HHA # 00167
Interviewee: Warren R. "Dick" Farmer
Interviewer: Dr. Robert Carriker
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Transcriber: Lauren Penney

[Transcriber's note: The majority of the interviewer's backchanneling has not been transcribed for the purposes of readability. Repeated words have not been transcribed.]

Ethnographic preface:

Mr. Farmer was born and raised in Lafayette, Louisiana. His father was a freight train conductor with the railroad industry. He graduated high school in 1945 and joined the Marine Corps. He studied physical education at Southwestern Louisiana Institute (SLI) on the GI Bill until 1949, but never finished his degree. During that time he worked for Frank Mosing Casing Crews as part of casing crew on a rig and joined the Air Force Reserves. He served in the Air Force as a flight engineer during the Korean War and when he returned he went to work for Hughes Rental Tool Company. He worked for almost five years as a salesman in Lake Charles and New Iberia, before becoming a district manager in Houma. Next he became the southeast manager in Laurel, Mississippi, and then eastern regional manager in Jackson, Mississippi. When he was made central regional manger, he moved to Dallas, Texas. Later on he did work in Denver, Colorado, and London, England. When he returned back to Houston, he was a vice president in the company. In 1990, after 37 years, he retired and moved back to Lafayette. He provides detailed descriptions of how wells are drilled, particularly the function of drilling muds.

TRANSCRIPTION

Interviewer initials: [RC]

Interviewee initials: [WF]

RC: This is Bob Carriker and it is February the… twelfth, February the twelfth, 2003. And we're on the campus of UL Lafayettte in Griffin Hall. And we are interviewing Dick Farmer today. So that's all we need to do to get squared away. So-

WF: You [wonderin'/want to know?] about how the offshore developed? How it started or?

RC: Right. Well, first though um, some background on you. Are you, where are you originally from?

WF: Uh, I grew up in Lafayette and it was uh, probably 18,000, sixteen, eighteen thousand people. And went to SLI.

RC: Okay. When did you go to SLI?

WF: In the '40s… '46, '47, '48, and '49. And then uh, while I was in school I worked in the oil industry. Saw it pretty well offshore kind of developed. I started in that period of time, in the '40s.

RC: Well what did you do when you first worked in the oil industry in college?

WF: Well I worked in a casing crew. Uh, once you get a, the well start drillin' the well, every so often you have to set casing to keep it from [fluffin'?] in. And uh, you had guys that specially run casin', 'cause you can't keep that many people on a drilling rig. So you hire the casing crew and they come out, they run the casing in the hole.

RC: Okay. And how did you get that job?

WF: Well I happened to go to school with a guy named Donald Mosing and his father was the, started Mosing, Frank Mosing uh, Casing Crews. And now it's Franks, it's one of the bigger industry here in town.

RC: Oh right, sure, sure.

WF: Back in those days they didn't have but crews, just four casing crews. Five guys to the crew and an automobile, and they went out and did the work runnin' the pipe. And that's pretty well how that started.

RC: Okay. So when y-

WF: And then he grew from there. He got into rental tool business and then now they're in the pipe business. They sell the drill pipe, I mean, sell the casing and the-

RC: So when you were at SLI, what were you studying?

WF: P.E. Physical Education.

RC: And what were your plans?

WF: Well, uh, I was just gonna get a degree, but finally I didn't end up with a degree, I finally went to work in the oil industry. And the Korean War broke out and I had to, was called back into the service. And then when I got out I went to work for Hughes Tool Company. They were here in Lafayette at the time and they sent me to Lake Charles, and I worked in Lake Charles, and New Iberia, and Houma several years, and then promoted to manager in the southeast and went into Mississippi.

RC: Oh, so a pretty broad career then.

WF: Yeah. Worked their for several years and then promoted to regional uh… manager and went to Dallas. And I worked in Denver, the Rocky Mountains.

RC: Oh my. So you've gotten around.

WF: And then, yeah. I went to London for a couple of years and then came back in as vice president of the company.

RC: Oh okay. Okay. So you saw the changes then from when oil was onshore and when it went offshore.

WF: Yeah. Uh, it was pretty well uh, scattered all over. There wasn't anything much in Lafayette at the time. There wasn't any office complex. Any facilities for off-. And they were scattered around in Lake Charles, and Jennings, and New Iberia, and different places. Some in Lafayette they were over a drug store or anywhere they could find office space. And then the offshore started uh, I guess in… the early '40s after the war, out of Morgan City. And they went out and they built a structure out there and put a drilling rig on it. And then they pulled an LST up to the rig and then everybody, everything operated off the LST.

RC: And what's that, what's "LST" stand for?

WF: That's the old uh… I guess they were used during World War Two, they's landing crafts and things like that. They had livin' quarters on 'em, they came out, the Navy had gillions of those things. So they could store the drilling mud and everything they needed on the LST and had the living quarters and on the upper decks were where they had the drill pipe and other things that they needed. And it started that way and they had quite a, oh, quite a number of rigs run that way.

RC: So did you go out there when-

WF: Oh yeah, sure. Went out and run a lot of casings offshore. Back then you traveled by crew boat, there wasn't any helicopters.

RC: Oh.

WF: And it wasn't very far offshore then. Some maybe 15, 20 miles. Some of it in, a lot of in three or four mile. And ODECO, Ocean Drilling and Exploration uh, out of New Orleans, they invented the first moveable offshore rig. Where it would be everything was self-contained on the platform. And platform had legs on it and they could float it to where they wanted it and then jack it up. And drill a hole and then move over more exploration. And that developed and everyone got in a different concept and all, and then they went into building uh, everything now is self-contained out there. Took several years to go into it. Different contractors, different drilling people made different ones. And Chevron was in it first. They built the barges and all and they'd hire a drilling contractor to put his equipment on it, you know. Drilling rig and all. And they just, all they owned was the barge and the moveable jack-up. And then uh, they, it continued to grow. And how Lafayette started to grow was strictly by accident. Lake Charles or Jennings or anyone could've had it if someone would've had the foresight to build the office space. Mister Heymann had a area out here, there was just uh, growing camellias and azaleas and uh, stuff for sale. And he decided to, somebody made a contract with him to build a office and then it just developed from there. And then the Oil Center developed.

RC: Oh okay. So you remember when it was camellias and azaleas and all?

WF: Oh yeah. When I was a kid I remember that, yeah sure. Oh-

RC: So he sold those, did he sell those or was-

WF: Yeah, he uh, he was uh, was a [real whole sale?] broker. He also owned a big grocery store downtown and [graduate?] store downtown, Heymann's. And uh, his home was this uh, place right back here that's now the alumni house.

RC: Right the alumni house, one of the most beautiful houses here we have on campus.

WF: And then from his home back towards Pinhook, that's where all this area was what became the Oil Center. It was just, he was growin'. [Pause]

RC: So why do you think that Lafayette [Slight pause] became the hub instead of Jennings or Lake Charles or any other place?

WF: Heymann built the offices.

RC: That's the only reason?

WF: Sure. He built the offices and people started movin' in and then uh, Abbeville Highway started developin', that wasn't anything but sugarcane.

RC: And what's the Abbeville Highway?

WF: Johnston Street.

RC: Okay.

WF: This, Johnston Street uh, this uh, Saint Mary was about the end of the college in those days. Saint Mary uh… just kind of had a square block and the only thing that was behind, across from Saint Mary was the football field, the old uh, McNaspy Stadium [Inaudible]. And then everything else was up in this area here.

RC: Okay.

WF: And uh, the college really didn't start to grow 'til after the war when all the GIs came back in.

RC: Oh, with the GI Bill?

WF: Yeah. And everyone who was comin' back in on the GI Bill and uh, the college started to grow. And then the uh, oil companies moved in, everyone, everybody in the oil business has an office in the Oil Center here in Lafayette or in, around it. In those days uh, everybody had radios to the rigs, there wasn't any, today everybody's in Houston and they communicate by cell phone or uh, or whatever. And that's what happened here, everybody decided to group up and they moved out of here and moved to Houston. It was in Lafayette and New Orleans and Houston.

RC: Okay, when did they move out of here?

WF: Oh uh, just gradually over the last uh… seven, eight years.

RC: Yeah. Yeah, I've lived here for six years and I-

WF: One company after another just gradually moved out.

RC: Yeah.

WF: The last one we had was uh, I guess Unocal and, but we only have one left now it's Chevron. And they out on Johnston Street.

RC: Okay. You think they're gonna be here much longer?

WF: Well, as far as I know I think they're satisfied where they are. They got offices in Houston and New Orleans.

RC: I hope they stay.

WF: They mainly uh, developed Lafayette was Mister Heymann. If he hadn't had the foresight to start buidin' offices when he start buildin' 'em, when everybody came in, office contract, so he built it and built this street, Heymann Boulevard, and then Coolidge, and then all of the different uh. And he built whatever facility they needed.

RC: So, were people excited when he was doing that? Was there recognition that this was important?

WF: Oh yes, sure there was. And uh, it made the economy just boom with developers and people buyin' sugarcane fields and flattin' 'em out and puttin' in subdivisions and. And all that area down Johnston Street was out of the city limits, so they couldn't get any city utilities, so everybody had cesspools and water wells and what have you.

RC: Oh wow.

WF: 'Til the city started to grow and started takin' it in. But you see Lafayette [Heights/has?] chopped up in a lot of areas. It looked like, say well they didn't have any, who zoned this place.

RC: Right.

WF: Well uh, developers just started building wherever they get a strip of land. Everybody was needing houses. Companies were comin' in, they had a lot of people, and they had to have homes for 'em.

RC: Oh I see.

WF: So then you go in an area now where you'll uh, find a subdivision inside of an area and it has curb to curb streeting and sidewalks and all, that was developed after it came in the city. All the other surrounding stuff, uh, if you go down Johnston Street, street after street you go down and they, there's no curb to curb and no sidewalks or anything. That was just developed during the boom.

RC: So a result of the speediness that this was taking place in depen-, you know, changed the way that things look?

WF: Dwight Andrews was uh, just a insurance man, salesman, he and uh, Jay Y. Foreman and uh, several other people, and they started buyin' land and uh, developin' it. They just flatten it out and put down blacktop streets and ditches on the side, and started buildin' houses.

RC: Was there-

WF: It boomed uh, in the '50s. It started boomin' I guess uh, Heymann started [Inaudible] in the early… oh, probably '43 or '53.

RC: Yeah I-

WF: Fifty-four.

RC: Yeah, the mid '50s I think is when he built the Oil Center.

WF: And uh, had he not done that, if someone in Jennings would've done that, it probably be in Jennings or been in New Iberia. Now all the supply companies and a lot of drilling contractors had offices in New Iberia. And uh, they stayed there, but then they put a district office here in Lafayette or whatever, because they had to call on oil company customers or whatever. They have a sales office. But back in the uh, '30s they started movin' to New Iberia. All the land rigs up because mainly Texaco was there and uh… lot of the drilling contractors, the big drilling contractors.

RC: Well so the business that you were in, uh, did it deal exclusively with offshore oil or-

WF: No, we drill worldwide on land uh, and offshore. We uh, manufacture drilling, drill bits. That uh, west Texas was a big area for us, big boom area. Rocky Mountains. Uh, any place they had drilling rigs, they had a Hughes bit, you know.

RC: Okay. Well w-

WF: And we made the tool joints that go on a drill pipe to connect the pipe, where you could come in and out of the hole.

RC: Okay. Okay. And did you s-, was there any difference in working onshore as opposed to offshore in this area?

WF: Uh… no. Uh, it was a bit more difficult offshore because you had to go out and stay when they started it was, they'd work 10 days and off five. And you separated from your family. Uh, the rig crews [weren't happy?] and then uh, to get crews they started seven and seven. Work seven days on, seven days off. They'd work 12… they'd work seven 12-hour days off there, so it amount to 80 hours in two weeks, but you'd have five days of-, uh, seven days off.

RC: Now did you ever have to work that schedule?

WF: No, I never worked that schedule. It was a good schedule. I had friends that were doin' it, that were workin' on. Houma was pretty big for a lot of the offshore operation, too. Uh, they had uh. Now the drilling crews that worked offshore, they may come from anywhere when they work seven and seven. Lot of 'em out of Mississippi. Lot of 'em out of Texas. They could go out and work seven days and drive back and forth to home. We had a lot of 'em what they call the 6-0-1 area. That's uh-

RC: What's that?

WF: Area code for Mississippi.

RC: Oh okay. [Both chuckle] Okay.

WF: And uh, they were all farmers or whatever, they'd uh, go home and have a nice place back in the woods and piddle around, do what they want to, and then come back and serve their seven days offshore.

RC: Yeah. [Pause] Well those people coming in from other places then did they um, was there any discernable um, difference between them and how they interacted in this region?

WF: Well the companies that they were working for didn't care where they were from as long as they showed up to catch the boat or the helicopter go to work. They didn't care where they lived. They were just lookin' for qualified people. And if they would've had to work uh, on land now, if you worked seven days a week 'til you get the well drilled. You [sput?] in on drilling on a well and you didn't have any time off. You worked, they had three crews: daylight, evening tower, and morning tower. And they uh, would work seven days a week 'til the well was drilled. If it took 30 days, 40 days, 100 days.

RC: And then what? After it was drilled?

WF: Well then they'd move to another location, start all over again. Most of it done by drilling contractors, they'd, and the offshore was, too. Oil companies didn't own rigs. They did right at first, but it became difficult for them to uh, if they're runnin' a major, they had to… give more benefits and insurance and more days off and more everything. And it was just a, well they just started hirin' contractors to do all of it, and they sold all of their rigs.

RC: Okay, so that's the reason why there's so many of these contracting businesses out there.

WF: Yeah. That's right. It's the, [Inaudible] is uh-

RC: You wanna [Inaudible, sound of chairs moving]?

WF: Just get out of that sun.

RC: Yeah, I don't blame you.

WF: But [Pause]

RC: Let me just double check. [Checking recording equipment]

WF: But Mobil and Kerr-McGee and Chevron and uh, Exxon, Exxon uh, was Humble in those days and they had quite a few company rigs. But uh, as… management uh, managing people, they found it was much easier to hire the contractor and let them drill the well. Now they may do it on day work or they may do it on footage, but 90 percent of, well, 100 percent of the all the offshore was on day work.

RC: What, I don't understand the difference between day work and footage.

WF: Well they pay a contractor so much a day for his drilling rig. Uh, some of the big offshore rigs at one time would be demanding uh, forty, fifty thousand dollars a day, because they had to uh, operate the boats, uh, have the crews, feed everybody, uh, handle everything. So they-

RC: And what's-

WF: So they needed to do on a contract by the day, so much a day, or if it was land, they were drilling by footage. A contractor would big to drill a well to 15,000 feet for uh, eight dollars a foot.

RC: Okay. Okay, I see.

WF: That was footage drilling. And that's what contractors most of 'em did on land. And they do some offshore contracting now, but uh, most all of it was always day work because of the responsibility that you had to have uh, if anything happened to the well, if you had a blow out or something and you're drilling offshore. And uh, footage you just couldn't, you'd go broke.

RC: Oh okay.

WF: The government regulations and everything you had to do out there. So the oil company would handle that and they'd hire the drilling rig. So the drilling contractors they started instead of having just land, they started building uh, offshore rigs.

RC: Okay, I understand. So what sort of changes [Break in recording] did you see in the offshore industry over time?

WF: Well uh, the rigs would get larger and the holes would get deeper. [RC chuckles] Uh, soon as they drilled up all the shallow stuff, they kept moving further and further offshore. And the further offshore you go, the larger rig it takes, because you're in deeper water. Have to have longer legs and platforms. Some of that stuff might have been in uh, 100 foot of water and then all of a sudden you're at 1,000 feet of water. So you have to have a larger rig. And uh, it takes a little longer to drill it.

RC: Yeah. And then you'd have to stay out there longer? [Pause]

WF: Who? The crews or-

RC: Right.

WF: No. Uh, they didn't, the further, as they start movin' offshore, that's when the helicopters came in the business. Uh, Petroleum Helicopters and what have you. Well then you could haul your crews back and forth every seven days. Anybody need to go to the rig they could fly out. All the rigs were built with uh, helicopter platforms on 'em.

RC: Okay. I bet that was a huge change.

WF: Yeah. Well you could land the helicopter, but in the '40s and most of the '50s you were, you could, most of 'em by boat.

RC: When was the first time that you took a helicopter out there? Do you remember?

WF: Well in uh… I guess the late '50s. Petroleum Helicopters, I think, were developed in uh, oh, '53, '54. And uh, some companies wouldn't use 'em at first and others would because of the expense. They could send 'em out in a boat. Now the thing that uh, the crews didn't like, they liked the helicopter because they worked out there seven days and they had seven days off, well they had to travel on their seven days.

RC: Oh. So they'd-

WF: Once you come into the dock, you're on, you were traveling on your time. So if it took ya uh… five or six hours to get in, what have you, from the rig, that was your time off.

RC: I see. So they wanted-

WF: And that was the same way with uh, goin' back. You had five or six hour boat right, well still during, you had to get back early enough to get back out there. Because you had to put in seven days out there, 12 hours a day. Now the other seven days was getting you back and forth. So the crews uh, boat rides got a lot better, drilling contractor wanted to keep his crew, so the oil companies had to furnish helicopters for 'em. They'd fly back and forth in an hour or 30 minutes. And uh, the long bumpy uh, boat rides were.

RC: Yeah. I can understand.

WF: So that's how that developed. And then uh… if anyone got hurt, if you had an accident, if you had a problem, the logistics were better with helicopters, you'd get 'em back in and get 'em to the hospital or what you.

RC: Yeah. So was it just, was it PHI that you flew on or were there other helicopter companies?

WF: Well PHI was the first one that was here the longest. And then after that Air Logistics came in. PHI was the developer of it. And-

RC: Was there any-

WF: Most of those were uh, old uh, Korean, Vietnam-age uh, well not Vietnamese, but Korean helicopter pilots, or military pilots. They were all Navy or uh, Air Force, or Marine Corps, what have you. So pilots that uh, got out of the service and went to flyin' helicopters. Most of 'em fixed wing pilots. Fixed wing is a regular aircraft with wings on it.

RC: Yeah, right.

WF: But uh, once you know how to do that, you can train a helicopter pretty quick.

RC: Okay. Okay. So was there any difference in the dif-, in Air Log or uh, PHI, or was [Inaudible] the others?

WF: Well, it uh, yeah, it was just like hirin' a drillin' contractor. You're either hirin' helicopters to do your work or you're hirin' a drillin' contractor to do it. So you'd have bidding between those two who would do it the cheapest. But PHI always had the reputation and had the helicopters and upgrading [the quickest?]. But uh, but some oil companies were, they liked to use uh, one over the other.

RC: So [Slight pause] explain to me the progression, your progression in the business again. You started doing, doing what?

WF: Who me?

RC: Right, you.

WF: I started off as a rig salesman uh, with uh, on land and we'd go around to all the drilling rigs when they, as soon as they rigged up. But we'd make sure they had the drill bits they needed to drill a well with. And we'd go buy [everyday or two?] and get the bit records. Uh, how much hole they made each day and we kept those records and people used 'em to, if they wanted uh, to drill a hole in the same area, they could use that bit record to see how many days and bits it took to drill the well.

RC: Oh, I see. And how long did you do that, were you a salesman?

WF: Oh… 'bout four and a half years and then I went to Houma as a stock-, district manager there. And I went from there up into uh, Mississippi. And then I was uh, before I left Mississippi they had started offshore work in uh, Alabama and lot of uh, wildcatting.

RC: Well what did you do in Mississippi?

WF: I was the southeastern manager.

RC: Of?

WF: All the southeastern U.S.-

RC: Of what?

WF: The Hughes Tool Company.

RC: Okay. [Pause] And so then from Mississippi, where?

WF: Uh, from Mississippi, well I lived in Laurel and Jackson, Mississippi. And then when I got to Jackson, they made me region manager and I had all the eastern United States, up into the northeast.

RC: Oh.

WF: And we were doing uh, oilfield and mining, lot of mining bits were sold up in that country where they had to uh… inside they had a seam of coal that they need to get to and they had hard rock on top, so you had to drill blast holes to put dynamite in below the hole [burned off?] where you get to the coal.

RC: Okay.

WF: Did a lot of that. But then there was a lot of oilfield drilling in Ohio, Pennsylvania, West Virginia.

RC: Pennsylvania's where-

WF: Some in New York.

RC: Pennsylvania's where they initially-

WF: Drake uh, yeah.

RC: Got the oil.

WF: Drake drilled the first hole up in.

RC: Yeah. Yeah. [Pause] Okay. And so then, so you're the manager-

WF: Then from there I went to Dallas as central manager. Had Oklahoma and west Texas. [Pause] [All/Almost all?] of Texas.

RC: Okay. I imagine that was a tremendously um, active market.

WF: And then from there, yeah. From there we went to, I went to Denver and we had all the Rocky Mountains, eastern Canada, and Alaska, California.

RC: And was that all oil-related then?

WF: It was all oil and gas.

RC: Okay. What about other types of hard rock?

WF: We did a lot of mining in uh, Canada. Lot of uh… and in uh, Michigan when I was in the east we did a lot of mining up there in iron mountain, where they drill for iron ore. They would drill blast hole down in to blow a port to get iron ore.

RC: Well what about in Colorado? A lot of mining there as well?

WF: Well, there was a lot of mining in western uh, or eastern Wyoming. But that was soft enough uh, [overburden?] that they could do it with draglines. They'd drag the overburden off and get to the coal. They didn't need to do it with uh, drillin' and blasting. Then I came back into Houston uh, after a stint in uh, London, and we were drilling in the North Sea then, in London. And had uh, larger, lot of, all your contractors were out of here, out of Houston or Tulsa or somewhere. At one time most of the contractors were in Tulsa, big contractors.

RC: Oh is that right?

WF: They started with land rigs and uh, just built up there and stayed. The [Parkers?] and Laughlin Brothers and uh… [Reeding and Bates?] and all of 'em big in offshore, but they were, main headquarters were in uh, Tulsa.

RC: Oh.

WF: It's where the owners had originally started out and stayed.

RC: Interesting. [Inaudible]-

WF: All your big, and they, there were the big contractors; had a large number of rigs and large rigs. [Pause]

RC: So then from Houston where did you go?

WF: I came back to Lafayette after 37 years; I retired and moved back here in 1990.

RC: Okay. Okay, so you, when you came back here, it was to retire?

WF: Right.

RC: Okay. [Pause] And I'll bet the place-

WF: But uh, one of my responsibility in Houston, I was over everything, so I spent a lot of time down in Louisiana, we had a big uh, region office here in Lafayette. [And knew all 'em who had offices?]. [Pause] So I was watching the drilling uh, in the off-, in the Gulf.

RC: So-

WF: South Louisiana.

RC: What would you say has been the most dramatic change that you've seen in the industry over those years and those roles and those places that you've been associated with?

WF: Well the uh, largest change I think was by our company, the evolution of the drilling bits. We went from steel-tooth, [mill?]-tooth uh, drill bits to tungsten carbide. That would uh, drill more hole and last longer. And then we went to steel-bearing bits and tungsten carbide, where it would take you uh, one time with [mill cutters?] here to drill a hole to 10,000 might take you 15 bits and you got to where you could do it two.

RC: Wow.

WF: Of course the bits would cost more, but the time that's saved is in trip time. See if you have to drill so many hours and then change your bit, when you come off the bottom, your factories broke down, you're not makin' any hole. All you out there for is to manufacture hole. So if you're com-, makin' that trip comin' out uh, pullin' all the drill pipe out of the hole, we call it a "trip." And put a new bit on and goin' back to bottom. Well you're losin' seven, eight, 10 hours. Where if you only have to do it twice, you uh, you drill the hole faster and quicker. And then drillin' fluids, they made better now offshore, now they're drillin' with uh, diesel oils. I have a son that's a consultant in New Orleans and he's, he has his own company for, a lot of the majors now don't have as many people as they used to have, so they hire a consultant, consultant engineer to plan the well for 'em and to drill the well for 'em, and they pay him so much a day. So now they're drillin' with uh, diesel oil and uh, tungsten carbide bits.

RC: When-

WF: Without any-

RC: When you say they're drillin' with diesel oil, I don't understand what you mean.

WF: Well you have to have a circulation. You see the drilling, we call it "drilling mud" or "drilling fluid," uh, you have to have… vehicle to get the cuttings off the bottom.

RC: Okay.

WF: And you have to have something in the hole to keep the hole from cavin' in. [Claps] Or uh, have enough hydrostatic head to keep, if you're drill into a pressure, to keep it from blowin' out on you. So they uh, he's drilling what's called drilling mud. It was barite and oil mixed up in the water. And they drilled with that for years and as you'd circulate the pumps, you pump it down as you were drillin' and the cuttings would come back up the hole.

RC: In the mud?

WF: In the mud. And get carried across what was called a "[shale?] shaker." A shale shaker would shake the mud, it'd take all the cuttings out, put it over sh-, uh, into the pit. And then put the mud back in the pits, come back around, do it again.

RC: Okay.

WF: So uh, if you're doin' with uh, in west Texas and those areas where you have hard rock, you drill almost with clear water; we did a lot of that in Mississippi. And the less, the lighter the fluid that you're drillin' with, the faster you can drill because there's no hydrostatic pressure pushin' you on bottom.

RC: Okay. [Slight pause]

WF: But if you got a column of fluid that's 10 pounds or 12 pounds or 18 pounds pushin' across the bottom hole, it's hard to get-

RC: Yeah.

WF: Make hole.

RC: Yeah.

WF: So when you go to diesel, there's not friction or nothin' and you can just go into that. Different weigthed uh, diesel and there's no, they try to get the cuttings out. If you don't get the cuttings out of the uh, fluid, whether it's diesel of what have you, then you circulate that mud with cuttings in it, what you're doin' is just redrilling your old cuttings.

RC: Right.

WF: Wears your bit out faster, slows things down. So you try to get uh, try to get as much as the solids, we call 'em "solids," which is made of solids, that's the cuttings coming out of the hole. And [Inaudible] mud, when you come back in and drill a bottom with clear fluid.

RC: Okay, okay. And then what happens with all of those uh, those cuttings that are taken up?

WF: Well uh-

RC: Do you wanna scoot back? I think if you scoot back the sun will now [Sound of chair moving] actually, scoot back to the wall. [Sound of furniture moving and them making comments about getting out of the sun] It's not gonna be long, just lean back. [Both laugh] The sun is quickly passing over there to the west.

WF: [When you drill on land?] you drill what's called "reserve pits." Out uh, or build reserve pits with uh, levees and all around it. And then that's where all your cuttings and all go out into there. And then for years you just either climb under or haul 'em off after the well's drilled or what have you. Offshore, you used to be able to dump 'em offshore, but the federal government wouldn't let you do that any longer, so. And they wouldn't let you do it with, run diesel, any kind of oils out there. So now they have uh, facilities that uh, or companies that the main deal, thing that they do is to haul that stuff inshore and get rid of it.

RC: Oh okay.

WF: So you offshore now, if you're drillin' with diesel or drililn' you put it into a barge and then they haul the barge in, bring another barge and they keep goin'.

RC: Okay. So when did that change, um, that they were not able to just dump the stuff?

WF: Uh, this government regulation come along uh, at first everybody was complaining, the fishermen and everybody that you were runin' fishing and it turned out that the platforms out there that they left the best fishin' there was. It was, the barnacles and all built up and the fish would grow, so everybody'd go out to the old platforms and fish.

RC: Oh okay. [Slight pause]

WF: Barnacles and everything would build up on there and that's where the fish would come and uh, instead of hurting the uh, the industry it actually increased the fishing industry. They knew the areas to go to fish.

RC: Interesting.

WF: Uh hm. And they didn't want to put oil in the water out there 'cause you got a film and then you kill fish. So that's why you couldn't drill with oil for years, you had to have some vehicle or way to get rid of it. And bring it into shore.

RC: So and you think those regulations were-

WF: Uh, before they were just uh, drilling and putting the cuttings from the uh, circulatin' the mud the same way, the drilling fluid the same way, and running it over the shakers and they'd have double shakers and triple shakers to where you'd really get it out there. And then you just dump those cuttings offs-, overboard. And uh, EPA and other people said, "Well, you're messin' up the bottom of the hole, you're causing this," which you weren't, wasn't causing any problems.

RC: Uh huh. But it's still that way today?

WF: Yeah. [Slight pause] You still, if you're drililn' with uh, drilling fluids you can go overboard with it, but you can't with any kind of oil: diesel oil or oil muds. You can't put any kind of oil in the-

RC: But what other types of fluids would there be that you'd be drilling with?

WF: Let's see the drilling muds or oil [bed?], it depends on [Inaudible] oil-based mud or uh, ba-, barite mased b-, based mud.

RC: Okay. So-

WF: Barite is mixed with water. The more water you put in it, the thinner the mud; the less water you put, the thicker the mud.

RC: Okay.

WF: And the more barite you put in it.

RC: And why would you want thicker or thinner mud?

WF: Uh, it depends on if you're getting near an area where you're gonna have uh, you think you may run into gas, you may have a problem with a blowout, you need a heavier weighted mud as you can to hold it down. That's how they control blowouts. If they run into an area where they drill into high pressure gas and it starts kickin', well they start buildin' mud weight up and get as high as 19 pounds. To try to keep it down. And then drillin' gets real slow after that. But you don't want to put it deep.

RC: Okay. So how does a blowout happen? I've heard of a blowout, but I don't know, I don't really understand.

WF: You uh, you're drilling through these formations and you're drilling sand and shale, sand and shale, all of a sudden you run into a sand down here that's got a, has gas in it. High pressure or salt water. High pressure salt water. And you drill into it. But if you drill into it and the pressure that it has is uh, greater than the pressure of the column of mud that you have on the, drilling fluid that you have on the top of it, it's gonna come out.

RC: Alright. Is there any warning that that's, that that may happen?

WF: Uh… we had an area idea, but uh, years ago you see the old movies where they drill in and it just come out. Well that's just the way they did it back in those days. They didn't uh, down in this country when they start drillin' Louisiana, it wasn't that way. I was at Ok-, back in Oklahoma and west Texas, they had the fluid they were drillin' with just plain water or drillin' with uh, somethin' if it didn't have any hydrostatic on it, and that's how they knew they hit a well, they didn't have logging in those days. Now, nowadays and the last few y-, many years you've had uh, well log. They'll go down in there and you feel like you're startin' to get a kick, well you tell your mud weight is comin' back lighter than it was when you put it in. So if it continues that way and you keep buildin' it up and it keep comin' back lighter, then you figure you drilled into, and it doesn't have any salt water in, [figure?] you're in a, maybe a gas pressure. So then they, Slumberger's company that uh, they run a well log, log down on a wireline. And take a picture, so to speak, of all that area. And see if it's contained oil, contains uh, gas or what.

RC: Okay. [Pause] When you say that it was com-, you could tell if it was coming back thinner at, what do you mean?

WF: Well it's the shale shaker, you've gotta uh, you have somebody out there uh, weighin' your mud all the time. That's what called the "mud engineer" or either the derrickman does it. And they'll take samples off the shale shaker. And uh, just before it gets to the shaker, they go in and get it. If you've been puttin' 10 pound drillin' fluid and it's comin' back uh, nine pounds, well uh, somethin' from the bottom of the hole is diluting that mud.

RC: Okay. Okay. I understand.

WF: Gas is getting in it making it lighter.

RC: Right.

WF: Oil is getting in making it lighter.

RC: Okay. So then you can tell if-

WF: But if you're coming back and your salt content in the mud goes up, then you may drill through some areas that have salt water.

RC: Okay.

WF: Which isn't good for anything, you can't sell salt water.

RC: [Laughing] Not yet. [Pause] Okay, well that, that's interesting the way you explained that, because I've, no one's ever explained it to me before.

WF: Yeah, you drill within, as you're goin' down, you keep this uh, what's called the "hydrostatic ebb," on it, which is a, and if it starts coming back to nine and he's been puttin' in 10, then you start putting in 11 pound mud. You get people, roughnecks back there and what they do is cut those sacks and put them in the pits. You have a pit on the back here that's set up and then the mud house and all behind it. And the pumps are right into that pit and they pump the mud out of that pit on into the hole. And then it comes back out of the hole uh, it's circulated back out of the whole and then goes across the shale shaker to clean it out and then comes back into this pit again and then goes back around.

RC: Alright. So yesterday when I was talkin' to Johnny Comeaux, he was saying that he was a s-, uh… a small pipe man. And what he meant, apparently, what he was talking about is his company ran the small pipe down through the larger pipe, and I suppose that small pipe would have carried the mud, is that right?

WF: Well no, you don't uh, lot of times you drill in what's called "open hole." See when you start a well you go down uh… 500 feet and you set what's called "conductor pipe." And uh, you put a tree on it, we call it a "tree," which is a blowout preventor. And then you go on down and you've got to have that to where you'll have somethin' to s-, to uh… [Pause in interview and movement]

RC: Let me get a piece of paper here. [Pause] Here you go. [Pause]

WF: [Drawing] So you drill this hole. Right now if you're on land what they do now, they used to drill it and then they'd drive, then they'd set pipe through it. Down to about here. Then back up. [Pause] And this pipe would end here and it'd have a valve that come out of here and it'd come back over here to this shale shaker you're talkin' about. And then from shale shaker, it'd go into this mud pit. This one. And then back to this mud pit. And then you got your pumps in here that are pumpin' fluid out, comin' on to the top of the rig. Comes on in and pumps it back down the hole. And then the fluid comes back up out and-

RC: Okay. Alright. [Slight pause]

WF: Uh, each uh, you put in and shake it out into here into this pit. And then it runs into this pit. And then you let solids settle in each one of these tanks. So it'd get back to here where you're pickin' up pretty clean drilling fluid. [Got no solids in it?].

RC: Okay. So you're just reusing the drilling fluid?

WF: Yeah. Over and over.

RC: Okay. [Slight pause]

WF: And he'd ever so often you have to set, then you just set the conductor, they drive it [down/now?] they go in and, just like soft formation, they just keep drivin' 'til it gets hard.

RC: Okay.

WF: And then they set it, they cement around it, and then start drillin'. And they get down to, they don't want to get uh, say uh, too far. [Slight pause] [Inaudible] they'll set surface pipe say at about 3,000 feet. They comin' on down here and set it at 3,000. And then they're drilling all this down here's open, what we call open hole. Now if you run into pressure without havin' surface pipe or somethin' where you've got blowout preventors sitting on the top here to control it, it [Inaudible]. And then you could lose this hole if you get into salt water or somethin' else, it's just the hole will cave in. You have to have that drilling fluid comin' down the middle of it. Or keepin' it full of drilling fluid. Uh, certain weights to keep the pressure that you may drill in from comin' out, blowin' out.

RC: Okay, I understand. So you probably didn't spend a lot of time, though, on the rigs? [Slight pause] Or did you?

WF: [Sighing] Uh, yeah, we had uh, we had crews, we'd work for contractors or drilling companies. Uh, but nobody knows the formation that that bit can drill but the designer of it.

RC: Oh.

WF: You just uh, you just can't come out and say I'm driller, I'm gonna take this bit, you're not gonna make any money. But we would recommend the type of bit to drill for each formation. We'd have uh, various types. For drillin' for real soft formation, we'd have long teeth on 'em. Uh, hard formation we'd have short teeth, where they wouldn't break. And then in real hard you'd have a tungsten carbide pack on it, you see. [Pause]

RC: Okay. And that, and you were sayin' that, those were the biggest changes that you saw was in the drill bits.

WF: Oh in the drill bits, yeah. Where you make 'em last longer. Longer they last, the more hole you could drill. They're drillin' now to uh, Sun drilled a couple wells the other day, drilled to 14,000 feet with one bit.

RC: Oh my gosh. Where? [Slight pause]

WF: Well they're doin' offshore, out of New Orleans.

RC: Is that right?

WF: Yeah. It's soft formation down there. Anywhere in the Gulf as long as they can run uh… oil mud, you can't do it with… with uh, drilling mud, you have to do it with oil. Diesel oil.

RC: Okay. Um-

WF: Less friction with diesel oil.

RC: How big are the holes that we're talking about? I mean-

WF: Well, depends on how deep you're goin'. If you're gonna go to uh, 25,000 feet, you'll start off here at the top with a 26-inch hole and then you, you'll set casing, it'll be uh, 20-inch. Then your next casing will be 13 and three-eighths. And then you'll come down and set seven and five-eighths. You have to set it to where when you get down into 25,000 you're not drillin' in too small a hole. You start up here drillin' with a six-inch bit, I mean, 26-inch bit, then the 20-inch, then the 12 and a quarter, and then an eight and a half, when you get down here, to get to 25,000 you're gonna have to set these strings of pipe all the way along and every time you set it you got to reduce hole size.

RC: Okay.

WF: So if you get down here and you're in a four and three-quarter hole.

RC: [Chuckling] Right.

WF: And you're trying to uh, turn that four and three-quarter hole at 20,000 feet, that four and three-quarter bit from this rotary table up here, it's kind of difficult.

RC: Uh hm. Yeah, I'll bet.

WF: So the larger the uh, now just the regular development field, like you got a field development at uh, 15,000 and you know your pressure at say 12,000. Well you'd go in and set uh, string of uh, probably drill a 15-inch hole and set uh, 10 and three-quarter service pipe, and drill a nine seven-eighths diameter hole all the way down. And then set seven inch [reproduction?]. But your exploration holes, you have to start off as large as you can to where you'll have some hole when you get to the [bottom/rock?].

RC: Yeah, sure. So you have to know how deep you're goin' to begin with?

WF: Yeah.

RC: Have an idea.

WF: And that's what eng-, that's what drilling engineers do, they plan the hole, plan the casing uh, points, uh… they can take old logs and study 'em and tell uh, if they had a particular areas of uh, where they've lost returns or uh, had problems on another hole, then you wanna make sure you get your pipe set through those problems. [Slight pause] To where when you get through you can reduce your drilling fluid and uh, drill on 'til you run into other problems.

RC: Uh hm. [Slight pause] So uh, my, the question that comes to mind is how did a guy who went to SLI for P.E. end up-

WF: Worked like hell. [RC laughs] Uh, when you go work for company uh, a degree or uh, what have you will get you in the door. Then after that it's up to you.

RC: Right. Right. I tell my students that all time.

WF: Yeah. All that'll do is open the door for you.

RC: Right.

WF: Uh, I've seen so many or hired so many people in my career that felt like the degree had gotten them there and was gonna keep 'em there. Well, you might keep you in that position, but you're not gonna move any further. You have to learn all you can about uh, what you're doin' in your business and uh-

RC: But you didn't have a degree in engineering and you [Inaudible], so it was all on the job training that you received?

WF: Yeah. [Pause]

RC: That's interesting.

WF: Lot of reading and studying. [Pause]

RC: Yeah.

WF: I didn't uh, have to worry about uh, designing the wells, but I had to worry about uh, designing the rod bits is gonna drill that well. Engineers in Houston designed 'em and we studied the formations and all that we'd have in a particular area, and we'd know what to recommend to drill.

RC: Okay, 'kay. [Pause] So the regulations changed a lot over the years as far as what, how you had to do business out there? Or did it not change so much in the business that you were in? In the end of the business you were in?

WF: Well. Anytime you have a government and you have legislatures in Washington you're gonna have changes. Uh, EPA uh, gets to bother in your business about what kind of warehouse facility you have and how many rod bits you can have it, how high you can stack 'em, and uh, any place that might be an area for someone to get hurt, they around inspectin' you all the time. And they on offshore people all the time, I tell you. Government regulations.

RC: Yeah. So it's not just environmental regulations, but just general-

WF: Environmental and EPA, yeah, they go out contractor's rig and see all of the equipment he had and how he's maintaining it and uh, what could cause an accident and one of the highest things a drilling contractor has is insurance. They had a lot of people go out there and they mess around, get hurt and uh, they go, what they want to do is go home and draw insurance for awhile, you know. So they, you keep that kind of person out of your uh… work pool and you're insurance rates'll be a lot lower.

RC: Uh hm. [Pause] But, again, you personally, did you spend much time on the rigs?

WF: Uh, in my early years, but after that I was in the management. Uh, my job was to uh, hire and train qualified people and uh, have them do it.

RC: And in those earlier years, what was the, what was it like out there? I mean, what sort of people were you workin' with and-

WF: Oh back then uh, when I was, it was a lot of fun.

RC: Yeah?

WF: Enjoyed the work. [Pause]

RC: What made you go into oil?

WF: Well that was the thing payin' the most money. That's why everybody was, thought I going in the coaching or something, 300 a month, I could make 600 a month in the oil business.

RC: Right.

WF: Back in those days, 300 dollars a month a pretty good job. In the '50s.

RC: So what about your family? Did your, what was your father's business?

WF: My father was railroad man. He moved in here and worked Lafayette for many, many years before the oil development was railroad town. It start off, it was, had the roundhouse between Houston and New Orleans. All the steam engines would come into here for repairs and what have you, and they'd exchange engine job. He worked, he was a freight train conductor.

RC: Okay. [Pause]

WF: And Lafayette for many, many years when it was a town of 15,000 was a railroad town. [Pause]

RC: Railroad-

WF: [Inaudible, overlapping speech] if you've ever, you been familiar with downtown Lafayette any?

RC: Sure, sure, a little bit.

WF: You know how the streets all turn? Lafayette was built, originally started to be built on a square. But the railroad came in over here.

RC: Oh.

WF: So then they had to turn all these streets to head to the railroad. That's why you have the crooked streets.

RC: [Laughing] Okay. Well it's so difficult to drive down there.

WF: Like Jefferson Street, if you go down Jefferson it's got all those turns, well it's headin' to the railroad.

RC: Yeah. Sure, that makes sense, it makes sense. Uh, so did you have any uh, brothers?

WF: I had one sister.

RC: Sister? Okay. And I, I don't suppose she went into the oil-

WF: When I got out of high school in uh, '45 I went in the Marines. And uh, stayed a couple years and come out and took the GI Bill and went to UL. So while I was at UL uh, joined the Air Force Reserves, get a little extra money, goin' to school on uh, 60 dollars a month. So when the Korean War broke out they took me up and put me in the Air Force. I stayed in there four years as flight engineer on B-29s. And then when I got out I came back to Lafayette and went to work for Hughes Tool Company. They just had, I had a couple of friends there and they happened to tell me they were needing somebody. I just, at that time, I just lookin' for a job.

RC: Right. Right. So are you happy with the decisions you made?

WF: Oh yeah, yeah. I had a great career, great life.

RC: Yeah.

WF: And had a wonderful wife and then we, she didn't mind moving. We traveled, as promotions you had to move. We got to see a lot of the, all of the United States and Canada, and a lot of the world.

RC: Yeah. And now you're back in Lafayette.

WF: Two boys and one girl. And uh, when we retired in Houston we happened to have both the boys here, they went to Mississippi State, we were livin' in Mississippi when they got into college and where their friends and one was with Unocal, one with Conoco, and they just happened to be here. So we were comin' back and forth all the time. And decided to move back. Now both of them are gone. [Both chuckle] So we're travelin' to, one of 'em moved back to Jackson and the other one's in New Orleans. So we travel those routes now. But both of 'em are petroleum engineers.

RC: Really? So in, why do you think that is? Why do you think both of your sons went into the same industry?

WF: Well I guess 'cause of me. Uh, they used to do a lot of travelin' with me and spent a lot of time on rigs when they were young boys. And uh, that was the thing that was payin' the money at the time, too. They're both uh, consultants. Doin' real well.

RC: Yeah. Well it's an interesting industry and I'm learning more and more about it every time I talk to somebody like you.

WF: You may, I don't know if anyone that you're gonna talk to was with, in the mud business. See had uh, had mud companies, called 'em "mud companies," because uh, what we were makin' was actually mud. Like I say barite and uh, different things you're putting in the water and uh, you had numerous people that sold that and furnished engineers to uh, be out there on the rig all the time checkin' the mud. And uh, adding more chemical and more this that other, then the engineers would either, on land he'd have a group of rigs and he'd have to make 'em everyday or twice a day, check the mud. Offshore you'd go out there and stay. So I don't know if you're gonna get a mud man in or not. Uh-

RC: Well, do you have a suggestion? Do you know of anybody?

WF: No, I don't know nobody in that crew.

RC: Okay. They don't have to be in that group necessarily. [Pause] Well if you can think of any-, if you think you can-

WF: If I can think anybody.

RC: Yeah. But we'll make a point-

WF: But their main job was just to continually check the mud and make sure the weight was right, uh… the chemical in it was right, uh, if you're drilling into one formation, if you're drilling the barite all of a sudden it uh, or different formations in the hole would cause different mud changes. So you had to put different things in the mud to get it back to where you wanted it.

RC: Okay. So you really had to be on top of it. What was going on.

WF: Yeah. And then that's when you'd find out whether it was comin' back lighter, if you put in 12 pound and-

RC: Alright, okay. [Slight pause] Yeah, see I've never heard, I had never heard that term before.

WF: Yeah. That's a mud engineer's job, they were, they had a lot of large companies that uh, the uh, operator, oil company, would always buy the mud. Uh, and those mud bills could run into the… hundreds of thousands of dollars.

RC: Really?

WF: Yeah. Some of these deep wells.

RC: Because it was expensive or because they just needed so much of it?

WF: Needed so much of it.

RC: Yeah.

WF: And depended on how much chemical and other things you had to put in.

RC: Yeah. [Slight pause] But it's really crucial, crucial component to the whole business.

WF: Yeah, well you have to have it, it's the vehicle that carries the solids in and out of the hole.

RC: Yeah.

WF: If you didn't have that uh, back in the old Oklahoma days, the discovery wells you'd see, they had uh, they were drillin' with cable tools. And they'd go in with a bit, the hole was dry, and they'd beat it and beat it and beat it. Then they'd go, they filled up solids in the bottom of the hole, maybe so deep and they'd go in with a baler, and bale all this out. And then go back to poundin' and poundin'. All of a sudden they'd hit a formation that had oil in it and here it'd come.

RC: And then they had to cap it off, right?

WF: Yeah.

RC: Was there any-

WF: You haven't had any of that in many years. They, then when they came in, that was cable tools, then when they came in with a rotary rig, the rig that had a rotary cable in the middle, that's the way they all are now. You know and a drill pipe, and you turn that rotary table and it turns the pipe and drills, and then you, your vehicle to get it out is the drilling fluid. And you're continuously bringing it out, you're not going in [with balers?]. And then you're able to control your blowouts, you don't have blowout.

RC: Uh huh.

WF: Uh, after the rotary drilling process and the drilling fluid came in, uh, probably 90 percent of your blowouts would happen when you were tripping pipe, when you were coming out of the hole. Now when, 'cause you've got drill pipe down in the hole and you've got 11 pound or 12 pound or five pound of whatever mud, when that comes out, you have to be pumping this same amount of mud back in, you've got to be displacing that drill pipe. [Slight pause] When you take the drill pipe out, it leaves a void and the fluid level will drop. Well then you don't have the same hydrostatic on the bottom that you had.

RC: Oh, okay.

WF: So if they're comin' out too fast, and not keepin' the hole full, the things'll fall in.

RC: Oh.

WF: Gas pressure what have you, it'll just come right up into the. So when you're makin' a trip you have to be very uh, cognizant of what you're doin'. You have to uh, make sure you keep the mud with the hydrostatic on it that's gonna be able to hold the pressure on the bottom of the hole.

RC: Well was there any uh, any big difference workin' with one company over another? Was there any company you preferred to work as opposed to-

WF: Oh we like 'em all if they were buying. [Both laugh] No we uh, and for a long period of time uh, Hughes made most of the, we had three or four other competitors. But Hughes uh, the one that was doin' all the research and development, and uh, coming out with the new products, so we enjoyed market of 70 percent most of the time. I don't know if you've ever heard of the [recluse?] old billionaire Howard Hughes?

RC: Oh sure.

WF: That was his parent company.

RC: Oh yeah.

WF: His father, that's where he got his money, his father invented the first uh, rotary drill bit in the old Spindletop Field in Beaumont.

RC: Oh. Okay.

WF: Like in the early '30s. And then uh, his father started Hughes Tool Company and had the patent on the tri-cone or two-cone rod bit and then the tri-cone.

RC: Alright.

WF: And then Howard just invented the money, I mean, inherited the money and he went to Hollywood. [We would send it to him?].

RC: Yeah, right, and did all those crazy things. [Chuckles]

WF: Yeah, yeah. He uh, the two most successful companies he had and he had several, was the Hughes Tool Company and Hughes Aircraft. And didn't have anything to do with the running of either one of 'em, so. Mainly what he'd run was the RKO Studios or some… he was the, only had a high school education, but he had a good mechanical mind. He uh, he invented the aluminum siding for aircraft.

RC: Oh is that right?

WF: Reversible props on uh, aircraft for when you're landin' and you're goin' to fast, you want to reverse the prop to slow you down.

RC: Oh, slow you down, yeah.

WF: He invent that. And the first [Inaudible] constellation uh, airplane that they had with the twin tales that first fly, one's flying overseas. That was his invention. And he owned TWA Airlines for many years, that's when he was [over there?].

RC: Yeah. I saw the Spruce Goose.

WF: Yeah. Well you see he uh, during that, during World War Two he had a contract with the government and uh, fifty-fifty deal. And then after the war the uh, congressmen [all caught him stealing everything?], he just bought the whole damn thing from the government. [RC chuckles] He put it out in a hanger in L.A. and uh, kept it as long as he was alive and paid a million dollars a year to hangar it. Then when his cousin, he didn't leave a will, so then one, a cousin on his mother's side, his mother's sister who was a lawyer in Houston, he inherited everything. And then he took the Spruce Goose and put it out in Long Beach Harbor. He wasn't gonna hangar it anymore.

RC: Right, that's where I saw it, it was in Long Beach Harbor there with the Queen Mary.

WF: Right.

RC: Well, um, let me turn this off here. Thank you very much.

[END OF RECORDING]