SHELL OIL COMPANY

ORAL HISTORY PROJECT

Interviewee: Bob Ferris

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Bio

Mr. Ferris graduated from the University of Pittsburgh in 1941 and started working for Shell shortly thereafter. He had several assignments in the mid-continent and Tulsa areas before becoming division production geologist for the Oklahoma Division in 1948. He became Senior Exploitation manager and spent time overseas from 1955-1956. He returned to the U.S. and served as an exploitation engineer for New Orleans, Midland, and Houston. Later he was division exploitation manager for the Houston Area. In 1964 he became head of Production Development in the Hague, returning to the U.S. in 1966 as manager of economics for E&P. In 1972 he was appointed VP of the Western E&P region. He served in that capacity until his retirement in 1980.

Summary

Free ranging interview that covered various aspects of Mr. Ferris's career. Comment on his time in Corpus Christi, Nigeria and Venezuela. The dynamics of his position in E&P, including forecasting technological change. Extended discussion of the Bay Marchand Blowout.

Side A

TP: Today is December 17, 1998. This is an interview with Bob Ferris at his home in Lakeway, Texas. Bob, I thought we would start the conversation by having you go back to the beginning and tell us how you joined Shell, what your background was, and we will proceed from there.

BF: It was kind of a weird way that I got interested in the oil business. Just before I went to college, I was working in a hotel, in an exotic position of bellboy.

TP: Where was this?

BF: Buffalo, New York. I had an uncle who was in on a brokerage business, and he got interested in the oil business for brokerage. He went out to California and he got in with some independents and lost his shirt! But he was the one that told me about these petroleum engineers that he talked to and so on, who really sounded interesting. So, I decided that maybe it would be a good deal to go into. So, I went to the University of Pittsburgh, which was the closest school that had that, to Buffalo, and graduated in 1941. I had a couple of job offers after I got out of school. I think our class, there were seven seniors! That is how big they were then, petroleum engineering.

I got a job offer from, well, what is Exxon now . . . Carter Oil Company. Back

then, they wanted to pay me $135 a month. Shell offered me $150, so I went with Shell! And I have worked for Shell ever since. I have done nothing but E&P the entire time. I was an engineer doing field work in Illinois mostly during the war, where we had to buy steel, you know. Everything was hard to find but in steel, you had to calculate for the government how many barrels of oil you were going to get per ton of steel that you used, which is something that I don't think they have ever used since, measured at any rate. That was in Illinois, and that was when the boom was on there.

TP: Was this at the Benton field?

BF: The Benton. I worked in Benton. That was my first field assignment. That is where we had the waterflood; where the business basically started.

TP: When did Shell start water flooding at Benton field? Was that after the war or was it even during the war?

BF: It was after. By then, after the war . . . I was working in the field all during the war and shortly after. You know, automobiles were impossible to get during the period. And in 1946, I was working in Oklahoma and I got a new company car, a 1946 Chevy, red. When I would go to get gas or stop anywhere, people would gather around to look at that car. That was really funny.

Anyway, then I went up on a core drilling program up in Kansas, and I had what I guess you could call the first real authority I ever had. I was sitting on the wells and we were drilling these strat tests all around Kansas, eastern Kansas. In order to save money, they decided to really streamline the process. Ordinarily, if you drilled a wild cat, why, before you could do anything, you had to go all the way to head office. If you wanted to run pipe, same thing. In order to save that time and that money, they gave me that authority. I thought that was neat.

TP: Well, that was an important development, this decentralization in E&P right after the war.

BF: Yes, it was something that they had never done before and it surprised a lot of people when I could be out there at the well, we'd run the logs from there, and I said, "O.K., that's it. You can plug it."

TP: Do you think that improved your efficiency and your costs?

BF: Oh, it did. Basically, it cut about two days off the drilling costs. And then, they would move over to another location. But as far as I was concerned, the neat thing about it was having all that authority of drilling and that sort. Well anyway, after that, I went in the office.

TP: So, this was in Kansas right after the war?

BF: It was in Kansas. And that was run out of the Tulsa office. Then I was transferred to Oklahoma City, which was a division under the Tulsa area, and I became a production geologist. I worked on that job, which I enjoyed, really enjoyed. I found it very challenging for a long time.

TP: So, what kinds of things did you do as production geologist there?

BF: Worked at wherever we were going to drill, basically. Work up drilling programs. Make up maps of all these different formations. I enjoyed that a great deal, and had a chance there to show any idea you might have. It was, in a sense, like the exploration department, because they worked on a much wider scale. We worked on the individual fields that had already been discovered, but we were trying to make them as big as we could. How far out could you go? And, at that time, talking about what authority you had, the only authority you had was to make a recommendation which would go from me to the division exploitation engineer. That name came from the Dutch, which was abandoned later on. Exploitation was a bad word!

The recommendation went to him [the division exploitation engineer]. And then

it went from him to the division production manager. And then it went from him to the area production manager. And then it went to the vice-president in the area.

TP: So, the chain of commands stayed in place. Like you were saying, you had more authority in Kansas but in production . . .

BF: It didn't change. No, not at all. That was a very special circumstance and that is the way that everybody looked at it. So, things went on as usual there. I kept moving around. I went from Oklahoma City where I became division exploitation engineer there, and then was there for a year or two, and then went to Tulsa as a coordinator for the exploitation engineering. I went from there to New York. It used to be six months in New York and six months in the Hague.

TP: When did you go to New York? What year was that?

BF: In 1955. I was there six months and then went to The Hague for six months. I came back . . .

TP: How did you enjoy your period in The Hague?

BF: Oh, very much. It was really nice.

TP: It was part of this program to give you exposure to the Group?

BF: That's right. To show what the Group did, and so forth. I thought it was a marvelous opportunity for vacations in Europe. You had your whole family with you. You went first class . . . this is before airplane travel was much . . . you went first class on the plane to The Hague. That was a wonderful trip.

When I left The Hague, in 1956, just barely into 1956, I went to New Orleans, as division engineer and undoubtedly, that was the most active division in the company probably. At one point, in that one division, we had 25 rigs running constantly.

TP: That is when offshore was really starting to take off?

BF: Block 24 was the main area of development. All that area, which I think they sold recently, was the first so-called deep water platforms, Block 42, which is a marvelous fishing place. We used to go fishing there. I remember one time, we were moving a barge load of pipe, casing for some wells out there, and we were pulling the barge out and came to where the tide and wind were churning things up, and the barge tilted and dumped this whole load of drill pipe out there. The water was 170 feet. One hundred and something feet of water, and who knows how much muck. We couldn't find the pipe. There must have been 10,000 feet of

casing. We couldn't find it.

TP: Did any divers go down?

BF: Well, divers can't see anything in there. This was right at the mouth of the Mississippi.

TP: This is block 42?

BF: Yes. There is nothing there now. The platform was dismantled and everything was walled up. They went in with . . . the shrimpers around there would complain about hanging up on stuff around the wells. So, our division manager rented a shrimp boat and told them to go out and see if they could find this pipe! They found a few joints.

TP: This would have been Shell's, what they call, "deepwater" platform in about 100 feet at this point, which is a significant increase in depth from, say Block 24, Block 69?

BF: Block 24 and 69 you could drill with jacked-up rigs. And this was too deep for that. And besides that, the soil conditions were unbelievably bad there, right at the mouth of the river. The piling, when they put the piling, it slid down, I forget

how many hundred feet under its own weight. I had mechanical engineers, the guys that designed the platform, tell that today, they wouldn't even try to put a platform there because that mud would flow every once in a while. So, you can imagine the resistance to that piling of the flow.

TP: Other than this mishap with the drill pipe going overboard, were there any other problems with that pipeline?

BF: We never had any that I can recall.

I am not positive I've got the times right. I was transferred to Midland.

TP: Before we go to Midland, do you remember anything else about this early period? This must have been really exciting.

BF: Well, it was . . .

TP: It was a totally new frontier.

BF: That is when we had the . . . what was the name of the rig they drilled a lot of the wells in?

TP: Odeco?

BF: It was the first one. It was built like a submarine.

TP: *Blue Water*?

BF: No. That was out in the West Coast. This was built like a submarine. It, in effect, was a jack-up rig, except all the machinery was under water and the submarine, when you worked on the deck up there . . .

TP: This is what you called a submersible?

BF: A semi-submersible. Well, the semis now are totally different.

TP: Submersibles are more like a barge, right? It sat on the bottom and then jacked the other platform up . . .

BF: Yes, but the big difference was this was built out of war surplus stuff. The pumps were some war surplus -- the mud pumps and the mud stored and all that was down under the water in the bottom part of the rig. And the guys working down there, I don't know how they stood it. I'd get claustrophobia when I went down there and saw that.

TP: Were you involved in any of the bidding?

BF: Not until later when I was vice-president.

Talking about the history, I first got in the bidding thing when I had come back from my second trip to The Hague when I was over there . . .

TP: We can get to that a little bit later. Let's talk about the early years of offshore. Do you remember . . . your first platform you were involved with was in Block 24, and that was one of the big money makers for Shell.

BF: Oh, yes. Like crazy. Bay Marchand. Block 69, that is what it was. Block 69 and 24 and 35, Main Pass. That is where we were really the bucks. I remember that Dykstra was president in New Orleans and at one point there, talking about authority to drill wells, he got that. So, he said, "Oh, just drill it . . . Don't bother doing any geology." He was quite a guy in those days.

TP: Yes, there are a lot of stories about him. Do you recall, the decision to move even further to deep water, because there wasn't universal agreement about that at the time, was there?

BF: No, there wasn't. The seismic . . . well, Bouwe Dykstra, he was not as convinced as some other people were about how much money you could make there. It cost an awful lot compared to the swamp drilling of Louisiana, but when we had Block 24 and saw the amount of pay that there was in those wells, we started having lease sales around there. Are you going to talk to Sam Paine?

TP: Eventually we are, yes.

BF: When I was working in the Gulf, he was the petrophysicist for the area, if you are familiar with petrophysicists.

TP: Gus Archie was the founder, wasn't he?

BF: Well, Sam was one of those. And when we were drilling in Block 24 and around here, there was unleased state and federal acreage. You know, the state federal line went right through there. We had our drilling program going on and we would drill as close as we could get to this other acreage that was going to be up for sale. And talk about tight holds. I was a division engineer and I wasn't allowed anywhere around that. Sam Paine, the petrophysicist, would go out there and run the logs with Schlumberger and take them back to the New Orleans area office. Well, that is how tight they kept the whole thing. There were state laws requiring copies of the logs they sent to the state people, and were able to talk

them into letting us hold back on those for quite some time, which was a good trick in Louisiana.

TP: So, a lot of people wouldn't know. You had intelligence on the unleased acreage that would help you in bidding.

BF: Exactly. We'd have wells with 200-feet of pay in them. Obviously, it was going to run over to this unleased acreage. And that is when we started putting some real serious money out there. Well, as you mentioned, not everybody thought it was the greatest idea. Some people were, well, Denver was just sort of getting under way in mountain country. They wanted to put the money there. Anyhow, we were certainly glad that they stuck with the offshore. I retired in 1980 and even at that time, offshore was very, very important. Somebody said, I don't know what we would have done without it.

TP: Well, you knew the oil was out there. It was just a question of the economics, right?

BF: That's right.

TP: And the technology. The decision was eventually made to say, well, we'll build it. We will figure out a way to make it work.

BF: Yes. And going out in the deeper water . . . well, of course, the water they are in now makes a joke of what we called deeper water. The last one I was connected with, the deepest one, was that one.

TP: "Cognac."

BF: Yes.

TP: That was a spectacular project.

BF: Do you know how that was built?

TP: With three pieces, right?

BF: Yes.

TP: That was a stunning engineering achievement.

BF: Yes. We would never build another one like it. It cost plenty, but we were really proud of it.

TP: We wrote the history of Brown & Root offshore, and they built Exxon's Lena, which was an alternative method to "Cognac" which came right after it for this water depth in 1000 feet. But they learned a lot, I think, from what Shell did on "Cognac."

So, after you were in New Orleans, you said you went on to Midland, is that right? And that would have been the late 1950s at some point?

BF: 1959. I was there only a year, I guess. And then I went to Houston and was chief engineer in Houston, chief exploiter. And then I went from Houston to Corpus Christi, which was my dream place to go to. I was division manager there. I have always been an avid fisherman, so going to Corpus was wonderful.

TP: So, what kinds of things did you do in these places? You were chief exploitation engineer in Midland, is that right?

BF: Yes, and in Houston. And then I was division production manager in Corpus. I was in Corpus about two or three years, I guess.

TP: Were you working on secondary recovery up there in Midland? In Corpus?

BF: No, in Corpus, where we had one, Bigfoot was the name of the field. And that was working out real well. But basically, we were into gas and some oil, but it

was more gas drilling there.

TP: I guess around this time, I got maybe 1956, 1957, Shell decided that they were going to actively start producing gas or exploring for gas, is that right?

BF: Yes. Certainly, we would have rather found oil but oil was getting awful hard to find which, down around Corpus, there was some deep gas there that was pretty profitable stuff, and we started developing that; which also started a project that we had great hopes for but never were able to do anything with it, and that was how to undermine combustion. We set our reservoir on fire and then drilled there to move the oil which had been heated and gathered.

TP: Is this what they also called in situ combustion, is that right?

BF: Yes.

TP: Charlie Matthews said he studied that a bit over at The Hague after the war, the techniques of in situ combustion.

BF: Yes. We had found out, or the company had, that you didn't need to ignite it. You could ignite it by putting air in there, which was quite a surprise to me. In the Corpus division, we bought a depleted field from someone and started this

experiment. It just didn't work. There wasn't enough oil left, I guess. Anyway, that in situ never amounted to anything really.

I went from Corpus to New York, where I was put in charge of the big campaign on heavy oil recovery that we were doing. They were going to explore for heavy oil and also working on ways to recover it. That is when the steam soak idea started, and that was invented in Venezuela, right near Maracaibo. Charlie Matthews and I went over there one time, you know, and talked to those people there about that. Well, I was in that job a very short time. Then, they got somebody that knew more about some of that sort of stuff than I did.

I went over to The Hague where I was head of production development, and I was there for three years, almost three years.

TP: Three years?

BF: Yes.

TP: Was this on loan from Shell, or were you actually working for the Group during this period?

BF: I was on loan from Shell but I was working for the Group. I was paid by the

Group. I did some visiting around different places that I really enjoyed. I went to Nigeria a couple of times, Dubai. And then, of course, the European oil fields.

TP: What kind of projects were you doing?

BF: Well, I was what, in Shell, may have been called manager of engineering. That is basically what it was. I worked with the research people there. I helped with the budgeting in all the different countries where the group was operating. I think that is when I went to Venezuela, and I think that is when Charlie was down there at the same time.

That was when we . . . you heard maybe about the big gas field in the Netherlands. Now, that is when development there was getting under way. And we were just starting to drill in the English Channel, in the North Sea. This gas had been discovered there. I forgot whether it was before or after I was here . . . And I remember thinking, boy I hope that we don't run into oil can see so many problems developing oil in the North Sea. But, of course, we did discover oil and it did great things for the United States having that source of oil now is against the Arabian countries.

TP: So, what kind of differences did you notice between the kind of work you were doing with the group and the work you were doing at Shell Oil, the places that

you were traveling to in terms of both, the kind of engineering that you were doing and the local circumstances?

BF: Well, it was kind of funny. The first time I went to Nigeria was when I had gone over to The Hague in 1955. We visited Nigeria. We were there when they were drilling the well that became the beginning of the Nigerian oil business. And, of course, then, Shell was the only one on the acreage. American companies came in later. But as far as the terrible difficulties that the Group had going into these countries, other countries, was the politics was always hanging over their head. Finding labor that could handle the job. I remember talking to one of the engineers in Nigeria. They built a camp there, a little town, and they had to bring in school teachers, you name it, any job you ever heard of. And the school teachers were trying to teach the people so they could work. They couldn't measure anything. They didn't know, if you had a ruler, well, what do you do with that? It was very, very difficult. But it took an awful lot of manpower. I remember going out to a drilling rig there one time and they were unloading drill pipe from the truck. There must have been 50 men working out there to get this drill pipe loaded on that truck because they didn't have anybody that knew that sort of stuff. The tool pusher could come by but he wasn't there. Teaching them to run a business was very, very difficult.

Now, that wasn't the case in Holland or Venezuela. They had a pretty competent

crew there of engineers. I think the CSV, the Shell company there, they had 60 native Venezuelans. And then, they became more and more conscious and decided they wanted to be their own bosses. When you went in a country, or when an engineer was sent there, they had to hire a Venezuelan for the foreigner to get a work permit and train this man theoretically to take over your job in a short time. And then, at the same time, they wouldn't accept that it was necessary training for the Venezuelan engineers to go to some other country. The politics wouldn't allow them to do that. Anyway, of course, that all ended in Venezuela taking over the oil business from the foreign companies later on.

As far as work and the engineering went, I think the Group engineers were very high caliber, and there was enough interchange between us and them, that it pretty well leveled out. As far as the groups running the business were concerned, why, the Group had far more influence on the other countries than they did in the United States. The one thing that hung on for many years in the group was checking our budget, the U.S. budget, which became more and more just a formality. We would take the budget over there and talk to them.

TP: How about the exchange of technology? Jack Threet was telling me that people like R.E. McAdams were very protective of the technology that Shell Oil develops, especially offshore and in the Gulf, and didn't want to give everything away to the Group because they feared that through the Group's joint ventures

with other American companies around the world, it would come back and hurt Shell Oil's competitive position in the United States.

BF: And apparently, a lot of the seismic stuff, as far as the production department was concerned, I don't think that existed nearly as much, if any. The arguments . . . we'd have a meeting with the head of the production part of the lab. We would meet with the Shell Development people, and I was there . . . we didn't have much trouble. We came to a system where we tried to put a monetary value on the various things we were building which is very difficult but nonetheless, that is the way we tried to even things out.

TP: So, you went from Corpus to New York and to The Hague for three years? This would have been early or mid-1960s?

BF: Yes, I came back home in 1966, and I became head of the economics in head office. The rest of the company didn't have anybody in E&P.

TP: So, this is E&P in economics then?

BF: Yes, E&P economics. I wasn't in that very long.

TP: When was this created, E&P economics? Was this something created in the

1960s, or did they always have that?

BF: It would be in the 1950s. The first one to . . . Art Gurnsey was doing that kind of work, trying to help them out, and I am trying to think of who was John Redmond's . . .

TP: John Redmond?

BF: John Redmond, who I kept running into everywhere. John was division manager in Oklahoma City when I was division engineer. A great guy. I have always had a great deal of respect for him. I still do.

TP: I think he was the first formal head of the economics division.

BF: Yes, I think so. I have a drawing of all the ones that had been in E&P economics.

End of Side A

Side B

BF: That is 1968.

TP: I see you have the years as the jersey numbers.

BF: Yes, that year. That's right.

TP: So, what were you doing as team captain of the E&P economics?

BF: Trying to learn something about economics.

TP: Well, it seems like an important position for people rising in E&P, you can see by the names here.

BF: That's they way they looked at it. That is the job I got when I got back from The Hague. And I was tickled to get it. I knew I was coming back for that job. They told me when I was still in The Hague. I originally went there for a supposed two-year assignment, and I had already been asked to stay another two to four. I agreed to stay on longer. And then I was offered that job, so I came back to take that. It was a really interesting thing, trying to figure out where were we really and where were we going, making these 10-year estimates, 10 years in the future.

It was a very interesting type of calculation. There were a lot of bad assumptions made in those days! Art Guernsey use to say that he's not predicting what is going to happen. He'd say what will happen under these conditions. So, you had to look at the assumption.

TP: So, did you run all sorts of studies based on different range and combination of assumptions?

BF: Yes, we certainly did. And we used to run assumptions based on the crude price changing, and so forth, going up or down although we never did think it was ever going to go down. Our basic assumption, which turned out to be terribly wrong, was that the ceiling of the price of crude would be when the tar sands could take over. And that just turned out to be totally wrong. That is where these very high prices were predicted. And I don't think, as far as the world oil supply was concerned, and even the U.S oil supply, our predictions on the amount of oil that would be recoverable around the world were low.

TP: How do you factor in technological change? It is really difficult, isn't it?

BF: Yes. Well, like I say, if you make the assumption in the beginning that something you know about is going to be the ceiling, that helps you. And as far as technological advances that allowed us to go in the offshore, out in that deep

water, I don't know how they . . . I have been gone for almost 20 years, when they would come up with these astounding platforms out there now. I do know that there were lease sales when we were speculating on how much oil there might be out in the deepwater, and speculation was pretty much what it was.

I remember I had to go to a meeting and some group, mostly the people who hated the oil industry, in Delaware. There were people from Delaware and New Jersey. They wanted to hear what Shell was going to do out there and how soon would the whole country be destroyed by our efforts.

TP: Well, it was complicated also by the consideration about building the East Coast refinery in that region, too, wasn't it?

BF: Yes, that certainly didn't help any. We bought all that land and never were able to use it. It was kind of like in the coal business, when I was in economics where you bought a coal lease in the strip mining country up in the Midwest, a little further west than here.

TP: Wyoming?

BF: Yes, Wyoming.

TP: Powder River Basin?

BF: That's right. And we got this great lease from the Indians . . .

TP: This would have been in Montana, on the Crow reservation.

BF: Yes, it was the Crow. We paid them a couple of million dollars or something like that. And then everything went haywire about cheating the Indians and all that. We were never able to do anything with it.

TP: I talked to Jack Mahaffey, who ran the coal ventures.

BF: I had bought the stuff, and he was never able to do anything with it.

TP: What position were you in when . . .

BF: In economics.

TP: So, you bought the leases in Crow reservation?

BF: Yes. Well, as I say, it didn't do us any good at all. I always thought that they could have made an agreement, but by then, Shell was in other parts of the coal

business, a part I never wanted . . . doing the underground mining. I had said that I didn't want to do it because the first thing - underground mining was a very dangerous business and I just didn't want to get mixed up in it. And the other thing was that if you went into mining, you automatically got unionized. And I didn't want that either. But anyway, they decided to go with it.

TP: So, this was all happening still when you were chief of E&P economics?

BF: Yes, that is when the coal got started.

TP: You got the leases back then, back in the late 1960s?

BF: We didn't do anything with them. I became vice-president of production in New York.

TP: Is this when you came back from New Orleans?

BF: New York. And then, from New York moved to the Houston office. Then, I traded jobs with Gene Bankston. He was E&P vice-president for the Houston area. I was vice-president of production. We switched. And then, I switched with Jack Threet in 1975.

TP: So, you were in Houston for a good . . .

BF: About five years, in two different jobs. I went from we had the Houston division . . . no, it was onshore, western region.

TP: Yes, what was mainly going on in the Houston area when you were there?

BF: Well, it wasn't the Houston area. It was . . .

TP: The Houston division . . .

BF: The southwestern region. Well, that was all of United States and Alaska. I mean, from New Orleans and everything else in the southwest region . . . had the big things going then were . . .

Let's see, that would be the thermal projects in California and . . .

TP: Yorba Linda is that what it was?

BF: Yes. I worked with . . . which started the CO2 wells. People thought we were nuts drilling for CO2.

TP: This is out in west Texas, right?

BF: Yes. And I think that is when we had that field in Uinta basin. We were developing that. We were doing Michigan. That was a fun sort of place.

TP: Is that run out of the southwest region?

BF: When I first started, yes. We didn't really have the two divisions, I mean, regions, and New Orleans had this right along the Gulf Coast around New Orleans and then all the onshore and the East Coast, and we had all the rest.

TP: So, the Denver area had collapsed into the southwest?

BF: That's right. And California had disappeared some time before then.

TP: So, you were working on the CO2 project in west Texas, the steam recovery in California, and the pinnacle reefs in Michigan. That was a real technological success, using the bright spot.

BF: No, not in Michigan.

TP: But new seismic technology:

BF: It was good, darned good seismic. A funny thing there: when I was a field engineer, I was sent to a program in Michigan, up there in Saginaw, and the first well we drilled was a wing-dinger, a really beautiful thing. We drilled four dry holes around it. We had a hole in every direction! At the time it was built, it was the first seismic success in Michigan. Freddie Oudt was the guy running that.

TP: I don't recall that name.

BF: He was the czar in geophysics at that time anyway with this first seismic success, and from then on it was nothing but a dry hole. They had all this acreage . . .

TP: You said this was when you were field engineer, so this is further back in time?

BF: Yes, this was back during the war. That was our first effort in Michigan.

TP: But then you went back with the new seismic and were able to figure out this reef geology?

BF: That's right. That was another year later. Freddie Oudt was gone then!

TP: And California, you really didn't get involved in the offshore of California?

BF: No. Only, again, in some of the bidding for offshore leases there when I was in the head office in economics. Now, a lease sale came up which are just extensions of onshore fields. We are quite sure there was oil there. And then, there was some little farther out stuff that we were pretty darned sure. In fact, the bidding was handled by the production department rather than exploration, because they figured they had it pretty well teamed out. The only problems were state regulation problems, plus trying to figure out how to make any money on this thing. So, as I recall, we bid on several pieces, more or less, token amounts. We wanted to be sure that everybody shied away from them, that we had a chance, but we weren't willing to put big bucks on them. And they went for big bucks, too! Exxon got most of it, I think.

TP: And then you also had Alaska.

BF: Yes. Of course, we had a nice little deal there near Anchorage, and the stuff that was discovered, I don't remember what year it was. Anyway, before Prudhoe Bay. And then, why, it was found and we just weren't there, of course. We got some more acres later on near that but never found the volumes that were needed. And ever since, of course, the problem of what is damaged to the environment has been such a weight hanging around their neck. All the people that worry about that ought to go up there and look at it some time, where you have to buzz the

landing strip to get the caribou out of the way before you land.

TP: So, the pipeline has been, the Alaska pipeline has been pretty clean?

BF: And so is the whole field of development. But there are so many people that think that a wildlife preserve is just that - you are to do nothing else. No matter what you do, you are going to change it. And if we mention something about all the caribou running through the oil field, they just sort of mutter, "Yes, they are there now and you have planted some grass." This isn't Shell . . . "You planted some grass out there and they are eating our grass. And that isn't their regular clothing." You get people whose mind will never change.

TP: So, you were head of production in Houston until 1975, you said?

BF: I was vice-president of the southwestern region until 1975, and that is when I went to New Orleans. I stayed there until 1980.

TP: Another big first in offshore development at that point.

BF: Yes, we had plenty going on. When we bought all that good acreage, a lot of it that is being developed now. It is quite a long time from the first time you see it in the seismic. That is when the bright spot business really got under way, too. I

remembered seeing some of those logs. There were electric logs showing that they were able to find the . . . we hadn't realized what we were looking at previously. And then the guys that began to work it out in the seismic, they really did a prime job. It was a wonderful piece of work.

TP: And Shell figured this out before any other company?

BF: We think so. I have always believed that. I don't suppose I would recognize the seismic they do now.

TP: The 3-D seismic?

BF: Yes, compared to what it used to be when we were trying to do the pinnacle reefs. That was plenty good. But this other stuff, oh boy! And the things they do with the computers now.

TP: So, you said you got involved in the bidding for this new acreage that you picked up in the 1970s. Can you talk a little bit about that, about that process?

BF: Well, I think it used everybody's talent. And, of course, the exploration department had the heaviest load to carry on this, and they would do the seismic, and then draw maps based on it. And they, together with people in the research

and production department, would take this geology which they had figured from what they knew at the time, and then took the cost that was developed by the production department and put them together, and then sat down and had these meetings that would last a long time trying to work out what the bid ought to be. It was scary at times.

TP: They were laying a lot of money on the line.

BF: Yes. When we put in all the bids and see the ones we got . . . how much money did you leave on the table? That was what lawyers always were saying -- how much money did we leave on the table? And said, well, it doesn't matter what we left on the table. If our assumptions we used are correct, we got a good deal on this thing. And the fact that nobody else saw it or thought it was as good as that, that is irrelevant. Well, O.K., it was. Sometimes we were absolutely right on some of that, as exemplified by the oil they found. When you are trying to figure out a bid, I remember I was at a meeting where the governor of New Jersey was there talking about Atlantic City, offshore from Atlantic City. He was a governor who was real nice, at least I thought he was. He was killed . . . Republican, that was going to run for president probably.

He was there. He asked, "How do you determine the value of this stuff that you are never going to test?" I said, "Well, you really just had to put together a lot of

guesses, and you might be wrong." And he said, "Do you mean that you are bidding that kind of money and you don't know what is there?" I said, "Exactly." We didn't know what was there. And that was shown by that Atlantic Coast development.

TP: Can you talk a little bit about the "Cognac" project? Was that the last major one you were involved in?

BF: Yes. That was the deepwater project. I remember going out to a construction site and looking at that stuff, thinking, my gosh, we've got to do that? Well, those guys that worked in the offshore assured me they knew what they were doing. They put that thing down, and I forgot whether it was a foot or two feet, or something like that, but settled on bottom. And then they would tack it in with that underwater pile driver.

TP: And then mate the three sections in the water.

BF: That is right. They had divers . . . I guess there was more deep water diving done on that than . . . well, up to that time, there had been nothing like it. I remember going out on the platform at Southpoint looking at the decompression tanks. Those divers had to stay in for such a long time. How anybody could do that, I don't know. The only worse thing I can think of is the divers working in Cook

Inlet when we were drilling there.

TP: Not even the North Sea?

BF: No, not the North Sea. The Cook Inlet and Alaska were . . . the tide is a 20-footer there, or something like that, and the water is not clear. It is milky. The surface and down below where you had your equipment, some of the equipment, it was totally opaque. The divers would, on their face mask, just had a steel plate, and would do everything by feel. And you only had about slack water where you could do anything was no more than two hours, something like that. But they got paid a lot! They had to go down and see if stuff was washing away underneath the pipelines and that.

TP: So, looking back on your career with Shell, who were some of the most influential people?

BF: Well, I've already told you one of them: John Redmond. I always had a great deal of respect for Bookout. He and I worked, did some geology together in Oklahoma. He was just starting as a geologist and I was just engineering. Burt Easton, the guy that I replaced in New York when he died, he was good . He was a Californian but I didn't hold that against him! We joined California and East-of-the-Rockies together many, many years ago.

TP: Was that the 1949 consolidation you are talking about?

BF: Yes. The Californians didn't think the guys on this side are any good and vice versa.

TP: There wasn't much crossing over between the two areas.

BF: No. If you went to work in California, you were told that you could stay in California as long as you worked for Shell. And here, why, they never said anything about sending you to California! And following that, there were quite a few people transferred when that consolidation took place. We found out there were regular there at the home.

TP: It was just a legacy of the separate companies that Shell had? I mean, people just ended up developing our own culture and allegiance.

BF: That's right. And they had their own production research lab. Everything was this side and that side. Well, as I say, it took a while but it all worked out very well.

TP: So, in E&P, looking back on the entire history of E&P of Shell, what really stands

out in your mind as one of the most incredible developments or major thins that you were ever involved in? I mean, what do you see is the greatest success?

BF: Well, the greatest success, I think, was the offshore, developing that. The worst thing that happened was that prior to the offshore.

TP: The Bay Marchand blowout?

BF: Yes. I was vice-president in New York when that happened. Then there was that fire in Mississippi, sour gas. Well, we got over it. The production department, research group, contributed a great deal to the development for materials for use in solid gas conditions.

TP: Coming about about it?

BF: That is correct. That sour gas was so bad, you could take an untreated wire line from stainless steel and run it in the hole. And you'd better run in and try and get it out fast because it is just going to instantly react. It was like that. We tried all these steels for corrosion resistance to hydrogen sulfide. And the steel that you would have in your kitchen, it is called stainless steel, it wouldn't work at all. It was totally worthless in the environment.

TP: How did you end up controlling that?

BF: The well?

TP: Yes. It was very close to Jackson, Mississippi. Then, there were real fears of catastrophe.

BF: We were scared, really scared. The control was done by drilling a direction well, and pumping down into the think, very heavy mud and killing it. Now, killing it for concrete. So, that is the way it was done.

TP: So, what kind of materials did you develop?

BF: The steel was just . . . we worked with the steel companies, I've forgotten which one, but they made it to our order for the materials to be used in casing well head and that sort of thing. Really, it was sort of a lab out there, if we tested all these materials and had put them in a place where they wouldn't . . . I'd have to say blown up, it wouldn't matter.

I've got movies that I took of the fire, not the actual blow up, with that stuff coming out of that, and it killed everything around there. It rubbed out all the vegetation. There was a little pond nearby full of soot.

TP: People worked there. Were they in suits and masks?

BF: We knew the gas there was going to be sour and you always had masks on. There was only one casualty. The well started to boil and they knew at that point, the way it was going, to get out of there. That is all you do. There was a panic valve that we invented later. But something like that, it wouldn't have worked on this. But anyway, there was one man killed. It was a service company manager. But when he was running away, he tripped and fell down and cracked his mask and the vapors got to him. So, that is how deadly that thing was.

So, after that . . . well, it catching on fire, of course, was the only thing that saved a real disaster. In fact, I don't know whether we set it on fire or whether it caught on fire.

TP: And how about Bay Marchand? Shell did an exemplary job of controlling that, too.

BF: Yes, we were lucky. It was light oil, so it never messed up the shoreline like some other spills have. Light oil. And then, we helped; we got equipment out there very quickly that was able to scoop up oil. And then, we let it burn. We could have put it out long before we did, but we let it burn so that there wouldn't

be the damage. And, of course, we had to drill directional wells to control that, too. There are photographs of all of that, great photographs of that job somewhere in Shell.

TP: We must have them down at the archive at One Shell.

BF: Yes, I was going to say, for photographs, anything that was very interesting, it is in the old archives of *Shell News*.

TP: We don't have all the photos from *Shell News* apparently though.

BF: No?

TP: I was surprised. We were trying to pull some photos for the early chapters, from the late 1940s and early 1950s, and a lot of stuff in the *Shell News*, they never had at One Shell. They may be somewhere else but I don't know. But there are certainly, as you get close to the present, all sorts of good stuff.

BF: Well, in New Orleans, you had a photographer in New Orleans who recorded everything.

TP: I wonder if the New Orleans office would have some of that down there.

BF: Very likely.

TP: I think it would have been transferred but I don't know.

BF: I don't even know what is left in New Orleans now. The Shell building is still there, I guess.

TP: Well, is there anything else you want to add? Is there anything you can say about the Shell culture, the Shell people in general?

BF: Well, I was trying to think . . . we were very proud of our company, and we thought we were at least as good as any of the other companies, and probably better than most. I used to get irritated at some of the other companies. Well, anyway, I think that Shell had a very loyal bunch of people. Nothing happened when I was there, like selling oil in Shell's factory group to make people wonder. Or, like these recent things -- Equilon . . .

TP: The joint ventures and alliances?

BF: Yes.

TP: Some people I talked to couldn't believe that Shell would be in alliances with some of these companies.

BF: I know. That is exactly the feeling . . . well, you know, during all this time of bidding for federal leases and that, they wouldn't even let us bid with Exxon or Amoco or anything . . .

TP: With other majors, yes . . .

BF: If we wanted some other money in, we had to get a bunch of the rich independents in on the thing. And the talk of combining things like they had now. And I know some people that really hated their Equilon deal, some Shell people. I ran into a Shell man in the grocery store here, he said, "What do you think of this Equilon anyway?"

TP: Yes, well, who knows what is going to happen with that. Some new announcement comes out every day.

BF: You know, you had that terrible fire in the Anacortes refinery.

TP: Was that a Texaco refinery or was that the old Shell refinery?

BF: I believe so.

TP: I know Texaco had one up there, too.

BF: I didn't know that.

TP: That is where it would have been. That is interesting. Well, I suppose we can wrap it up here. This has been very enlightening. Thank you for your time.

BF: I don't know what good I've done.

TP: I will stop the tape.

THE END