took organization.

BC: I'm sure you had a long suffering family, you were out there most of the time.

JW: No, I was busy at the office down in Edmonton, but out there when I could, mostly on the weekend. But anyway, I haven't been out there, I should go out. But a friend of mine who has got the same day, ??? he's done the same thing out Lesser Slave Lake, but he said he'd been out there, he said that muskeg is practically all gone, it's turned to grass. All the muskeg seemed to need is to get a drainage point and the water level goes down and it changes its form. With all the roads we built out in Pembina, what used to be just muck all year, those ditches and roads, they let the country drain off and it's quite lovely farm land out there. In fact, I had a farm out there.

BC: Isn't that interesting.

JW: So that kind of country can change its format, from that muskeg to . . . It will even grow decent grass after the water table's lower. But as long as the water table is held up there it just proliferates.

BC: After Pembina was going, what else did you do with Socony? You were with them quite a long time.

JW: We had some wild cats to drill and one of them was up in the Whitecourt area. I was active in looking after that but it was a different kind of formation. Didn't hit much but while we were drilling that, just to the north of us, I think it was Home Oil found the Beaver Hill Lake reef. So we did some calculation, at least the drilling people did and said the rig was big enough to go on down and test this lower stuff. So we drilled it down and found this Beaver Lake zone in the Whitecourt area. I had quite a bit to do to go up and design a road into there.

BC: How would you go about designing a road over muskeg, how do you do it?

JW: You pick the high ground. You wander around so that you keep away from all the muskeg. Then when you have to you float a road through the muskeg but that's very expensive. But you don't bother with a little piece, you can go right on through it.

#290 BC: You know, they say the engineers in the war and they used to have, what were they called, some kind of a something bridge?

JW: Daily bridge.

BC: Yes, did you use that?

JW: We had daily bridges. We had to cross a river or two. Not a river but. . .

BC: I just wondered if an adaptation of that type of thing was used in the muskeg at all.

JW: Oh you use ??? corduroy, cutting off the logs and dumped them in. You can realize then that the tail was wagging the dog, Edmonton was so darn big that it was getting too much for one district and too spread out. So they decided that they would bring in a man from Saskatchewan and put him right out in Pembina, right down there, and split my district into two. My district engineers were made district superintendent in my place and they moved me to Calgary, gave me the southern Alberta district.

BC: What year was that that you came to Calgary?

JW: Spring of '57.

BC: And where was Socony working in southern Alberta at that time?

JW: Wimborne and different places around.

BC: Were they in the valley at all?

JW: Turner Valley, no. Not that I know of. But they had a lot going on. Anyway it was a nice change for me and very fortuitous for me, because otherwise I would have had to gone to live in Drayton Valley. Not that I would have minded that at all, or stayed in Edmonton, it was a very small district. It was just too big for one person to give any supervision, with all this stuff, there was no way you could do it.

BC: So the family all had to move down, or some of them were on their own by now?

JW: Oh yes they were. I came down here and looked around and bought a home here.

#325 BC: Is it this home that you're in now?

- JW: No, it was on the north hill. Quite a nice home. About the 1st of July you came down, didn't you? Anyway, we moved down here. It had a nice sequence which is really why I'm here today. I might as well finish it now because it's further down the road. I was only down here a little while till they found that a lot of the agreements that they were entering into weren't operable. They decided that, while they had brilliant lawyers, the land people, they didn't have a vestige of field experience. They didn't even know how a well worked, how it was. So they tapped me on the shoulder and asked if I would go into joint interests. I thought how stupid they were. But when they explained why I understood, they wanted somebody with experience to be a catalyst. I found that those guys that I was scared of before were the grandest people to work with. All they needed was to tell them what was wrong with what they were doing and to find a way to do it. Out of that I got into unitization ???.
- BC: When you looked at what was wrong, what were some of the problems that you had to solve right away? Can you remember?
- JW: Well, they made agreements to go into stuff that weren't practical from an oilfield angle, from the operating angle.
- End of tape.

Tape 3 Side 2

- JW: They found some ashes in the mouth of some of the deals they'd got into. They felt that if somebody had worked with the people and said, you can't do this sort of thing or you shouldn't do this, they would have avoided that. That's the way it turned out. I remember one of the first things I had to do, it wasn't even part of my job as far as I knew, I had to pick up an agreement. I said, surely you're not going to sign this, yes, why, we're all ready to sign it, I said, you'll get murdered with this. I pointed out this and that, oh gosh we never thought of that. After that I had to read every one of those darned agreements and I found the same thing. I got kind of. . .
- BC: This would be quite a different job than what you'd been used to wouldn't it.
- JW: Oh, I had no concept at all that I could ever do that sort of thing. In fact I'd have sworn I couldn't do it because I never tried. But anyway, I just sort of fell in it, another streak of luck.
- BC: So were you into the land department then really?
- JW: I worked with the land department. . .
- BC: What was your title, what did they call you? Other than Mr. Warke.
- JW: It was joint interest coordinator. And joint interest gets into everything in the company practically. So it was a broad experience.
- BC: You mentioned that that's how you got into unitization.
- JW: Unitization is part of a function of joint interest.
- BC: Do you think you could perhaps explain that, explain what unitization is and what . . .?
- JW: Unitization is a method of where you have many owners, a lot of parcels of land, joining together as one unit, where everybody gets a participation percent in the operation and it doesn't matter on what part of the unit area something happens, everybody shares in the cost and shares in the benefits. In other words, if you want to put water in one lease and

take the double oil out of another, you can put in a water flood, it's an efficient way. And everybody shares in the cost of putting the water in over here and taking the oil out of there. Where if you didn't have a unit nobody is going to put water in his lease to push the oil over to somebody else's well. That is the base of unitization.

BC: How long has this been going on, was it fairly new in your time?

JW: It was started, a man called Doherty in the States tried to get it for a long time and nobody would go for it for fear that they were making a taxable entity. It wasn't till he got rulings from the U.S. government that it didn't matter what you did, as long as you took your share of the production in kind and separately disposed of it, it wasn't a taxable entity. That was the key that we maintain to this day. Because if a group of us went together and built an apartment building we'd be taxed from the revenue we got. But if we built a condominium where we each owned our own little suite of offices and owned them separately, and rented them, it wouldn't be a taxable entity. I mean, that's maybe overly simple but it's kind of the principle, gives you an idea what I'm talking about. There have been 1 or 2 units where they missed that and they ended up with a taxable entity and that's dynamite. Because the money you make on your production has got to pay for somebody's else, ??? off on its own, you can't do that. So anyway, after this Doherty got that through, units have been fairly common. It started in the 40's I guess and then right on. So by the time I started in the 50's it had become fairly prominent. Although, Texas has no laws kind of fostering unitization. It's pretty near impossible to unit down there because you do anything like that you start a lawsuit.

#050 BC: Oh, is that right.

JW: And Kansas right along side it has legislation assisting, they can get ???, up here of course, the government want it. Conservation wants it and everybody else.

BC: Is this why it became such an integral part of Mobil's now?

JW: Oh well, we're all unitization oriented. Of course, I'm biased because I do it all the time but I've worked on many and it's almost a necessary vehicle to work these things.

BC: What was the largest or has the largest unitization area have you worked on?

JW: The largest I worked on was a few years ago and it was 165 square miles. Shallow gas. But the one I put together last winter was 120 square miles with 14-16 owners in every tract except 3. I had 60 pages of calculations so that everyone of these, it turned out to be 121 tracts. You divide the land into what they call tracts among ownership. So 60 pages of calculations, it was just ridiculous almost. But it worked. It was the only way you could handle it because nobody could. . .

BC: You're considered one of the foremost people, certainly in this country in unitization.

JW: Well, when I'm talking yes, but maybe not when the others are talking.

BC: No, not when people from outside are talking. Have you found that. . .

JW: I think one of the reasons is they asked me to put on a school at Banff. I didn't offer, they asked me if I would, so I took it on. Petroleum Industry Training SERVICE, PITS, was sort of back of it. It took me about 8 months company time and home, talking into the tape recorder, putting it all together. It was such a success that they still use the same, of course, they've updated it, the same theoretical Banff field. There's no oilfields at Banff.

That and all the basic engineering, which I stole from a unit in Saskatchewan and doctored it up a little bit. They still use the same format so really, I'm very proud of it. But remember, I was very lucky because the first school, I had some tremendous people there. I was beat at the end of the week because I was carrying the whole thing alone with no assistant, different ones gave short lectures you see. So they did that and I organized the rest of it. Then they put 2 people on, one as an assistant and then he got a little training. Now it's very routine, but it's still very popular. I think it's at the 22nd school already. At first we had 2 schools a year. The first one went off fine, the second one was going fine and somebody assassinated President Kennedy and that really broke it up. Because we were all sitting at the TV's I think, instead of listening to courses. But since then, it's been going very good. In fact, there's usually a line up of people to go into it. It's a short course on unitization.

BC: And since you retired, I'm sort of jumping ahead a bit but I want to keep this unitization unified, since you retired you have done this as a consultant haven't you for oil companies?

JW: Yes. I approached the time with a lot of apprehension actually, because I thought I'd go crazy with nothing to do.

#092 BC: Yes, you've been such an active man and certainly you don't look like you should be retired at all right now and you retired in 1972.

JW: Yes. At 65. Anyway, that's the time the company, they wouldn't work you after that, no way. Even before I was retiring people were offering me jobs. But I just did it under my own name. I am a professional engineer. Then one day I got a phone call from England, a guy I knew wanted to know if I'd go over and put a unit together in the North Sea. So I got a little excited about that.

BC: Had you ever been in that area before?

JW: Only travelling through to the Middle East. I didn't know anything about the field. But it wasn't too long afterwards that forget it, it's got so big over there, those fields are enormous that they're getting the top men out of New York to look after it. So I've had a little bit. . .well, at least I wasn't scared anymore. And about the same time I was putting a unit together and there was a stranger there. He didn't say much, he was from an engineering firm representing a small owner. After the crowd left the room he stopped by and asked if I did that for other people, I said yes. Then he told me the name of his company. He said, will you help us with this stuff, I was delighted to. Then I found out that they're an international engineering firm worldwide and doing an awful lot of work in Saudi Arabia. He did say though, that he preferred, rather than a person, to have a company. So I talked to a lawyer friend of mine and we thought we could do something about this so he set up a company called and properly registered as International Unitization. I don't think the ink was dry on the thing before this lawyer got a great big job with one of the major companies in town here as the head of the legal department and he was forced to drop all attachments. So I think I paid what he put into it, about \$150 and became sole owner of International Unitization. So mostly I work under the company name.

BC: Who have you worked for in your retirement?

JW: You name it. If I went through my invoices down there you'd have a list of names.

BC: Do you approach them or do they approach you?

JW: No, I don't do . . .

BC: Did you have to in the beginning?

JW: No, it was somebody heard . . .

BC: From someone who heard from someone.

JW: Referrals that keep going. Quite often the phone will ring up and somebody told me about it. In fact, one of the guys that I locked horns with many times to get back on beam and I thought he was mad at me, he recommended me to one of the major U.S. companies had a branch up here. Gosh, I was surprised. They went about 4 years, weren't getting anywhere and he said, why don't you get Jim Warke, he'll get this show on the road. Who's Jim Warke, so they found me, I went in there and . . .

#133 BC: So what does it involve? You say, you had 60 pages, what all does it involve?

JW: I'll get the document then it will be a little bit easier. This is a document based on what they call the model form, which was developed about 20 years ago when a group of people in industry found that it was just such a legal quagmire to try to have each lawyer develop his own document. So they got the mines minister's conference to appoint a committee which has developed what we call a model agreement, which is fairly universal in western Canada. Traditionally we vary very little from this model as to format and wording. The document is divided into 2 parts, the first part is called the unit agreement which in other jurisdictions would be called the royalty agreement. The royalty owners and the working interest owners have to sign it. It really deals with the allocation of the petroleum substances which are produced from the field. They call it the unit area so anything in that unit area is divided up according to what is calculated to be their equity. It may be based on the number of trees or the number of acres or all that sort of stuff. Usually it's based on the recoverable reserves that calculated, can be produced from that land. How it is produced has probably changed ??? unit but they figure that there is that much under that tract of land, therefore they should get that much share of the percentage. Now it's varied for some other reasons but that is the biggest foundation that you have. Then one of the main reasons for unitization is so that you can produce in a most efficient manner, rather than competitively. Because if you're producing competitively there's no way can you put floods and exotic recovery methods in. Because naturally, if you have to put a water flood in you're not going to sacrifice your well to . . . push the oil under your land over to your neighbours well. But you may recover twice as much by doing it if you both are co-owners. So therefore a unit takes the unit area and gives everybody a participation share of the production from the whole unit. No matter if it came from one well, they get their share. Quite often you have nothing come from your land but the allocated production to your land is your share of the unit and it's based on this agreement. Each tract therefore, quite often has many owners due to the farm out arrangement. So when you make up your document you have to show the location of each tract, probably give the number and who the royalty owner is and who the various

working interest owner is. I have one here beside me that there are as many as 16 owners on each one of those tracts. It was very complex the way they went together to develop the northern area, it's shallow gas. It ended up with 120 sections in that one unit. I actually had to drop out 1 or 2 later but it turned out to be 121 tracts. All except for 3 tracts had from 14-16 owners. ??? nightmare calculations to round them out to 5 decimal places, it would always add up to some messy number, 5.09234 or something like that and you had to divide that up amongst 16 people. Very complex ownership. But it can be done, you round it off. And really if it's an error 1 point out in the 5th decimal place it wouldn't matter, 5 cents a year in the overall picture. But you do like to get as close as you can. That part is the unit agreement, which also shows all the tracts, the numbers of the tracts, the area and a piece of the log which you can nail down what zone is being unitized. Then the other part is the unit operating agreement, which is only signed by the people that own the working interest in the lands. The leasees of the lands in other words, that have to put up the money to drill the wells. It is also a model and it is basically the financial arrangement showing how the ??? committee for the unit operator who does all the work and looks after all the wells and all the production. He also has to have budgets, meetings to approve this action and have voting procedures and all the sorts of leins a protection that you have and so on.

#198 BC: You had to take another course it seems to me, a course on legal. . .

JW: Oh yes. I have no legal training but I've sat with legal so much that we have kind of liaisoned through it.

BC: Another 10 yers maybe you'll be being called to the bar without having to go to university.

JW: No. I haven't got the finesse that they have. It's sruprising how it sort of rubs off on you. I've had people turn to me right in a meeting and say, prepare us a agreement for this, just right now. I blinked my eyes, I never say no, I've got a lot of friends, I get lots of help. I find I don't have to know how to do it, all I have to do is set out what has to be done, give them a picture, and there's lots of people, once they know that they can go right ahead. The trouble is with so many highly trained people in another discipline, they really don't know what they're trying to accomplish or how they're trying to accomplish is. Once they can do that there's no problem at all. But to just tell them to do it without any practical background is fairly hopeless. In fact, there's really one today, entirely new to me and industry and everything else, I had to generate as I go along. What a mess it is now but when we get it put together and get some other people to help, they can probably straighten it out. So there's nothing smart about it, it helps to have 54 years of background.

BC: Yes, exactly. You can call on so much.

JW: The further thing is that all this is registered against titles and if there's any ??? in Edmonton, I've now got a very good expertise up there. Actually, the present one and the previous one were dedicated people, wonderful people, doing the unitization. They were very strict, they could take a document that I had proof read and couldn't find a thing wrong. It would come back and I would almost cry as I looked at all the errors I had

passed up because they were expert at proof reading. So I depend on them too much maybe. But it's wonderful, I had good liaison with them. They never ball me out but they should. It's nice that when they run into trouble, if they can't find me downtown they phone here and my ??? wife finds me and I phone them back.

BC: Now when you started doing the unitization with Mobil, and you did that, what was your position, obviously the title would change? Were you given. . .

JW: No, it was all coordinator of joint interest. It was in the joint interest. . .

BC: Oh, that's what it was called.

JW: Joint interest has many facets.

BC: Yes. You were production up in Edmonton though, when you came down it was. . .

JW: Yes. When I came to Calgary I was still a district superintendent, southern Alberta, till they changed my way of life. I didn't have a company car anymore, which really didn't hurt. I became a complete office man which. . .

#241 BC: How did you enjoy that?

JW: I sweat like anything at first, I was scared to death. But I soon found out that they were lovely people to work with, they just didn't know what a well, didn't know how it operated or what you were up against.

BC: Which was the reason you'd been put in there.

JW: Actually I thought the company was stupid but they showed they were a lot smarter than I was. All the needed was somebody with practical experience that could take it. After awhile I enjoyed it, I had a ball.

BC: How many years did you do the unitization work for. . .?

JW: I switched in February of '58 and I'm still at it. So right till '72 when I retired I was in the company doing it, amongst other things in the same category, like farm out agreements and offshore work. I did an awful lot of those offshore agreements, stuff around Sable Island. I mean, I worked with the crew that were doing it. And I worked with the legal for months on end on that sort of stuff, which was a whole new adventure.

BC: Did you miss the field work?

JW: Yes, I liked to get out in the country. In fact, I liked it so much that after moving to Calgary I went about 100 miles north to the area I was born and bought 45 acres on the lakeshore up there and we have started with a junk pile of bush and rocks and hills and that and created a place that we're very house proud of. It's our pride and joy.

BC: Back to your own roots then. Is the house still there, where you . . .

JW: Where I was born? It was torn down about 30-40 years ago and moved over, parts were put, you know one of those old clapboard type of things. We used a lot of material and built more modern house. But on our place at the lake we have a plywood cottage, which we've insulated, it's small but comfortable.

BC: You go there for part of every summer now do you?

JW: All we can. We go occasionally in the winter but we don't stay there because it's a little hard to get in to the roads.

BC: Is it winterized?

JW: It could be. But we don't winterize. We drain everything up and leave it. It would cost a

fortune to keep it warm. We do have natural gas and power and a water system and all that but. . .

BC: You just can't take it right off the well like you did in Turner Valley. Now, retiring in 1972, when you reached retirement age, how did you approach retirement?

JW: Scared. You see, in those days we didn't have these seminars that big companies are having now. They are actually getting people to come in 2 or 3 years before retirement and give them schooling. Gertrude and I have been invited to 2 of them to tell what it's like. They get the approaching retirees briefed on what they should know. A lot of them, and there's been some awful sad cases, they go right to the day they're through and they're just lost and they lay down and die. They want to get them interested in something else. One of the reasons I go there, because I'm very interested in CESO, Canadian Executive Services Overseas, which is a separate story if you ever want to hear it, I can tell you about it.

#297 vBC: Oh, we will put that on to the tape, I would like that on.

JW: Yes. And to try and tell the people and see if they would get interested in doing CESO work. It's a voluntary organization worldwide. So things like that. . .

BC: When you retired, you did become a consultant upon retirement. But had you planned that you would do that when you retired?

JW: Not really. I thought I'd just disappear like other people. I could hardly believe it when the phone started ringing.

BC: You never had to advertise your expertise?

JW: No. I've been on an ego trip ever since. I might as well be honest. Many a time I just thought, well, I've got everything finished up, maybe I won't have anything to do for awhile. One case I did that and before I knew it I had 3 calls from strangers. You know, they weren't very big but some of them were like this one I showed you a while ago, just right out of the blue from somebody I thought didn't have any use for me, recommending me to somebody else and it turned out to be a tremendous job.

BC: So you haven't found the movement into the paper work from the pipe work hard at all?

JW: Yes. But I think the biggest thing was I was worried so much because I did so poor at it but I found it didn't seem to matter as long as you get the ideas down. Get somebody to correct your spelling. My biggest problem has been getting a typist that I could depend on typing stuff. You'd be surprised how many people think they're typists but ??? are so fantastic that it just puts us to shame.

BC: Let's talk about after you had retired you did work for Mobil again didn't you?

JW: Yes, but a different thing. I was called to New York and briefed down there what had to be done. Then they sent me the names of people they were hiring to go to Libya. Of course, having worked in the Middle East, it helped me a little bit. My problem was to get all their credentials certified.

End of tape.

JW: I was called to New York and the job given me was to write a job description of what the guy had been doing, the new hiree, and to get their credentials certified. That's a very formal thing. And such things as their birth certificates and marriage certificates and all that because there's been cases where a guy would take his wife on one of these foreign jobs then they'd find out that they weren't even married and he'd desert and leave her there as a problem. So they wanted to be sure that they're genuine. Those certifications are very formal, you have to get them from the source and have to get them searched sort of, and certified by, what is that type of lawyer that can do those type of things. . .

BC: A notary.

JW: Notary public, yes. And then you get them certified in Edmonton with the Lieutenant Governor and then they're sent to the Ambassador and he knows the Lieutenant Governor's signature. So then he can certify them to go to the foreign country. Most of these people are going to Libya. So it is quite a tricky thing, I processed several. In fact the first year I worked 200 days on that sort of stuff.

BC: This is different again that unitization.

JW: Oh yes, sure. It was quite interesting. Most of the people that I processed followed through and went over there. 1 or 2 I heard of later but most of them I didn't, they went over there. And going to Libya, a lot of them probably wouldn't stay. But I think most of them did stay, they were a pretty good bunch that were going. Because they were pretty well weeded out by the time they got to me. There was one fellow I remember didn't go but I think it was just as well because afterwards, he was quite an alcoholic. It wasn't obvious to me at the time but anyway. So that was one thing they did and in between that, I started getting jobs offered. . .

BC: Is it mostly unitization work that you do now, or do you do whatever comes to hand?

JW: You could almost say, traditionally I'm called in to put a unit together. Before I go on to another job, I've done several things, like putting gas plants agreements, I did many of those. There's a lot of ancillary agreements show up, some of them I had to generate, like an oil pipeline agreement and ??? agreements. I just can't think of all of them right now but all sort of things like that. Right now I'm writing a special kind of thing called a side agreement. But it's not. . .

BC: Why would lawyers not do that? Why would they hire you and not a lawyer to do that?

JW: As I mentioned before, ??? from a lawyer but it doesn't fit the problem.

BC: You have to have the practical experience and the fact . . . What about you and your legalese, do you find that a difficult thing to use the jargon?

JW: Oh yes. But I don't now because I just copy it out of some. . .

#037 BC: Hereinafter and whatever.

JW: Oh yes, it's standard wording. But it's not from education, it's just from exposure. They're not complex but the only thing is to get them down so they fit the situation. Just recently we went to a lawyer to get something done, a special sort of thing, a very prominent lawyer in town. So the heads of the company and I went over to see, should we do it this way or not. He said, yes you should have an agreement. So the boss of the company said, will you write us one, he said, oh, get Jim to do it. Well you see, that kind of helps a little bit too. So I wrote

the thing and it's worked very well. But remember I had to check with a few people too to make sure that it was, none of these are generated overnight, they take a lot. In fact, at one of the companies I worked with a lot a few years ago, I got a lady in the joint interest department and she was so good at these agreements. I send one to her, it comes back with a lot of corrections. But she's actually become so famous that I've had other companies say, well, if Jean has seen it and proved it, it's okay and they'll practically sign it. So anybody that's got a reputation like Jean is really something.

BC: I should think so, what's her last name or did you want to put it on the tape?

JW: Actually she's still operating under her single name, Jean Fondelyn??? with Pan Canadian. She certainly deserves credit. Actually she's married but nobody knows her under her married name, because she was Jean. . .

BC: Yes, and much more known in that name. Also, the other thing that you've been doing since you retired, and that is you've been with, do you pronounce it CESO?

JW: It's pronounced as though it was a K. They tried to make it [S]esso and everybody got uptight, they said no, it's CESO. It's Canadian Executive Services Overseas. It is the volunteer side of Canada's foreign aid program, which is CIDA, Canadian International Development Agency.

BC: How did you get involved with it?

JW: I saw in the paper that there was such a thing so I wrote and got, what they call a PIF form, which is a Personal Information Form and applied.

BC: What would you say was your area of expertise, you seem to have several? What would you list yourself as?

JW: Well, in petroleum operations. I didn't say I was a petroleum engineer because I'm not a graduate engineer. I've forgotten what I put on it, I said I was in oilfield operations or something.

BC: You didn't mention unitization?

JW: I don't remember what I put on it. The offshoot of this was that one day I got a letter from Montreal where the headquarter is in, saying that Malaysia wanted a petroleum engineer, would I volunteer to go for 6 months. I wrote back and said that I do not fulfill the classification of petroleum engineer, all I'd done for many years is unitization and agreements. If I did go I couldn't go for more than 2 months because I had a very ongoing business, I couldn't get away for very long. And I forgot about it. The first thing I knew they sent this information to Malaysia and the word came back, send his as fast as you can. So all of a sudden we found we were packing up, getting our passports and our shots and everything. The rule of CESO is this, that CESO have, as you see in this pamphlet I gave you, representatives in many parts of the world and they are there to sort of be Canadian representatives for the CESO organization. If in they, you know, visiting around all the time, they find a company that needs some help or government or anything at all, a farmer for instance, they can send word to the head office in Montreal and say that we'd like to have a representative come over here to teach them how to raise purebred cattle. So he goes through all this PIF forms, there's 2 or 3 thousand of us registered, they pick out a likely thing and find out if they're interested. That's how they found me. And send that. . .

#091 BC: What did you do when you were in Malaysia, what did you. . .or will you come to that?

JW: It fits right in, in the ????. Anyway, when we went over there, we had no idea what we were going over for except to get over there right away. As soon as I got there I found they wanted me to help put a unit together internationally, it crossed an international boundary. It had to be unitized for good operation. Half of it was in Malaysia and half was Brunei. It was offshore, you really didn't know where the border line was. They had a theory about where it should be. And turned me loose on that. Actually they were a little hesitant until they got to know you. Anyway I got the things all I could to start. There was a lot of it, you might say, the die was cast already, they'd decided to get an international consultant to do all the engineering sort of thing. That was in 1976, June and July. We loved it out there because on this thing you're on a semi-diplomatic sort of a position and you had no trouble getting through customs and all that and you're well thought of because you're not taking money out of the country. Canada pays your airfare over there and the host supplied you with a lodging and food. Since it wasn't worth us getting a suite or house or anything we stayed in a hotel and we had adequate to pay for our meals.

BC: That you paid there or they would just pick up the tab?

JW: No, they gave me a certain amount of money, which was ample to pay. . .

BC: The government supports you in this case was it?

JW: The government backs CIDA and its foreign aid to foster Canadian enterprises overseas.

BC: No, but I mean, you know how you say, sometimes when you go over it isn't always like working for a company.

JW: Oh, anybody.

BC: Yes, but in this case it was the government was it, or was it a company?

JW: Well, when I was there, there was a ??? man from eastern Canada who was an industrial man and he was working for 3 small companies that were going broke. They were manufacturing companies and he knew about that sort of thing, he was able to show them what articles they were losing money on. It was some kind of plastic. And in the 3 months he got them all going. Now here's another case, in Antigua, they had a very fashionable resort hotel there, all of a sudden the flies started coming in from the swamp and ??? for many years. It got so bad all the guests left and they had to shut it down. Well, they were desperate, they hadn't changed anything, and yet the flies were coming out of this swamp, they couldn't imagine what had gone wrong. The local man down there, the local CESO agent, you see, if you read this list we're wide spread, he got an entomologist from Edmonton. He went out in the swamp and found they were small flies, went back in the resort hotel and they were big flies. He said, they're not coming from the swamp, what are you doing with your garbage. Of forget it, we have always buried it in the same place for donkey's years. He said, let's go look. They'd been burying it where the tide water came in but as they moved back up the slope, they were burying it out and the ground was covered with flies. Here's where your flies are. They arranged to get the garbage put away and went back in business. It wasn't lack of brains, it was just lack of that little bit of know-how. I point this out to show how things can go broke from a little bit of general know-how.

#138 BC: You were out in Malaysia, have you been out again, using your expertise?

JW: No, I'm still in contact with them.

BC: It's difficult when you have an ongoing company that you can't get retired?

JW: Yes. They're delightful people, I like them very much. Now remember, those countries, if you have any family money you send your family out to get an education, like in India the rich people sent their sons out to be doctors. Now that they're ever going to practice, a person could die on the step, they'd never touch them, but that's the prestige to have a degree. Well out in Malaysia they required that anyone who worked, I was working for the government company which is equivalent to Petro Canada here, they had a rule that they could only hire people with Malaysian passports. They had lots of people with PhD's and not a vestige of experience. There was suddenly an instant company with an enormous amount of oil activity and all that and it was very, very difficult for those people. They had a man who'd been 8 years a journalist and then he took a course in geology. And after, during the... geology has a little bit of summer, you know, whatever they do with students. As soon as he graduated he started teaching geology and here at the age of 46 he was suddenly made head of all development and production, exploration and everything. The poor guy was worked to death, he didn't really know how to handle it. So he was certainly glad to have someone around with a little experience for a change. Anyway, you can't do much in 2 months when you're trying to learn all the things about it.

BC: But did you get, 2 months was what time it took you to unitize...?

JW: Oh no, I didn't. I just set up some certain ground rules for them.

BC: And they went ahead and did it themselves?

JW: No, they haven't done it yet.

BC: Have they not?

JW: No, they ran into troubles. At least as far as I know they haven't.

BC: Yes. And it's a little hard to advise from so far away.

JW: I don't because I can't do both. But I've quite often sent documents, like ??? and all this sort of stuff that they're glad to get and they write to me every once in awhile and ask me if I can get something to them. I'm still in touch with them.

BC: Looking back over your career Mr. Warke, what would you class as the most exciting experience, the experience in the oil business that has given you the most pleasure? There may be more than one of course.

JW: First of all, I wish you'd call me Jim, everybody calls me that.

BC: All right, I will indeed.

JW: Really, I suppose there's 2 things. One was I finished up my thesis when I was in Bahrain. One day I got a telegram saying I'd been accepted into the Professional Engineers of Alberta. The other thing is...

#178 BC: Let's not jump over that. How long, just to get it back on the record here, how long had it taken you to move there and what was your thesis.

JW: I really started studying after I got married and it was just a month or two short of 20 years before I got it. My thesis, as I remember, it was a subsurface control of flowing oil wells. It was based on a lot of work in Turner Valley, all in Turner Valley. The other item is just a

little difficult to explain but I'd learned from bitter experience that when you wanted to present an idea to the boss you better put it on paper or somebody else would steal it and claim it for theirs. With that in mind one time I was doing some work with some pressures, I discovered what you'd call an anomaly and the only way I could figure there could be was that this reservoir that I was working with and it was just one of many stacked reservoirs, had been discounted. No wells were completed in it because they said it was watered out. But somewhere I found a pressure on it, probably from a drill stem test and figured that that pressure meant that there must be oil in that instead of water. So we had quite a strong staff at that time, geologists and engineers. I think they just overlooked that. So I wrote this memo to the head of the company saying that there was an anomaly there and the only way I could rationalize it was that there was oil down structure. The manager said, let's drill a well and see, knowing that if the well wasn't completed it wouldn't go on down to something else. So we drilled it specifically for that purpose and it came in over 1,000 barrels a day and was one of many. The zone was not watered out, it was, as I had calculated, was an oil reservoir. I won't tell you why I could do it, it's too complicated. But anyway after that of course, everybody got on the band wagon. There was a series of things went to New York and all over. But every one of them had memo from Warke to Godfrey, right on the top of the page as a reference you see, and then all the others, so and so to so and so. That still gives me a thrill after 30 some odd years.

#216 BC: I'm sure it does. Where was this reservoir that you . . . ?

JW: Bahrain had many reservoirs. We used to call it the 1st pay, the 2nd pay, the 3rd pay, the 4th pay and then it went on down. Down deep we got tremendous gas reservoirs but each of these upper ones were nearly always oil, some with very little gas. This was a D zone in one of these pays, I think it was 2nd pay D zone or 3rd pay D zone or something like that. But there were many stacked reservoirs. Anyway, it was just something, being overlooked, they'd been drilling it for 20 years at that time and just ignored it and just went right on by it. So it shows that sometimes an outsider, I mean a person . . .

BC: Coming in fresh.

JW: Yes. Well, I'd been there a year or two then but my position was only production foreman, I wasn't up in the mighty engineering group. But I kind of got there in a hurry with this.

BC: You were with that company when you became a professional engineer too?

JW: Oh yes. But all my work was done here in the Turner Valley oilfield, at least my thesis was based on. . .

BC: Tell me, looking back over your career, and your preparation for the work that you did, the education you had, can you think of any person or persons who would be most influential in sort of steering you in a certain direction?

JW: In a sense I should say, Mr. R. A. Brown. He was a great experimenter, and that's where I got the stuff for my thesis. While he would get the ideas, I had to implement them because I ran the machinery, did all the other stuff. So I would think that probably by just that association. He himself was an electrical engineer, once been head of the street railway here in Calgary. But he was quite a promoter and anything that he could figure out that might enhance his production.

BC: Can you think of any particular things that he suggested or that you implemented or that you did during that time that were innovative? This would be down in Turner Valley.

JW: Well, Turner Valley had 2 zones. The upper one kind of got a little gassy and we were penalized by the amount of gas we produced. So he came up with the idea of setting a rubber packer between the 2 zones and taking most of the oil out of the bottom one. And we were very successful in that because some of them were tending to be straight gas.

#261 BC: Had this not been done before in Turner Valley?

JW: Well, we did the most of it I think. A few tried it. We had many failures but we had a lot of successes too. In fact, I remember, it was quite nice, along about the mid 40's that another company said, every other company's production has gone down, but you're been able to maintain the production of the company. That was due to the sort of work we did. We pulled tubing out of the hole of many wells many times to get the seal so that the oil came from the proper place.

BC: Can you think of any other. . .? It goes back quite a long way I realize.

JW: Yes, but it came to pass after I left Bahrain and was written up by somebody else on their work so it's better I don't say it.

BC: We can put it on even though it was written up by someone else.

JW: A lot of people don't know the whole story.

BC: Well, I'd love to hear it.

JW: Well, when I was young I worked in what they called an absorption plant in the south end of Turner Valley. Always being a curious mind I asked the chemical engineer there why it was, when they put cold absorption oil in the top of a tower. Absorption was kind of a kerosene and it was allowed to bubble down through the trays and it met the cold gas coming in at the bottom. The result is that the liquid content of the gas was absorbed into the absorption oil and then we boiled it off the absorption oil and that made our liquids that we could sell. The dry gas then went to the flares, it was terrible wasteful. I asked him how it was that when we, I felt it on the pipes, just by observation that we were pumping cold oil in to the top of the tower, cold gas in at the bottom and warm oil was coming out the bottom. He explained to me that when you impress a gas into a liquid it heats it. When the gas bubbles out of a liquid it cools out. In other words, when you open a bottle of pop, the gas coming out of the pop will actually cool it. I mean very low pressures there but under the high pressures in our work. Somewhere that stayed in the back of my memory. Now to go to Bahrain we had a structure with practically no gas in the oil, just a very little bit. We used to measure it with a household meter, so it was just a few feet per barrel, just to measure it. We got gas from a deep down zone and put it into the top of the structure and with it, there was a lot of dry gas and a liquid something like kerosene, they called it condensate. We put it all in there and that liquid floated on top of the oil and practically dry-cleaned the reservoir, so that our recovery was fantastic. Instead of about 8 or 10% we were going to get about 85% of the oil out, one of the world's greatest recovery systems. We had a very accurate way of measuring the gas, liquid contact so we were able to know just how far we were lowering the oil in the reservoir as we produced it. One day, way below this level, off to one side, one of my wells started, the gas-oil ratio went up. I reported it because I couldn't understand how the gas got way down

there. It was way below the known contact. So I told the boss and it got on the report to New York and they fired a cable right back to take a temperature survey. They didn't say it, we knew what it was based on, that when you ??? gas it cools. Well I knew they were crazy because the pressure in the gas was 1,058 lb. and we were only drilling the pressure in the well down 4 or 5 lb., so the pressure drop could be ??? nothing. But an order's an order. I had a crew there with a Scotch boy running it. We did a lot of temperature survey work. I told him, gave him a depth of perforations and said, now you stop that bomb every foot across that area and take a reading. And we'd plot in on a paper just to see if there was gas breaking in there and then the would change. So we did that and later I plotted it on the paper but I didn't need to at that time. I came back and he said, the bomb was going wrong, instead of the temperature going down it had gone up. So a light lit in my brain and I remember years ago on that tower and I said, oh-oh. . . .

End of tape.

Tape 4 Side 2

JW: By plotting it out on a piece of paper I noticed the jump in temperature was right at the top perforation and everything below that was normal. Then the temperature changed and went up because of this intermingling with the oil. I said I know what's happening, gas is coming down there and mixing right at that point. I didn't tell them all the reasons why I knew. So I took the information of all the amount of gas, the amount that would go into solution and took it to our research department down at the refinery and said, now if you had oil at this temperature and this amount of gas in it and you impressed all the gas in, how much would the temperature go up. That's all I told them. It went up to exactly the same as we read on that thing, so there was no doubt. So from that I figured we had a gas umbrella and I went to an engineering friend of mine, a young English boy who later came to Canada and did very well. He showed me how to calculate some other stuff but anyway, at that time, we realized that the gas was not a level table as we'd thought. It was, we called it a gas umbrella, shaped like an umbrella that was being pulled down at the side. This engineer showed me by calculation that you'd pull it down, way below the gas cap, when all the drag was coming from the gas you see, there was no movement coming from below. Also if we quit producing along the edge and produced right under the gas cap, we would have flow into the well from all directions, where if we were producing on the edge it flowed in from just one side. Therefore we'd have about half the draw down, or less than half. So that actually it changed the course of that thing. Later we showed the proper place to drill the wells, right under the gas, right from the centre because it was a very permeable zone, and the oil then would flow through this very porous reservoir from all directions of the bore hole.

BC: It must have been a very exciting day when you could turn that information over.

JW: Yes, I didn't tell them everything. But anyway, all my material I left it there, they had a Masters degree in the reservoir that didn't have an original idea but could calculate everything out. He wrote a beautiful story, not a story, an article into the petroleum technology a few years later. I was quite amused when I read it because there was all my diagrams and everything else. What he didn't tell was how we'd found out it was a gas

umbrella because he never knew why, or how I calculated it. Some things you don't always tell you know.

BC: No, and did he credit you at all in the article?

JW: Oh no, I was long gone.

BC: Well, it's good to get the credit where it should be now.

JW: Don't worry, he committed suicide later, he couldn't cope with his life. But anyway, these are the kind of things that sometimes, no way I could ever reason that out if I hadn't had that little experience.

BC: Yes, it's something back there which you remembered.

JW: But why it ever flashed in my mind, it's just one of those miracle that happen. These are the kind of things that you think about over your life that sometimes you wonder if they're fore-ordained or something.

#037 BC: It almost seems so. What about some of the people that you worked with in the oil patch? Did you ever work with the McMahons?

JW: No. My son did but I didn't.

BC: I have R. A. Brown here and you've mentioned several things about Mr. Brown. I also have Arnie Nielsen, one of the people that you mentioned.

JW: Arnie and I, he was district geologist and I was production foreman for Socony at that time because there wasn't enough to be anything else. We had a very good rapport. When I told him about fracking he really took the idea and sold it to his management so that he was tremendous to work with.

BC: Can you think of any anecdotes that might involved Arnie Nielsen in some of the work you did?

JW: Not at the moment I can't. He was in charge of the explorations and I was just available when they needed a little help like to run pipe or something like that. I had the road gravelled in ??? without permission but I didn't get fired for it. But you have to do something. That's one thing, when you're foreign you can't wait for someone to say yes, you've got to get it done before it's too late.

BC: You learned to think on your own and act on your own?

JW: Yes, but you also get a little bit swell headed and go ahead and do it. Forget that there's other people ??? down the line. You get brought down to reality after awhile.

BC: I have a note here to ask you about any of the Turner Valley, well, personalities is how I've bracketed it during the days when you were down there. Were there any that you can remember in particular?

JW: I'd have to go back a number. . . 35 years since I left there. I was there 17 years. Most of them were the type that were real old time oil people, moved from job to job. A lot of them really grew up, as I said, they used to take a rig hatchet out and a pile of lumber and build their whole rig and ???, all that sort of thing. When I came in they were just starting to get the steel rigs and put them up. At the moment I can't think of any anecdote but if I do I'll let you know.

BC: That would be great. I have a couple of other names that you mentioned, Leonard Stevens,

just in passing and I didn't know if there was anything more about him you wanted to say.

JW: Les either was vice-president of production or very close to it when I came back the second time from Bahrain. He had actually been to Bahrain when I was there and heard about drilling with a floating mud cap. When he had a similar case in Dewhamel, he told the drilling people how to do it and they wouldn't believe him, thought he was crazy. But they did it and after they found that it worked they said, they wouldn't mind doing it again. But it's a very special technique, it would take too long to explain it here. Anyway, he also had a lot of experience in South America and places like that so he really was an ideal man for the job. He was so good that it was just a few years later that they pulled him out of Calgary and made him head of the whole California outfit. You see, about 1959 or '60, along about then, Mobil as we called it by then, changed their whole structure. Instead of having several little companies like Magnolia Canada and all that, they formed one big company with divisions. Although they had to leave Canada as a separate unit because of it's political situation. Instead of having these presidents and directors all over the country, they fired them all you might say or retired them or something and set up one man in each place in charge. The company was practically making less than a U.S. ???, which is practically nothing on its stock and it just took right off when they got a shake-up in organization, it just got decadent. To tell the truth that's about all [it was]???, because it's been around for a long time you see and this reorganization was just going . . .the value of the stocks multiplied many times since 1960, just due to the . . .well, the change from lackadaisical to an aggressive nature.

#097 BC: And Mr. Stevens was part of that change?

JW: They saw him as being worthwhile, he was too good to stay in Calgary, they took him down. And the story goes that everybody, all these companies were just going to change their name and so they got the shock of their life when they heard that the man from New York, which was ??? hatchet man, was coming out and had a meeting at 8:00 in the morning. And when they said 8, that clock struck 8 the door opened and this guy walked in with a stranger. I don't know whether he said good morning or not but then he said, gentlemen, this whole thing, all of your jobs are disbanded and from now on Mr. Stevens here is to be in charge of everything, just like that. Well, it was a terrific shock because they'd had their boards of directors, and their secretary had an assistant secretary and that had an assistant secretary and they just got it. Steve said his biggest job was there were so many of the old biddies wanted to be his secretary and he didn't want. . . he wanted somebody young and aggressive. You better not leave that on the tape. Anyway, he's that kind. He wanted somebody that was really snappy. And he had to take over the whole thing and clean house, reorganize it.

BC: Did you ever get a chance to see Mr. Stevens after he went down to California?

JW: Oh yes, he's been up here. In 1974, Gertrude and I took a tour down there and while we were there we had dinner one night. We were going to take him, we ended up, he and another man, Will Donnif???, he'd also retired down there, took us to a real top of the line hotels down there for dinner. I hate to think what it might have cost him.

BC: Where was he living in California then, in Los Angeles?

JW: Alice ??? Estates. Now he's doing international consulting all over the world, because he's retired you see.

BC: Do you remember any particular incidents when he was up here that might reflect the fact that he was chosen, picked for this job?

JW: Of course, he let me complete Pembina. He was very good all the way around. A tremendous person too, as most of those people are. When you get people like that they're not petty like some two bit operators. He was very well thought of all round, very competent engineer, he'd had a lot of experience in South America. His wife was Dutch, unfortunately she died a few years later but she was very brilliant too.

BC: I have another name here, Herb Trollop that you mentioned.

JW: Fred Trollop. Fred Trollop is still with Mobil here in Calgary. Fred was what they called the well site geologist. Now when you're going to drill a well, a geologist gives what they call a prognosis which says about the depth that they expect to hit this zone and that and what to look for. When you have a well site geologist he stays there and he looks at all the samples, the drilling time and the cuttings, he can tell what formation they are, the experienced ones can. Fred had his rules that when they got to the Cardium, if they found any sign of oil in it, by looking at the oil stain, take a drill stem test. He did find a few specs of sand that looked a little brown so he called a drill stem test. I can't remember but I don't think that he actually found them soon enough to get the whole thing tested properly, he might have set the pack in the wrong place. But it wouldn't matter, as I say, they got about a pint of oil out. That was enough to start the wheels going.

#152 BC: This was in Pembina?

JW: Sorry, in Pembina, yes. But one thing I didn't tell you was that the engineers told me we were going to shoot the well. They looked at the log that they had, you know what an electric log is and said, don't shoot up here because it's gas, see. And they showed me on the log, shoot down here. So actually we shot in a very [poorest/porous]??? part of the pay. Later they found, and they didn't know it at that time, that the scale of the log had been changed exactly in the middle of it. So actually, we could have shot anywhere up there, it was all oil, there was never any gas up there but it was just one of those freaks that nobody knew or found and it wasn't recorded on the log for some reason. They didn't know till years later that that really wasn't a true interpretation. They thought it was a gas zone because the log looked so way out. . .??? I don't know anything about logs but it was just one of those almost a miracle we got a well. We could have shot it right down where. . .

BC: You could have gone right past?

JW: Well, no, we might have shot it where it was too poor really. So actually if we had shot it higher up we would have got probably quite a big well. But as it is we shot and fracked it and everything else, down in what ????. I'm wasting a lot of your time.

BC: No, that's not wasting, it's very important to have this on. Are there any other incidents that you can think that we didn't record of your time in the oil patch, or people that you wanted to mention? People that perhaps have influenced you or. . .?

JW: There's many along the way. One thing that I like very much, the part I didn't like was of course, I didn't realize what I was creating but when I first came back here everything was run by. . . Not divisions but, the head of the construction was sort of got his orders from Calgary, or was based in Calgary and he gave all his construction orders and did all that.

Purchasing was all done that way, the engineering was done that way and all the way through. Well, I was the district superintendent in Edmonton. I didn't know what they people got, what their wages were, didn't know anything about it. And they always got their orders from Calgary. They found that that didn't work after awhile but at this time. And my district engineer was Sid Thorne, was a very fine fellow, but he had to work all the time from Calgary. He didn't realize it then but Pembina got so big they had to divide my district in Edmonton up into 2 districts so they put Sid in charge and brought in another man from Saskatchewan for Pembina and moved me to Calgary, gave me the southern Alberta district. I was a member of the Petroleum Club in Edmonton and they were going to build a new building 4 or 5 or 6 months after I was transferred to Calgary. They opened it and I was invited up to the opening so I went up there. As I walked in the door Sid saw me across the room and he came on the run and shook my hand and said, Jim I didn't know the hell you were going through, that's driving me crazy. He had no idea when he was sitting there, getting all the thing that the position I was in. . . well, he told me one time, I asked him what their program was going to be, he said, he couldn't tell me unless he cleared it with Calgary. But when he got in that chair he found things entirely different. I still remember that. It just shows that you don't know what the other guys problems are until. . .

#210 BC: Until those problems become your problems.

JW: Yes, then it looks a little different.

BC: That's right.

JW: This is going on too long.

BC: No. Those are the only names I had. I wondered if there was any particular thing that you wanted to just put on the tape to just wrap it up Jim?

JW: One thing I'd like to put on. I worked for 17 years I think it was, in Turner Valley, thought I knew something about an oilfield. I went out to Bahrain and I wasn't there more than a day or two till I began to wonder if I knew anything. It was so much different and so much to learn. Here you come over there and 3 or 4 of us were looking after more oil than the whole of Canada was making at that time because they hadn't found Redwater, just found Leduc. Several hundred Arab labourers, a good drilling company and right after the war, we're short of everything, short of people, and it was such a tremendous opportunity to get in and do thing and learn things. I don't think I would have ever got anywhere if I hadn't gone over there. Because here, all you have to know is the right phone number, who to call and they can tell you, an expert and everything. Over there, you had to be your own expert, you didn't know, you found out or you figured it out. And it's just surprising what you can do when the chips are down, as they found out in the war. The greatest things come out under the duress of war. That was almost like it. The war hadn't really hit them although the ??? did drop some bombs there one day. But anyway, it was just a case of get out and do things. You never get those opportunities in civilization.

BC: Did you find that, then coming back into the Alberta oil patch, made an awful difference in your area of expertise?

JW: The way I put it, I think I grew up over there. I think that explains it a lot. So that was really

the highlight of going over there, you never get that here. This type of work now, it's entirely different but as far as the oil industry goes, that was an experience that was awful rough. Temperatures of 110-120 every day. You'd drink all you could in the morning and take water with you, a gallon or so and your tongue would be sticking out by noon. Except in the winter time, if you wanted to play a few holes of golf you'd go out in the evening for a little while you see, and of course, the sun sets fairly . . . And just a few holes, maybe 4 or 5, you'd lose 10 lb. weight sweating it out. So you can see that it was a rough climate. But albeit there was a lot of good came to me out of it. I never would have had enough guts you might say, to go ahead and do the things if I hadn't been through that.

#262 BC: So it really changed your whole direction.

JW: Oh yes.

BC: When you became a professional engineer, just one last question, when you became a professional engineer and were admitted to that August group, what kind of differences did it make in the jobs that you were offered and the salary that you made, any at all?

JW: I was already doing very well in Bahrain. In fact about every 6 months they were raising my wages and then there once went a year by that I didn't get a raise and I felt, there was something wrong. But no, they were kicking my wages up pretty fast. In fact when I came back here, when I found I couldn't go over there anymore because of family problems. You must remember, there was no income tax over there and your living was there and you could practically put all your wages into the bank. They asked me here, how much did you make over there. I said, well now, you remember I lived in quite a good house, one that would cost so much here to own and all my living and no income tax, I said, I would have to get at least \$1,600 a month here to just about equal it. They said, good god there's nobody in this company earns that much money. So it gives you an idea of what the difference is of working over there. I think I came back here and started up here at \$550 or something a month. That was quite a way up the scale because it was based on my experience. Of course, that's a long time ago when the wages were. . .

BC: When you were getting \$550 a lot were getting \$250.

JW: Yes, \$200 was pretty good. But I really don't know, I can't remember. But anyway, \$550 was up in the pretty good class.

BC: I'd like to thank you very much for taking the time to share your experiences in the oil patch with us, it's been delightful. I've learned so much about different areas of, not only Alberta but throughout all of the world and I thank you.