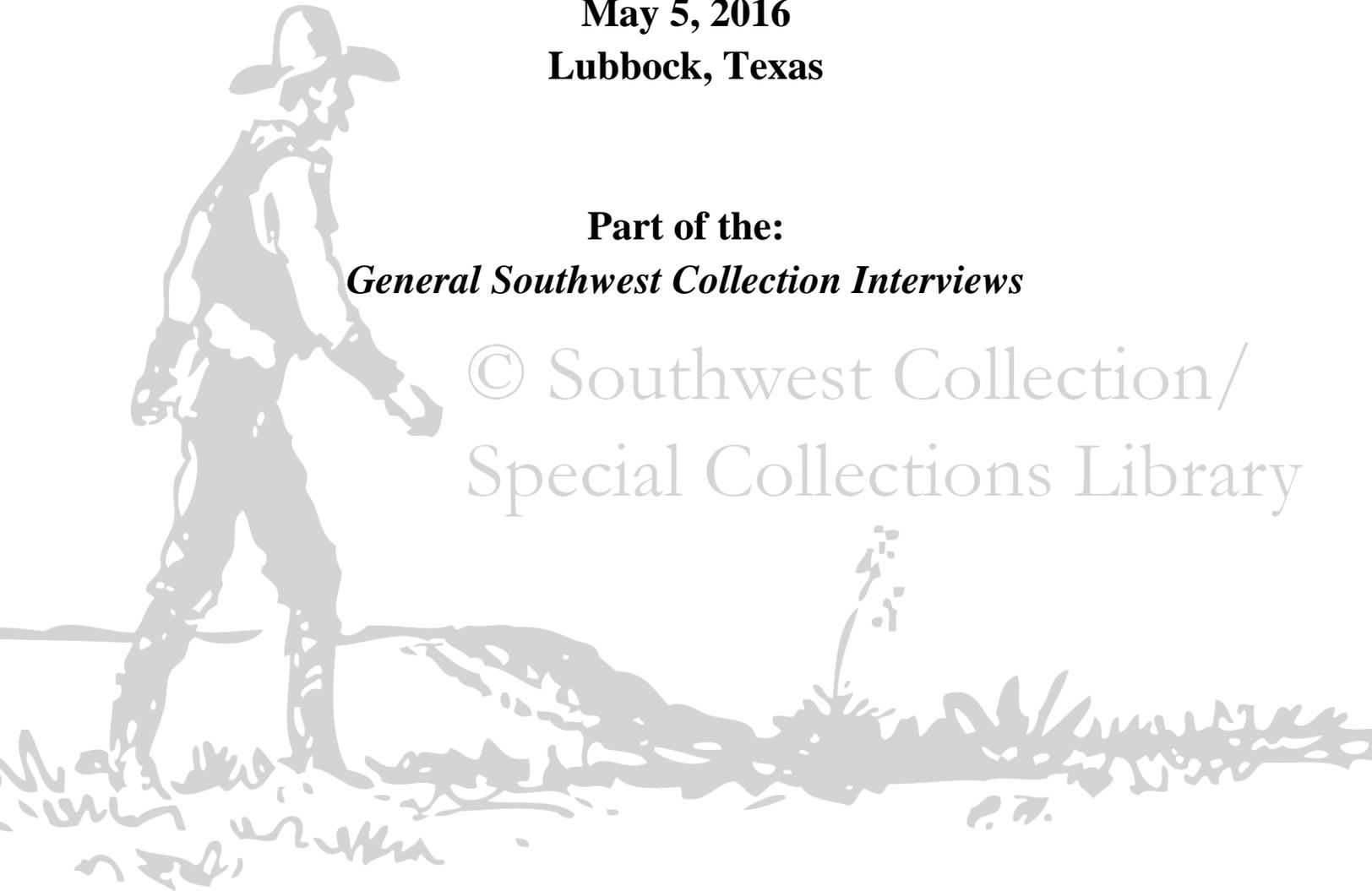


**Oral History Interview of
Mack Acheson**

**Interviewed by: Andy Wilkinson
May 5, 2016
Lubbock, Texas**

Part of the:
General Southwest Collection Interviews

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Preferred Citation for this Document:

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Recording Notes:

Original Format: Born Digital Audio

Digitization Details: N/A

Audio Metadata: 96kHz/ 24bit WAV file

Further Access Restrictions: N/A

Related Interviews: This is interview number two in the series. Mack Atcheson was also interviewed on 5-3-2016 and 6-16-2016.

Transcription Notes:

Interviewer: Andy Wilkinson

Audio Editor: N/A

Transcription: Candace Smith

Editor(s): Katelin Dixon, Elissa Stroman

Transcript Overview:

This interview features Mack Atcheson. Atcheson talks about working in chemical engineering and his various projects during the course of his career. Atcheson discusses his work in helping design plants, build pipeline, and selling natural gas. Atcheson worked in both El Paso and Odessa before eventually moving back to Lubbock.

Length of Interview: 03:00:10

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Keywords

chemical engineering, El Paso, Texas, Odessa, Texas, natural gas, oil and gas, oil refineries

Mack Atcheson (MA):

I would say, probably—part of it was made in Ruidoso—I mean, in El Paso, so that would have been, probably, 1990, something like that. And I knew it was—my first wife died in 1986, so it would be sometime between '86 and '92. The one that's on the last, which is a retelling of the same story where my brother Dooney is sitting there with her, that was made later—probably, well, not much later. I don't believe—I don't believe Sandy was there, so—I would guess in the nineties, but I don't know when. Bidy died in, I think, a little after 2000.

Andy Wilkinson (AW):

Okay, good. That gives me a—

MA:

Well, as I recall, I'd almost finished talking about the army, but not quite.

AW:

Yes, but not quite. Exactly.

MA:

And there was one other important thing that I thought. I was stationed in Camp Claiborne, Louisiana, and I was ready to be transferred. Didn't know where, but I had taken a leave and met my brother Dooney. He had gotten out of the Air Force. He had been flying a hospital ship between France and England, and was—started out in the Canadian Air Force, and they moved them all to the American Air Force.

AW:

So, he joined the Canadian Air Force before the war had started?

MA:

Uh—probably. Just about that time. But the war—everybody knew we were getting in the war. It was a question of when. But the—so I had an automobile that I had bought when I was living in South Carolina.

AW:

Is this the one in the chicken coop?

MA:

This was a 1941 Ford that was a big engine. It was a two door. It was a good car, but I let him have it so—because he could get around. He was trying to figure out what he was going to do and so forth. So, when I got to—assigned to a spot which was just marking time until they transferred me, I called him and said, "I'll meet you in Dallas. I need the car." So I met him in

Dallas, and we drove it back to Louisiana. And immediately I got word what I was being transferred to Camp Hood, so I loaded up and headed for Dallas again because I had a little bit of time. And on the way from Dallas down to Fort Hood—or Camp Hood—I picked up a soldier, and he was heading for Camp Hood. And so he was telling me all about the deal, and he says, “There’s a hospital at Temple that has a bunch of cadet nurses.” So let me back up a little bit. On the trip to see—to Dallas to get my car, I had ridden on a train, and as soon as I got on the train, I went to sleep. I woke up, and there was a cute little brunette that’s trying to get—put something or get something out of the rack above. And she can’t quite reach it, so I jumped up and got it for her. And as I was starting to leave, well, I looked down at what she was doing, and she was studying. And she was—it was mathematics. So I asked her what she was doing; she says, “Solutions. If you’re working with babies or a small person or an especially big person, you have to adjust the dosage, and so there’s a lot of calculations to do. I can’t make head nor tail out of it.” So we spent the rest of the—on the way to Dallas, and I got her name and phone number. And she told me that she was stationed at Temple. So halfway to Temple it dawned on me, Hey. That’s where Marianne is. So when I got to Camp Hood, I checked in and everything. It was New Year’s Eve, and I called Marianne from the officer’s club and asked her for a date. And she had a date, but she broke it. And I picked her up, and we went to a dance and had a nice time, you know. And we did some more driving. I drove her up to see the—Camp Hood, and we went to a bowling alley—and just messing around. So, finally, when I got settled at Camp Hood, why, I would drive over and pick her up once in a while—whenever she could get off, but she was busy and everything. And this was a paraplegic hospital. It was pitiful to see those patients. And, so, at Fort Hood, I was working for the post engineer, and he—they had a calculation you had to make. Mostly I just been inventorying, shut down empty barracks, and stuff like counting mattresses or crap like that. So—he—this calculation where you measured every fuel there was. You had a coal pile, wood, gas meters, electric meters, oil—all kinds of stuff. And the idea was you had to do that every month and then you would know how much had been used. So I went out and measured everything—calculated the coal pile and the wood and everything—and sat down and made the formula, and it dawned on me that I ought to do this better. So I made it into a spreadsheet with instructions on the spreadsheet, and I showed it to one of the clerks—a girl there that looked to me like she was pretty hard working—and asked her if she could do it. And she looked it over and made some calculations, and she got the same answer I did. So she did it right. Well, this made—this was a surprise to the post engineer, and when he mailed it into Dallas, why they sent a guy from Dallas to see how the hell this had happened because nobody had ever been to do—been able to do it. It was duck soup for a guy with a degree. So anyway, why I was essential. So I wanted out of the damn army—

AW:

Yeah. You didn’t want to be essential.

MA:

—and here they had marked me essential. So I had worked for the IG [**Inspector General**] as I told you about—getting rid of the railroad companies. So they had an article in the paper that said IG was coming to town, and anybody with a grievance should go talk to him. So I went to the post engineer, and I says, “You know, I worked for the IG.” And he said, “Yeah, I knew that.” And I says, “Well, he’s coming here to talk to people with grievances. I want out of this army. You think I’m essential, but this girl can make the calculations that I’ve been making. Somebody will have to go out and check the coal pile and the wood pile, but nobody has touched them since I’ve been here. So they’re probably going to stay the same.” Anyway, why he turned me loose, and I jumped in the car and went to some Camp Travis or something—someplace in East Texas and checked in. And they told me to come back tomorrow and to see the doctors. So I was—I straight went up to see what seeing the doctors was all about. And they says, “Well, everybody goes to see if they can’t get a disability of some kind.” And I says, “Well, look, I’ve applied for three pearl—I mean, Purple Hearts, and the doctors tell me they don’t give them for hangovers.” So I says, “I haven’t got—I haven’t got a disability.” (both laugh) So they—I started out; I went to Dallas. Dooney was there, and we partied for a couple of days—went on to Lubbock. We went to my sister’s home and went out to the college to talk to the people. And the main professor I wanted to see was Dr. Oberg, but he was out of town. So I talked to everybody, and they had told me that Phillips was interviewing. So I interviewed them, and they offered me a job up at a—at butadiene plant up at Borger. So I went up there, and there wasn’t a—there’s not a bush any higher than that any place around Borger. And so, I looked at the place where I was going to be living which was in a—in a little cubby hole in a—in an old army barracks. And it was out far enough from Borger. And, of course, Borger wasn’t a big town anyway. So I told them, “Well, I might go to work for you.”

Sandra Atcheson (SA):

Hello.

MA:

This is my wife Sandra.

AW:

Hi Sandra.

MA:

This is Andy.

AW:

Andy Wilkinson.

MA:

Andy Wilkinson.

SA:

Andy—

AW:

Wilkinson.

SA:

Pleased to meet you.

AW:

Nice to meet you. Did I park behind you? There—if I did, I'll move.

SA:

Yeah, but that's okay. That's okay. I can go out this way. I can go out this way.

AW:

Okay. All right. Let me know if I need to move.

SA:

Okay. Thank you very much. You're fine.

AW:

You bet. Thanks.

MA:

And—

AW:

Back up to Oberg. Just one question: had he been a professor at Texas Tech?

MA:

Oh, he was. He was the chemistry—chemical engineering professor.

AW:

Yes. Okay. I know—Okay, I just wanted to make sure. That's such an interesting name; I thought that might be the same one. Okay, so, you were up at Borger.

MA:

Well, I went—and I came back to Lubbock. I told them I might go to work for them. Came back to Lubbock and found out there was a convention in Houston—that they were hiring people. So I headed for Houston, try—dropped back by San Antonio because, in the meantime, Marianne had been transferred to Fort Sam. So we had a—went to a dance, and I introduced to my oldest brother Martin's widow. And so they got—became fast friends. In fact, Marianne took some plain—civilian clothes and kept them with her. And she would wear her uniform to Flo's (?) home, and put on the civilian clothes, and go to a dance with all of her buddies, you know. And so they became real fast friends. Well, anyway, I went on to Houston, and I had about ten jobs offered me. I didn't accept any of them because most of them were working in butadiene plants.

AW:

And what—why did you not like a butadiene plant?

MA:

Uh, because I thought I was a leftover from the army and didn't expect it to—

AW:

Not much future in it.

MA:

—continue. I thought as soon as the rubber plants got back in business, why—I mean the rubber growth—

AW:

Yeah, the plantations.

MA:

—you know, the natural rubber—because it was a better product. And—

SA:

I'm sorry, honey. I'm going to go to Lois's.

MA:

Huh?

SA:

I'm going to go to Lois's and get her mail.

MA:

Okay. Okay.

SA:

Be back in a little bit. Pleased to meet you.

AW:

Nice to meet you.

MA:

And, so, they—I came back to Lubbock and went to Biddy's house, and she says, "Dr. Oberg wants you to come see him." So I went there, and he said that Carol Claytor and Duffer Crawford were working in Pennsylvania for a research and development outfit, and they called and want you to call them. So I called them from Biddy's house, and they hired me over the phone for twenty dollars more than I was going to be making out in Houston. And Houston was hot. Gosh, what a miserable place. So, I took off, and I went to a—went by to see my cousins in Oklahoma. Had a cousin named Francis who was an English teacher at New Mexico State now. It was New Mexico A&M at that time—and had been a teacher there for years. So I visited her and her mother, Aunt Blanche. Well, then I went on to Pennsylvania and went by to see Carol Claytor who was one year—he and Duffer were one year ahead of me. They were both chemical engineers, and Duffer had gone up to work in Pennsylvania when he first got out of this college. Claytor had been a teacher at A&M for a year or two and had went and gone up there. And they had done a lot of work, at different times, for the Manhattan Project. And these professors—I mean, engineers that I'd be working with, they were smart beyond belief. One was by the name of Eric Roberts, and he was really a sharp guy. Another was Dave Aronson who was—had actually worked at Alamogordo for a bit. And that was where they lived when they went out to work there at—out at the place where the bomb was—went off. And there were several other guys there that—they had designed an oxygen plant to make oxygen in a submarine which meant that it had to be real short which was a complete—and they didn't need one for a submarine anymore, so—but they thought, Well, we've got this design. Maybe we ought to sell it because people were starting to see that enriched air with more oxygen in an open hearth would put out twice as much steel. They decided to design and build and operate a demonstration plant. It would make ten tons of 95 percent oxygen separated from air. So my job was to work with a draftsman and the purchasing department and a gang out in the shop. The research department had a separate shop—had everything you needed. And, so, we built this thing and got it done, and I was the only—that was the only project that was getting done. And the reason it was getting done is because I was working with the people. I was working with the purchasing department, and if something couldn't be had—there were shortages beyond belief. And I would change the design so that use—change—

AW:

So you used what you could get.

MA:

Yeah, sure. Tell me what you can find. Well, they could find Monel washers. Well, that was exactly what I needed, so I changed the design so—because, see, when you start cooling down you go to three hundred below zero. Everything is going to shrink, you know. So we were concerned about flanges coming apart. Well, a Monel washer—a Monel doesn't shrink hardly at all, so by putting a Monel washer there, by—as you compress it, why, it's not going to come loose, see?

AW:

How do you spell Monel?

MA:

Monel?

AW:

Yeah.

MA:

M-o-n-e-l. It's a—an alloy of—

AW:

Molybdenum or something?

MA:

No, I'm trying to think of it. Nickel.

AW:

Nickel.

MA:

It's—nickel and something else. I don't remember what. And it's—I haven't seen anything made of it lately, but it was used in a whole lot of things. Well, this thing required assembling—a plant that was in a—about, oh, twenty foot square; and it had a coal box that was about ten foot square, and it was about forty feet tall—just barely so that the crane could go over it. And it was to be built and then put the casing around it and then fill it with the insulation. And it had big compressors and big heat exchangers—had a whole lot of equipment in a big column in there. Well, the column was made out of copper. So, one day, the government comes in there and I had

to sign something to swear that that was never going to make alcohol. So here I am, a junior engineer, signing something for the—company to prevent them forever more.

AW:

From making alcohol.

MA:

Anyway, why, we got it done. And, meantime—the main reason this thing would work is because it was a guy that had worked with Duffer someplace known him in college, I guess. Duffer got a master's degree, I think, at Texas when he left here, and he—this guy was a—he designed what they called an expander which is actually based on a water wheel. Well, you know, that they use to generate electricity at dams, but he was using air to go through this thing—or, in this case, nitrogen. So you go through it. You come in and set it with a—a hundred degrees below zero, and it comes out three hundred below zero and lower pressure. So this was the refrigeration that we were using. Well, the company was at—developing a turbo charger to use on stationary engines. So they were building a bigger one—the same idea. Well, Claytor was—that this guy had gone. Claytor had taken that job over, and I would see him working, and he could write mathematical stuff that I couldn't read. And he hired a guy to help him, and this guy had a whole page full of calculus. And Claytor looked at it, and in about a minute he saw a mistake. So he could read that advanced calculus just like I could read a newspaper. Duffer had designed a seal for Oak Ridge to keep the gaseous uranium from escaping. And that—he designed it and it worked and it—and they put it on every one that has ever been made; that same seal is still being used. And so I was working with some damn smart people. But I was working out there in the shop too, and I was—the boss was getting called up every day by the union, and I was the biggest problem he had. And the reason was is that I would have everything organized when they came to work so that a plumber was accustomed to working for a while, and he'd need something, so he'd get up to go get it, and, of course, it would be thirty minutes before he came back, you know. Well, to hell with it. He'd start to get up, and I'd point to the—that I had already got it for him. And he'd say, "You're taking bread out of my mouth." And I'd just say, "No, I'm getting the job done." So anyway, but we got the thing done, and they had a—they got a contract to put a gas turbine using coal. It was going to go on a locomotive. So they told me that I was going to have to use my crew to do the—the construction. We had already finished operating this plant, so we—it was—the thing had been proven and tests had been run and everything, so we really were free to do this with the exception that we were—still had some jobs to do. So we worked our regular work from seven to three and then worked from then till midnight on this other project. Well, hell, these other guys were getting overtime, but, hell, I was exempt. I was salary. So what I would do is I would come to work about eight o'clock and I would leave about ten, you know. And—but these guys had to go up above the crane. They were running a channel iron all the way across to take electricity over to a cooling tower there, they was going to use the cooling tower as the resistance to soak up the electricity that was generated

by this gas turbine deal, see? Well, they had—they told me—guy says, “I want you to drill a hole right here, and we’re going to use a rod that will anchor this thing. And it it’ll come down and tie it on to the steel structure that’s for the ceiling for this office that we were going to build this thing in. We were building it on a platform above the office. So, hell, I told the guy—I says, “Put me a hole there.” So he took a jackhammer, and he knocked a hole about this big. Well, this guy came, and he was horrified. He says, “I wanted you to drill a hole that’s about this big.” And I says, “What the hell’s the difference. You want it to look pretty, well we just patch it. But this will hold what you’re trying to do.” Well, anyway, why, he was red cussing. We got the job done. In the meantime, they had started another test on a great big compressor. This was called a Lysholm compressor which was kind of like the—you remember when the—an automobile used—had a rotary engine?

AW:

Yeah. A Wankel engine?

MA:

Yeah, it was similar to that only more sophisticated and bigger by a long shot. So they had that thing, and they were running it. And it made—they decided that running it at night—that they would—it would save electricity, lower rate. Well, hell, the neighbors couldn’t sleep, and they raised hell. And I was—at that time I was operating the plant, so we were going around the clock. So somebody had to be there all night. And I was on the night shift, and that’s one reason I can’t hear.

AW:

Really?

MA:

They found—the sound meter was an old fashioned one that just read in decibels, but it was the first decibel. There’s another one now that’s different. I don’t know what the difference is, but it’s different. And that thing was off scale every place except—my partner and I built a little hut made out of insulation so that we could sit in and see the panel board and it wouldn’t be so—so loud, you know. But it was still just at the very top of that—any place else in the building, it was off scale. So anyway, after we—they finally got their test, and it was, as I recall, a ridiculous test. It had no sense at all for doing it, but they did it anyway. Well, by that time, we knew that the company wasn’t going to do anything with this oxygen plant, and so all of a sudden there was a guy that showed up—an older fellow—that worked for Fluor. At this time, Fluor was a little-bitty company there in LA off in the boonies, and—had a bunch of Quonset huts they were working in, had probably—maybe thirty employees—something like that. But they had got a job with El Paso Natural Gas in El Paso, and they had worked with them on several things and built some plants for them. And one of the things—well, the gas company had discovered some gas at

Boundary Butte, Utah, which had about thirty percent nitrogen in it. Well, they couldn't sell it, so they hired Fluor to come up with a plan to get rid of that nitrogen.

AW:

Is Fluor F-u—F-l-u-o-r?

MA:

Yes.

AW:

Okay.

MA:

The guy—the owner's—that was their name. Psi Fluor was the guy that—

AW:

So back to Montana and this thirty percent nitrogen in the gas.

MA:

That was in Utah, now.

AW:

I mean Utah.

MA:

It's right in the Four Corners area, and it—the reserves weren't big enough to do it. But, anyway, they went to the big oxygen people, and they wouldn't work with them. So they knew we were working on this, so they came to us and asked if we could do it. So, these smart guys, they knew how to calculate things just theoretically. Well, nobody had any data that really amounted to very much, and so they started working on this. And Claytor developed an equation of state which is an equation which—from it you should be able to calculate any property of any gas. And so with that and what little data—some data, for example, they had the speed of sound at three hundred degrees below zero in nitrogen. That was a Russian report that they had and all kinds of stuff like that, and they were able to—to put together a series of charts from which you could design a plant. So in the relative volatility of oxygen and nitrogen—and there was some data on that—actually, it was wrong, but it was what we had. So we made these calculations on—which separated—mostly methane, but it had methane and a little propane in it. So we made these calculations as different processes to make that separation and estimate the cost and the cost of operation and so forth, and so we worked on that, and everybody had a patent application for it. Well, they—the guy at Fluor and I got to working together. We got acquainted, and he liked me

and he told me—he says, “You’re fixing to leave this company, I can tell. When you do, why, come to see me in LA.” So when I got ready to leave—I took a leave, I didn’t quit them—I got ready to leave and I told them—I wrote a whole bunch of letters, and I got to—I visited a few people on the way to LA, and nobody had anything. Nobody—this was 1949 and nobody was doing anything except El Paso Natural Gas. So I went to see this guy, and he told me—he says, “Look. There’s only one company in the world that doing anything right now, and they are busy working night and day. We’re working with them, but we just can’t do what they need done. They’re building pipelines. They’re building plants to clean up the gas. All of the gas in West Texas’s got Sulphur in it, so we can’t sue it directly.” It has to have that removed, but it had a bunch of carbon dioxide in it, too. So Fluor had designed a process to do that, and they had a whole bunch of plants. But they only run three months, and then you had to shut them down because the heat exchangers had corroded out. They were leaking.

AW:

So they had to be completely replaced every three months?

MA:

You had to shut down. You had to clean it up. You had to get all the gas out and make it safe to go in there. You had to go in and repair things. You had to replace the heat exchangers, so it was about a two week job turnaround. So they said, “Well, that’s one of the problems that you would be working here in El Paso.” And I went to El Paso and met the guy, and, meantime, the guy from Fluor had written him a letter saying that this is the guy you can use. So they said, “We have one other problem besides this corrosion problem, and that is that we’ve got propane that we can’t sell. We can’t leave it in the gas because it would condense out at high pressure, so we’re going to make chemicals or something out of that propane.” So they hired me on the—on the spot. So I said, “Well, I’ve got to go back to Pennsylvania and quit.” So I went back. I figured I was spending three weeks—two weeks, and they said, “No, we need you more than that. You’ve got to show us how to tear this plant down, so we can reassemble it.” So I had to work with them for three weeks to get that done, and then I left and drove back to California—I mean, to El Paso. Well, I had a little baby, and had married Marianne when I was up in Pennsylvania. I got her to come up there.

AW:

So—so you married Marianne up there.

MA:

We had only known each other a year, but we decided to get married.

AW:

Is that Mary Ann—two words?

MA:

Actually it was but she had changed it to the one word. But—

AW:

M-a-r-i-a-n-n-e?

MA:

Yeah. Yeah.

AW:

Okay. My wife is named Mary Ann—M-a-r-y A-n-n, and so I'm always careful to get that right.

MA:

That's—I think that's the way hers was—birth certificate would show, but, anyway, she was using the other word.

AW:

And so you already—and you had a baby by now?

MA:

Yeah.

AW:

Yeah.

MA:

Little kid with big blue eyes, named him Tom. And so I started working for the gas company, and they were giving me menial jobs. And they—I was the only Texas Tech graduate they had ever laid eyes on, and most of them there were from A&M. And most of them were mechanical engineers, but they did have one chemical engineer, but he was working as a mechanical engineer and had no interest in working in the chemistry part of it. And so I kind of spun my wheels doing whatever somebody asked me to do. They—for example, the—sizing pipes requires you to make a calculation where you have to square a number and square another number and take the difference and then use that to multiply something. So they were telling me that “We've only got one calculator that can take the square root of a number, but that's used by the people that are designing the pipelines. But they'll let you use it for a little while, so when you get through—don't try to do this on a slide ruler because it's too sensitive.” You know, a little bit of difference would make too big a difference. So I looked at it and here was $P1^2 - P2^2$ and I thought, In Algebra in high school, you would change that to $(P1+2)(P1-2)$ which gives you the same answer. So I was working on the slide ruler, and they kept saying, “Damnit, you

can't do that." So I told them, "Okay. Go check. See if my answer's right." They came back and said, "How'd you do that?" And I says, "Well, if you was paying attention in high school, you would know." (both laugh) So they had a big—well, they had a Christmas party, and they gave me a book on beginning arithmetic. And the draftsman room was—they were having a ball out of this because they had another problem they gave me was making a design of a pipeline that had to go over another pipeline, like this. So I started doing it mathematically, and they said, "You can't do it. You've got to do it graphically." So I says, "Well—" I gave the instructions to a draftsman; he drew it up, and, hell, it worked just fine. And so they just—but I'm sure nobody ever used it that day because it was—took a little judgement as you were using it. But, anyway, this—my office was just outside the drafting room, and this draftsman—the chief draftsman, a guy by the name of Hugh Henning, was a—had a—he ran a tight ship. He was a good supervisor. So one day I looked up, and he was standing in the door, my door, and facing his draftsman—there was three of them over in a corner shooting the bull, and he did like this—and they immediately went back to work.

AW:

Yeah, and, for the recording, Mack held two fingers up on each hand like you're doing quotation marks almost, yeah.

MA:

So I says—

AW:

So they went right back to work when he did that sign.

MA:

I said, "How—what happened? What is that?" He says, "Well, it's a long story, but—the king of the tumblebugs lived in a—lived in a pasture with a big ole Brahman bull. And he was out checking on his people one day, and he ran across an out-dropping that was kind of unusual in that it was round. So he decided he needed that out-dropping, so he started rolling, oh, to his house, up to his—he had a—tumblebugs have a hill—so he was rolling it up the hill, and he stumbles, and the dropping is rolling back down, and so he says this—which means in tumblebug language—Stop the BS." (Both laugh)

AW:

Oh, that's great.

MA:

Well, finally, they kind of decided to reorganize things, and they made me the, what they called, the Chief Process Engineer. And so I was going to work on the natural gasoline plants and all the

treating plants. And so I was traveling out in the field checking on the construction, and one of the construction superintendents showed me a drawing and he says, "You know, we do this every time, and soon as you engineers leave, we have to change it. And so we never even try to start up because we know damn well it doesn't work." So I took it, and I looked at it, and I saw what was he was talking about. So I took a red pencil, changed the design, and made—and initialed it. And so he says, "You mean I can do this on your say so?" And I says, "Either that or they got a wrong man working for them." And so he started doing it, and word got around that I would do it—that the engineer had a guy—that the engineering department had a guy that had the guts to fix things. So they—everybody would call me. Well, they—and try to get me, if not, they would talk to me on the phone, so that I could change it here at the office. Well, we were building plants that worked from the very beginning, and everybody was happy as hell. And the people that—in the operating department were calling me every Saturday morning and asking me questions and stuff like that, and the engineering department there at Jal, New Mexico heard about it, and stopped it, told them, "You quit calling—you go to us. We'll get you the answer." We'll hell, they had never knew the answers. So anyway, we got in, and we built a plant. We'd design it, and the drawings would go out. And they'd build it and it started it up, and it would run from day one and never look back. And the reason is because I was listening to the people that were doing the operating and the guys that were building the thing. When engineering department—when they finished the construction, the operating people had to come in there and locate vents and drains so that you could pressure test the thing. You couldn't even pressure test it without—so anyway, all that stuff got being put in at the—in the drafting room, see. Soon as we thought the draftsmen had to be done, well, they could do it. So we were doing good, and natural gasoline plants were being built. And they were building a bunch of them. And we had a—had discovered some gas up at Barker Dome which is in the Four Corners area which is in Colorado, but we were going to build a plant in New Mexico at a place there right by the river. And I can't remember—Fruitland was the name of the place.

AW:
Fruitland, yeah.

MA:
It's near Farmington.

AW:
Yeah. In fact, I think that's on the highway if you're going north up to Durango.

MA:
Yes, on the way to Shiprock.

AW:

Yeah, and on to Durango. No, I've been through Fruitland.

MA:

Yeah. So we—they drilled these wells at—up on the mountain and ran a pipeline down, and we built this plant, and everything's working fine. They had a—most of the gas that we separated would burn. Carbon—I mean, carbon dioxide wouldn't burn but hydrogen sulfide would, so we would flare it because hydrogen sulfide will kill you whereas sulfur dioxide won't, see? So we would burn it. Well, this stuff at Barker Dome had so much carbon dioxide that it wouldn't burn.

AW:

Wow. That's dangerous to be around, isn't it, because it's heavier, and so—?

MA:

Yeah. It would—it would—actually, when it comes out it comes down at about six times the length of the stack. Funny deal. It just—whichever way the wind's blowing—so it's a hazardous deal. So I called Uncle Bud, and I asked him—I knew he knew combustion. And I asked him, and he says, "Yeah, I know somebody that can help us figure that out." So he—the people were in Tulsa, so he called them. And they built a ring, which we put natural gas in it, and it would burn and it would—this pipe was to be that big around, and it would gradually burn the hydrogen sulfide before it left the stacks and before it left the air, you know. And so—anyway, we were just—problems like that that just kept coming up, you know, all the time, and it was a tough problem. Well, in the meantime, we were still flaring propane. I mean, you—they'd make a propane separated from the gas, and there's just no place to put it. So it went to a burn pit, and there's big flames out there. You could see them from all the land. In those days, you navigated by the carbon-black plants. (laughs) So we—they told me, "We're going to do something with that propane." Butane wasn't getting us anything. We were selling it, but it wasn't making any money. So Fluor came up with a scheme of making butadiene which had—continued to be valuable, much to my surprise, and—from butane. And so they convinced the gas company and they convinced W. D. Noël who was a self-made millionaire at Odessa. He had a plant down there—

AW:

How do you spell Noël?

MA:

N-o-e-l.

AW:

N-o-e-l.

MA:

Just like Christmas. Well, Bill Noël was an orphan, and whoever adopted him sent him to Texas University. And they—he got a degree in banking, and he said that, every morning when he woke up, he would work up dreaming of making a million dollars. And so he—they convinced him that they needed—that this—back to his development. He was—he got a job after he graduated working in a lab for Gulf Oil.

AW:

Uh, Noël did? Even though he was trained in banking, he was working in the lab. Okay.

MA:

Yeah. Most of them were selling shoes. But anyway, they were developing the Yates Field. The Yates Field is a field that's going to be producing forever. It's down there south of Odessa someplace. And so they left one—they skipped a location.

AW:

Near Crane, isn't it?

MA:

Huh?

AW:

Near Crane?

MA:

Yes.

AW:

Yeah, that's—

MA:

And—Iraan.

AW:

Because that started in the twenties.

MA:

Iraan.

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AW:

Iraan, Crane—that. Yeah. It's been down there a long time.

MA:

Yeah. But, anyway, they skipped this location, and Bill asked them why. They says, "Well, we—they tell us it's going to be too small." And so he says, "Well, it will produce oil, won't it?" They says, "Yeah, but it's just not enough for us." So he says, "Well, how about me quitting and drilling that well for you, and I'll sell you the oil?" So they said, "Fine, that sounds like a winner." So he got a partner, and they got a cable tool rig, and they went out there and worked night and day, from daylight to dark, from can to can't, and they got that well, came in and found another one. So from then on, when I met him, he was—he probably had about eight million dollars. He—and so, they decided that they wanted to make a butadiene plant. So I—we had a research department that was run by a guy that had been the dean of engineering at Tech—Dysart Holcomb. And he was the dean of engineering, and we hired him to run our research department because we were working on coal gasification.

AW:

A quick question here. I'm not completely sure—when you're doing all this, are you working on the payroll for Fluor or for—?

MA:

Working for El Paso Natural Gas.

AW:

El Paso Natural Gas. Okay.

MA:

Yeah.

AW:

I wanted to make sure.

MA:

No, I never worked for Fluor, but they helped me get the job.

AW:

Right, right, right. Good.

MA:

They had—they formed this joint venture with Odessa Natural Gas, with a rubber company,

General Tire, in El Paso. And so they told me to go with Bill Noël, and Johnny Eikelman was the chief engineer of El Paso at the time. And so we would go out there, and we had some other people that worked with Fluor. And so I would go out there every—fly out there every Sunday afternoon, work all day in LA, come back Friday afternoon, get my crew together Saturday morning, and assign them all the work that I had been assigned to do. Well, about this time we were selling natural gasoline to different refineries around, and they were buying it from us for maybe ten cents a gallon. And they were—about more like a nickel a gallon—and they were selling it in a gasoline just by pouring it in there at whatever the gasoline price was which was probably a quarter.

AW:

Now, tell me about natural gasoline. This is not something that comes from a refinery. This is a byproduct of your natural gas?

MA:

It's mixed with the gas that comes out of the well—out of the gas well, and it condenses. And sometimes they call it drip—but drip gas is not refined. It's just something that's condensed, see.

AW:

But it runs just fine in an automobile or whatever?

MA:

It—not without—but not by itself. You would have too much vapor lock.

AW:

Right. So you mix it with regular gasoline?

MA:

Yeah. They mix it with naphtha and the regular straight run gasoline and whatever else they'd have in a refinery to make a gas fuel—to make a motor fuel out of it. So the other thing with it—so the butadiene was going to take care of the butane, and so Fluor came up with the idea of taking the propane and making it into—polymerizing it into—propane's a three carbon atom and to make into a six carbon atom product which will be a liquid, and had a high octane and could be used in gasoline. Well, the president of the company, a fellow by the name of Kayser—Paul Kayser—is K-a-y-s-e-r. He was a lawyer—lived in Houston. And he had owned the El Paso Natural Gas from 1929 on, so—and forever until he died. And he made a speech in Phoenix saying that they were going to build a plant in Houston to make motor fuel out of propane. So after he made that speech, why, I got to concern about it, and I had a guy working for me that had a little bit of experience and he checked around and proved that this product of just isohexane was not worth a damn as motor fuel by itself. So he—so we—I talked to a boss about

it and he said, "Well, what do we do?" And I says, "Well, you—it has to be blended with straight run gasoline." Well, he says, "You know, we're selling a lot of our natural gasoline to the McNutt Refinery just west of El Paso in New Mexico." It's a suburb of El Paso. So they bought the damn refinery—never said a damn word to me. And they told me, they says, "You go out there and talk to Cecil McNutt and his brothers, and if they haven't decided to go to work for the company, you're going to have to run the refinery." So I got out there, and I convinced them to go to work for the company. (both laugh) I didn't know anything about running a refinery, and I found out later that the employees didn't, and Cecil was the brains of the outfit, and it wouldn't run without him at all. And he had a whole bunch of brothers, but they were just flunkies. They had their jobs, but they didn't amount to much. Anyway, Cecil McNutt was—the guy's about my height, but he weighed anywhere from 280 to 400.

AW:
Wow.

MA:

And, at—at one time, he had weighted 460, I think. He went to Mayo Clinic, and they put him on a diet of dry roast beef and sliced tomatoes, and he lost eight tenths of a pound a day until he got down to 180. I think he ate one egg in the morning with a piece of dry toast or something—maybe not even any toast. I don't know. But anyway, he starved himself, but he got it down to a 180. And so, he was a beer drinker, but he never swallowed. He just poured it. Just—(both laugh) So he could pour more beer in him than anybody ever dreamed of. So he'd get down to a 180. His smallest suit would fit him. And he'd start drinking beer, and he'd start changing suits. Finally, when he got up to the biggest suit, then he'd go back to his roast beef and sliced tomatoes until he got back. But he was a smart—he was a graduate of University of Texas—a chemical engineer in 1933. And he was smart and hardworking and clever with everything you could think of. He was a running guard at El Paso High, and he started at University of Texas. And his dad found out about him and told him to quit or come home. And so he stayed there. He quit football, and got his degree, and came back. And—but they—at one time, they had a foot—a baseball team. And it was—

AW:
In El Paso?

MA:
Yea—no. McNutt refinery.

AW:
McNutt Refinery had a baseball team.

MA:

And he was the catcher, but he could run so fast that he could outrun the base runner and would be backing up the first-baseman when they threw the ball. That time he weighed probably 300 pounds.

AW:

And he could still run that fast. Wow.

MA:

His calves of his legs were that big around, and his ankles were about this big. I mean, he was powerful. And he was just straight up, just like a—well anyway, they decided that they were going to build a refinery, and that this propane idea was just part of it, but they were going to build a refinery in Phoenix. So we made some calculations and showed them that refinery would be better off in El Paso. Then some oil refinery's calculations showed it would still be better in Odessa, so we ended up building it in Odessa. But what was happening during this time was that on the Sunday that I had been—after I'd been to LA, I would go to Chicago with Cecil, and we would work with a company that was in Des Plaines, Illinois—that was a suburb of Chicago—all week. And I'd come back, and I'd have a week's worth to do. And I'd get my crew together—tell them on Saturday morning what they had to do, and then that Sunday I'd head to LA. So I had two bosses and two jobs. So finally, why they asked me what to do, and I says, "Well, I've got one of my right hand men can do what I've been doing in LA." So they did that, and I stuck with Cecil. And we went ahead and built the refinery. In the meantime—

AW:

What year was this that you were building that refinery in Odessa?

MA:

This would be in the middle-fifties from probably '55 on, but—

AW:

How long does it take to build a refinery?

MA:

At that time you could build them in a year. It would take you three or four years, now.

AW:

Because of the regulations?

MA:

Environmental regulations. You have to build an environmental impact statement and do a lot of

testing, and you've got approvals that have to be done. And it's a horrible job. It would take a major oil company anywhere from five to ten years, but a company like McNutt Refinery with Cecil running it—he didn't let anything stand in the way. If something couldn't be done, he'd assign somebody to figure out how to get around it. And we didn't have any problems with environmental stuff or anything like that. We'd just hauled off and did it. Well, then we had a—we got to—the butadiene plant was under construction, and General Tire had built their plant in Odessa, right next it to make the rubber. They weren't making tires there; they was making the rubber, and they needed styrene. Well, they could buy styrene, but it was—they—we decided that we could make styrene out of the—out of the cyclohexane that we made in the refinery. It was part of the gasoline, but it really wasn't worth much—had a low octane rating. So we figured out how to make styrene, and we hired a guy who was operating a plant. And he turned out to be the smartest guy but the biggest horse's ass that ever lived. The guy, before we hired him—we asked for his recommendation. He says, "Well, you can't live without him, and you can't live with him." (both laugh) And I was his supervisor most of the time. I mean, if you didn't compliment him—brag on him—every once in a while, he'd do it himself. He just had a big ego. But anyway, that got put together and operated, and there, for a while, why, they had these different plants, and the superintendents of each of them didn't really get along, but there wasn't a big boss. And so we had a group of engineers down there, and they assigned them to me. I'm living in El Paso, and I've got employees in Odessa in the plants. And I've got the safety men. I've got the fire department, the labs, everything. And it's like pulling hair, you know—pulling teeth to run a thing like that. So that went on for over a year, and I'm on my way to Odessa every day, just about. Well, we finally got all that gun and everything, but the refinery business wasn't making any money. So we sold the refinery. And all we'd been building service—and, by the way, and I was responsible for building the service stations from California all the way to Abilene.

AW:

What was the brand name of those service stations?

MA:

Called El Paso Red Flame and Blue Flame. The gas company had built a new skyscraper in El Paso as their headquarters, and they'd put up a flame up there. They had a—they made a movie about recovering the gas that had been wasted called *The Flame—The Flares Go Out*, was the name of the movie. And it was shown all over the country, you know, and it was—it made a lot of—made a lot of sense because it was a waste product, and they were recovering it. But in the meantime, we had figured out that you could make nylon from the cyclohexane that we had in the refinery, and they—but in the meantime, we had sold a refinery. But hell, by then, we had to deal with the—with Bonnette which is the company that made Bamberg Sheer which was a ladies high-class fabric for clothing and was used in men's suits as lining. That big—if you had a two hundred dollar suit, you'd have the Bamberg Sheer lining in it. And so they had plants all

over the country, and it was a going concern. And they were making nylon. They were making nylon 6. And it was okay for the things they were using it for, but they wanted to make tire cord. So, to make tire cord, you had to make nylon 6. Well, we had the—we searched around and found that a German company had built a plant in Russia to make nylon 66. And this was a product that had a—a base—an alkali that had a—an alkali active component on each end and another product which had an acid on each end, and you—when you combined those it made a long straight chain which made a real strong fiber. So we decided to do that—they decided we needed to see that plant. So, by this time, W. D. Noël has continued to buy gas company stock, and so he is—he is taking over the products company—part of our company. So he could—he's a personal friend of LBJ, sees him every weekend down at the ranch. So he—LBJ gets on the phone and calls the Russians and tells them, "We need to send a crew in there to look at your plant down there." So they says, "Okay. Come on." So we went to Germany, picked up the German people, went to Moscow, stayed there for about three or four days while they made clear that we were delayed by them, and then we got on a train and we rode for about a day and a half until we got down to a little town there right close to the Black Sea, and I think the name of the town was Lysychansk or something like that. And so they put us up in a dormitory where the people from Germany that were trying to help them out on the plant. Well, to show you how little equipment that the Russians had—on this train with us was a welder from England. They had to bring a welder from England to do any welding.

AW:
Wow.

MA:
And so, we went down there and the plant was shut down, and it—there's ice all over everything, and all of the labor is done by women. The women were out there chopping the ice. When they get to the concrete, they keep chipping. The workers along the railroad are all women.

AW:
Is this because of all the men that—

MA:
In the army.

AW:
—had been killed in the Second World War, and they still hadn't recovered?

MA:
They were all in the army.

AW:

They were still in the army. Yeah.

MA:

This is 1950—'55, I guess. I'm losing track of when. Maybe I can figure it out. But anyway, the plant isn't working, and we looked at it. It's a crappy design—crappy workmanship, and I'd be scared to death to try to operate it. But anyway, why, we looked at it and visited with them and everything like that, and they threw a big party for us. And I met a guy from the Ukraine who had a sister that lived in Houston, and he had been to Houston. He's a big ole guy. The Russians were little guys. The guys in Ukraine were big. And they were independent, too. And, so, we had a bunch of drinks, and I had too many, of course. But anyway, we went on back the train to Moscow and caught a plane to—back to Germany, and I think we went through Sweden on the way, going and coming. No, coming we went through—we were on a Russian plane going to Paris. And, boy, the people trying to figure out what were Americans doing on that plane—what hell are you guys doing? And they—some of them tried their damndest to get us to talk, and, hell, we weren't telling them anything. Well, let's see. Anyway, why, we put together the design team and make the—build the plant. In order to build a plant, we've got to build everything in the world. We've got to build a—a hydrogen plant. We've got to build an ammonia plant. I mean, we've got to build a nitric acid plant. Oh, this was—it's a real—

AW:

So, you've got to build plants to produce your raw materials to do the nylon 6.

MA:

Yeah, so that you could—you can make the—because this was pretty powerful chemistry, really. And anyway, well we got it done, and on the startup—why, I was in charge of the startup, and I stayed out there. Matter of fact, I was on call, and the gas company plans—you don't take a—you don't—you can't get in if you've had a beer. So I went for eight months without a beer or anything. It was no problem because I was working all the damn time, I'd come home, my wife would give me a rubdown, and I'd go to sleep. She'd feed me something, and I'd go to sleep, get me up the next morning and shove me in the shower, and I'd go on back to work. So that went on, and we finally had to revise the plant completely because the Germans had thought they had—knew how to do it, but they really didn't. So we got that damn thing going. And then, right back when they discovered the oil—the gas in the Four Corners area—when they built the pipeline to California from there, all the way north—northern Arizona—they sent a group of scientists. One was some people that were concerned about artifacts and some that were concerned about minerals that you might run into. So they—first thing they ran into was a coal deposit—big coal deposit—so they make a deal with the Navajo tribe to produce that oil—that coal. And they ask us to come up with a way of making gas from coal, so I went to the

government to see what they were doing. And they told me, and they recommended a guy that had just quit then, and I hired him.

AW:

So, this was brand new technology, was it, making gasoline from coal?

MA:

No, the Germans did it in World War II.

AW:

But we weren't doing it over here, so it was pretty new.

MA:

We were not doing it over here. We didn't need to do it over here. We were exporting oil at the time. That's one of the—when we cut it off is one of the things that started the war. We quit letting the Japanese have any oil. The—and of course, they ended up not letting us have any rubber. Well anyway, we had the research department on this, and they were coming up with some results, but the—actually, the boss wanted to be able to show that it was viable because he wanted to use the coal as a reserve. You had to have a reserve amount to sell gas, you see? So in other words, if you—you could have sold all the gas you had, but you couldn't get a permit to do it because you didn't have the reserves to back it up for twenty years. So he wanted to use that coal to back that up.

AW:

Because he could just leave it as coal until it was time to turn it into gas.

MA:

Until he needed it.

AW:

Yeah. And that would be a cheap way to maintain a reserve versus having to store—yeah. That makes a lot of sense.

MA:

So that was—that the research department buys for twenty years, I guess. Anyway, they—I have transferred from the gas company—from the first time that I started working with Cecil McNutt. And they had—I had built my dream home. My wife and I spent two years planning it.

AW:

In El Paso?

MA:

In El Paso. Up on the side of the mountain, we had a view you wouldn't believe. My brother Jamie took a weekend off and designed a house for me, and he says, "If I had this view in Lubbock, I could sell it for a million dollars." Anyway, we built it. The day we moved in, we heard a rumor we were moving to Odessa. I got to live there for three years, and then they transferred me to Odessa. Well, actually, my wife never got over it. She went along with it and said she would—enthusiastic, but she never did. It was really a major blow to her that she had this big house, you know. We were entertaining politicians. Hell, neighbors were rich, you know. We were doing good, and all of a sudden we're in Odessa, and—which was kind of the armpit of the universe at the time. So then, all of a sudden, the Saudis get t'd off that we're cozying up to the Israelis, so they quit selling us oil. Meantime, we've become very dependent on oil, so we have the Oil Embargo of the early seventies. And we have a situation where money doesn't do anything. If you need—buy—if you need products for your chemical plants, you have to have something to swap for it.

AW:

Yeah. This is when we had the gas lines at the service stations in '72, '73?

MA:

Absolutely. This was traumatic for everybody in the world.

AW:

I remember.

MA:

They—I was on a trip one time, and a guy came up to me at the airport, and he saw the logo on my luggage, and he says, "I've got a barge full of benzene that's on the Mississippi." And he says, "You're company probably has something I could use. I can't use the benzene. I swapped it for something, but I'll swap that benzene for whatever you've got." And so, "Who do I call?" So I gave the guy's name, and then I called that guy and I says, "Accept his phone number—his phone call" because, hell, the guy was swamped. And so this was s—a crew of about, oh, four or five people that were just working night and day on the phone, you know? So they made some kind of a deal for him, and I never knew what it was and never needed to know. But anyway, my job, primarily, had been to build plants, you know—to design and build plants, so there wasn't a hell of a lot for me to do. And I had a bunch of technicians that worked in the plants to improve them, you know, and solve problems. And they were under my direction, but—we worked real close with the operators. And, so, finally, they—I decided that I would kind of like to leave, and the gas companies was making speeches of making gas out of coal. They were going to build a plant up in the Four Corners area on a Navajo Reservation. So we—I let them know that I was interested, and so they transferred me back to El Paso. And I started working on that with the

engineers. I was the project manager. The engineers had been working on it; so I just kept them working on it, but I started controlling them. And so I had to spend a lot of time in Germany and working with—we had a joint venture with Ruhrgas, and so—and with Pacific Gas and Electric Company, also—so I was traveling to San Francisco a lot, and to Essen, Germany, and to Frankfurt, Germany where the engineering company was. And we finally got to the point to where we had it designed and everything, and I—when I went to work—before I transferred, I called the people that I trusted there at the gas company, and I says, “Now, have we got the coal? Have we got the water? Have we got the permit with the Navajos?” And he said, “Yes, we have all those things.” When I got in charge of the things, we didn’t have any of those things, so I was negotiating with the Navajos. I was negotiating with the—the state of New Mexico on the water, and we didn’t—the coal deal was an old—contractor was twenty years old, and by the way, we had a joint venture with Consolidation Coal Company, which was bought by Conoco later, to do the coal mining. Meantime, they had hired a coal miner, so they gave me the coal miner. And I became the executive vice president of El Paso Coal Company.

AW:

El Paso Coal Company.

MA:

Yeah. So here I am traveling all over the damn world, and they—we have a team that’s looking into plants that are still in operation. We all went to—South Africa where they were making not only coal—gas out of coal, but they were converting it to gasoline.

AW:

Really?

MA:

Yeah. And because nobody would sell them any oil, and I was there—

AW:

Yeah, because they were South Africa. They—

MA:

That was a big plant. I had met them before they had asked us to help them with a styrene project that they were on, and so we spent a weekend in Vegas talking about this; and that’s about the end of it. But anyway, I knew them. And they had a plant in Czechoslovakia that was still running, and there was one in Australia that had run or maybe was still running. So one of my guys went to Australia to look there, and they walk—he walked in there to see them, and they says, “Is Mack Atcheson still around?” And he says, “Yeah, he’s my boss. Why?” Says, “Well, he did us a hell of a favor one time. We were in trouble, and we called him, and he told us how to

fix it.” And this was back in the early fifties, and we had a kind of a grapevine. There was a guy in—at Mobil in the research department in Dallas and somebody else, and we would get calls from somebody, and if we didn’t know it, we’d send them over there. I got a call from a guy in Amarillo, one time. He was—his plant was corroding. And I told him what to do, and he said, “I can’t believe it works that way.” Well, it—a gas chromatographs hadn’t been invented at that time, but I had done an experiment one time where I had discovered how they work but didn’t have sense enough to, say, use it for analytical purposes. I was using it for what I was using it for, see? So anyway, why I—we had us a grapevine that was really—really worked. One time they invited me to be a—they called it a co-moderator—at a convention in Oklahoma—at Norman, Oklahoma. So I wrote my boss a note, asked him if it was okay if I worked with a co-moderator. He came in, and he says, “It’s okay by me, but what does ‘commode-rator’ do?” (both laugh) So anyway, I went over, when I told them that story, they hooted. (both laugh) In the meantime, the—in addition with all of this stuff that’s going on, why, Rexall wanted to make polyethylene.

AW:

Rexall the drug company?

MA:

Yeah. And Justin—what was his name—anyway, he—they found a guy that knew how to make the flexible type of polyethylene which is the hardest job there is. And they were—they just needed ethylene, so they made a deal with us. We made a joint venture, and we were going to build the ethylene by cracking propane to make the ethylene and purify it and ship it across the highway to them. So they started building their plant, and we started building ours, and we’d get it ready, and in the meantime, we’re—they decided to make some polypropylene. So we started purifying the propylene. And all this is going on at the same time all this other is happening.

AW:

That’s a lot to say grace over.

MA:

Oh hell yes. At Odessa, I’m the vice president in charge of engineering and construction, so I’m right in the middle of everything. And we—I’m going to the—they put me on the board of directors of the products company and all of its subsidiaries, and I’m going to the board of directors and the—the board of directors had at the same time the Gas Company board of director, and it’s almost the same people. So sometimes I’m sitting in on that. So the—one time the—the vice president in charge of operation reported that he was flaring ethylene. Oh, goddamn, flaring ethylene. And so, he really didn’t know enough to know. All he was doing was reading the report. And he was a nice guy, I mean a real prince of a fellow, and so I spoke up, and I says, “Now wait. First, we have a computer program which simulates how the ethylene

plant works, and it says that if we don't try to recover 100% of the ethylene and let of it go out with the fuel gas, or if we have we have too much fuel out with the flare, well then, we will make more ethylene product." So they said, "Oh okay, fine. That's fine." Well, this guy comes back, and he's telling his people, he says, "Mack bullshits in the board meeting." And they told him, "No, we really have the computer program that does that, and we've been using it for years." (both laugh) Anyway, I'm working in El Paso trying to put together this project.

AW:

So you've moved back to El Paso.

MA:

For—the Coal Gas—yes. I've moved to El Paso.

AW:

But you didn't get to move back to that nice house, did you, that you—?

MA:

No, no. I couldn't afford it. It was for sale, but I couldn't afford it. But the—and we didn't have any kids anymore, see? It had five bedrooms.

AW:

Yeah. How many children did you have?

MA:

Well, I have two of my own, and we had accumulated a niece and a nephew—both of them petunias. I mean, they were not very pleasant to be around, and their mother had gotten killed in an automobile accident—Marianne's sister. And so we built this house to spread them out. Boy, everybody had their own bedroom. Four teenagers all at once, God almighty.

AW:

Oh my goodness. Yeah.

MA:

I had to negotiate a labor contracts with the Navajo Tribe.

AW:

Did you do the negotiations with the Navajo?

MA:

Oh, hell yes.

AW:

What was that like?

MA:

Well, in this particular ones, they had a lawyer who was a communist, and I had to teach him private enterprise in order for him to understand what I was telling him. And it was like pulling teeth. We had a lawyer from El Paso who was a company lawyer but an independent lawyer, Bill—Bill—I'll think of these guy's names as we go on. He told me later, "I'm thinking of hiring you later next time we have a negotiation." And I says, "No. The only way you could do what I do in a negotiation is you've got to know the business inside and out. If I sat down to negotiate something I didn't know anything about, I wouldn't be worth a damn. I'm not a lawyer." He was a lawyer. But anyway, we got that thing negotiated, and we negotiated a joint venture with the Conoco people. And I'm the lead negotiator on this whole thing because we've got other people around—but there's lawyers and stuff like that—but contribute if I asked them, you know, that's what it boiled down to. We start working with the—in order to get the approval of the water, we have to get the House of Representatives to approve it, and that was the one that really—because I thought that was a bucket of worms. The—Jimmy Carter was the president. He didn't put anybody on his staff—or, it was the cabinet—that knew anything. If you knew something, you couldn't trust them. So he put a bunch of day-old idiots in charge of these things, and in the Department of the Interior, one of the bigshots was a woman—a woman environmental activist housewife from California. And I had been in a meeting—the people from Houston that—the headquarters of El Paso had moved to Houston. So they came in with a pot full of lawyers, and as an afterthought, invited me to go with them to this meeting with the Energy Department of the state of California. So we walk in and here's this environmental housewife, and she is talking all about the things that the Navajos don't like and so forth. And I listened to her for a while, and I got up and I says, "I know who you're talking to. This young man, his mother is the chairman of the chapter, and they had a chapter meeting which I attended, but before they would let me in, they ran him out. The chapter and his mother voted him to leave. He does not represent anybody except himself. As far as the chapter voting against the project—I voted against the project, and the reason was there was no place for me to sit. And they started counting the people that were standing up, and me and my crew were standing up, so they looked at me—did like this. So I voted against it too." But it wasn't—they all voted against him. But anyway, as part of this negotiation with them, they wanted to see what some of the plants looked like. So they're, hell, they're in Europe. There's one in Scotland. There's one—some research stuff in Germany. So they start organizing—and Navajo—six Navajos and me and a couple of other people to Europe, and one of these guys is a young guy. There's—first, they have the vice chairman. Then, they've got a businessman by the name of Carl Todacheene, and he is smart. He is real smart. And they tie—they paired him with me, and he's sitting there talking about something. He says he's a goat rancher—sheep rancher, and all of a sudden he's talking about five-year payout and discounted cash flows. And I says, "Wait a minute. This don't sound like a sheep rancher to me." And he

said, "Well, I do have an ice cream plant that we're making." He's got a dairy, and we make ice cream and stuff like that, and he's a businessman. (laughs) And then there's some politicians. And the youngest politician gets over to Germany, and he's got—hell, he's in his shirtsleeves. He doesn't have a sweater—doesn't have a jacket. So I bought a jacket, gave it to him, and I says, "When we get back to Farmington, give me the jacket back." I never expected to see it again, but he did give it back to me. But anyway, we all these discussions, as we were going, we were sightseeing, we saw a coal mine. It's a brown coal mine in Germany that has wells all around it to pump the water out because the coal is below the water level. And they—it makes a river, and it goes into the Rhine there. And they had to make that—channels to get rid of the water. And this thing goes—most of it's about four hundred and five hundred feet deep, but it—one of them was eighteen hundred feet deep.

AW:

Wow. That's deep.

MA:

Now, this thing is a mine. It's feeding a bunch of plants—a bunch of electric plants, and there's an excavator that is a wheel where the buckets are big enough to put an automobile in. And it's just sitting there pulling this thing—

AW:

Is this an open pit mine?

MA:

Yes, yes. And it—it's feeding onto a conveyor that's taking the other conveyors and going over here about a mile and putting it out in the boonies. And they moved people—and this was a town that they—or a crossroads. Every time they come to a crossroads, they move the people.

Anyway, this—in the United States, the maximum conveyor belt I had ever seen was probably about three or four feet wide. These meters were three meters wide which would make them about ten feet wide. And the ones I had seen had been about this thick. You know, rubber? Hell, these were that thick.

AW:

Like three or four inches thick?

MA:

And the speed in here was something like three feet a second, or something like that. They was running at three meters a second.

AW:
Woah.

MA:
And they invited us to a luncheon at their headquarters, and here is a whole bunch of little dinosaurs that they found—little bitty ones all along the place. It's in an old castle that they've taken up.

AW:
Wow.

MA:
Fascinating people. And I told them; I said, "You guys have some technology that we ain't got in United States." So they started advertising and started going into business. I don't know whether they made any money or not, but anyway, they sure had some stuff we needed. Anyway, we went to Scotland, saw this plant, and the—did some sightseeing. Went to London and saw—sightseeing. And we were sitting in the hotel room waiting on somebody to come so we could go to supper, and I bring up the subject that reminded me of the Indian code talkers. And it turns out that the vice chairman and Carl Todacheene were both code talkers. They were the oldest ones in the group. And so I got to talking to them, and I says, "Now, I know some of the stuff. I've seen the movie, and I know you were identifying the tanks and so forth with animals in Navajo language, but were you spotters as well?" He says, "Oh, that was our main job." He says—I says, "Well, I knew that Navajos don't have numbers." They go up to thirteen, I think, and they don't have numbers above that. I said, "How did you tell him—" Those two had been talking to each other. I says, "How did you tell him how far something was?" He says, "Well, a real good example was I asked him, I says, "Do you remember that field goal that you kicked when we threw the rock that time?" And the guy says, "Yeah." He says, "Well, that's how far you are too short." (laughter) And he said the next shell was right on.

AW:
That's how far you are too short. (both laugh) Oh, that's great.

MA:
But of course, all these guys spoke English as well as Navajo. There was one guy at this channel—this chapter meeting that I attended, talked real fast, and he sounded exactly like a Chinaman—just exactly like a Chinaman. And he was funny, and everybody was laughing. That's one thing that nobody knows. They have a great sense of humor. They laugh all the time.

AW:
Oh yeah. I have a—friends of the Navajo, and I have friends in other tribes. And there's no

question, the Navajo are the funniest. And they're always laughing. They always have a joke. And most of them you can't repeat.

MA:

Well, there's a lot of other things that I did before this. One thing was the—when we started building the refinery, we were going to build one near Gallup, New Mexico. There was a great big sand cliff. Robert O. Anderson was a New Mexico oilman, and he owned refineries. He had one in—had one in Roswell that he had shut down, and he had one out in New Mexico—can't think of the name right now. It was close to Grants. It was on the—west of Grants—Prewitt. Prewitt, New Mexico. And he had—but he had not—he had sold it because he'd run out of water, and he had planned a ten mile pipeline from a water field that the railroad had abandoned to supply water to him. But that was just going to cost too much, and so he was willing to sell that refinery. So McNutt says, "We'll buy it." So he bought it, and Christmas—the day after Christmas, I got on a plane and went to Prewitt with Cecil McNutt and an older guy from Chicago that was a designer. And this was an old refinery, and this was the old guy that knew how to design. He was probably the only man alive that still knew how. And so I worked with him, and he was a wonderful guy. I learned a bunch from that old guy. And so we worked on the refinery. And, meantime, it was being operated for Robert O Anderson, and finally got to the point where it was—the cracking furnace was so plugged up it couldn't run anymore. And so they just had to shut it down. Well, we had this construction crew. We called it the Poor Boy Engineering and Construction Company. And I would work all daylight making the calculations and figuring the design out. The draftsman would come to work at four o'clock, and he would work until seven the next morning. Construction crew would get there about five, and at—pick up his drawings. And they'd start pouring concrete, and doing the welding, and so forth. Well, one day, the managers—the superintendents were Oklahoma Indians. They were Cherokees. And the head man had a chemical engineering degree from Oklahoma, and he was smart—and the other guy was good, too. So they—one of our guys was listening to the—I guess, the plant superintendent or to one of the constructions [sic] people—a crew—explaining what he wanted done, and it was a long, drawn out, detailed explanation, and so when he finished, why, the Navajo interpreter turned around and said just a sentence. And so this—my guy came in and he says, "Boy, that Navajo language is a powerful language. It doesn't take anything at all to get a point across." And so I asked the plant superintendent, who was standing there grinning—and he understood Navajo—and I says, "What did he say?" He said, "He said, You heard the SOB. Now do it." (both laugh) Oh, those guys understood English, but they wouldn't talk it. Well, getting back to this—let me go back to where I was working in El Paso in the office, designing plants.

AW:

This is before you moved to Odessa?

MA:

Yes. This is before the products company. This is when I'm working for the gas company, and I'm in charge of everything design wise—pipelines and everything. And it takes us six months to—one test, one complete calculation, starting back in the Permian Basin and coming all the way to the California line—designing a pipeline. And the guys are using a calculator that's about this big—powerful son of a bitch. And so—and there's three of them working. It takes them six months. So, about that time, Wernher Von Braun is working in White Sands, and they tell him that he's got to move to Alabama. And one of the guys working for him was a kid by the name of George Ares—I believe it—I believe it was that—I'll be sure in a minute. But, anyway, he was a graduate of Princeton. He'd worked on the ENIAC. He had worked with Wernher Von Braun in making a computer out of radio parts: vacuum tubes and resistors and condensers and—it filled a whole room, you know. But all of his shorts were analyzed on this computer. So this guy didn't want to go to Alabama. He was raised in El Paso. So he came to the gas company and said, "I can get you a—build you a computer to design your pipelines." So they hired him, and they gave him to me. And so he starts looking for a computer, and none of them, really, were worth a damn. They all—all in binary numbers, you know. And so, finally, just—he was about to buy one from Bendix that's going to be hard to use, when IBM came to him with what they call a Program—Card Program Calculator, which was like a bookkeeping machine which was about the size of an automobile. And you put a stack of cards which some girl has punched—

AW:

Punched cards. Yeah.

MA:

—in this stack. This is the program, and here is another stack for the data, and here is another stack for some output. And they've got a line printer that prints a piece of paper, about this wide, all the way across, and it's printed in engineering numbers which means that you've got one number and then a decimal point and then the last number is an exponent to switch that to the decimal point. Okay, so, this guy starts—the program is a spaghetti board, about this big, just full of—it's about this high of, just, wires that go from here to here. And he—you change a program by pulling the one out and poking the other one in, so he starts designing one that will do all the arithmetic that you need to do, and this is all in binary—simple numbers. The only thing you can do is yes or no.

AW:

Yeah. On or off.

MA:

And all of his stuff has to be—like, you can't put a logarithm or a sin or anything like that. You have to use a straight approximation of this, and as—the mathematicians know how to do that. I

don't. Never did; never will. But, anyway, why, he programmed this thing by putting this—these wires in this gadget. Well, finally, when they got the thing going, they can make a pipeline design in a matter of hours.

AW:

Versus six months.

MA:

Versus six months.

AW:

Wow.

MA:

So he's able to run a—to optimize a thing. Make different cases, you see. And he can put all the cases in there at one time and have them all come out, but the output is on this—on this piece of paper. Well, he could read it, but I couldn't. And I needed to see it. So he made a template that had holes in it, and units, so that he would—I could put that thing down and read through the holes and see what the result was, see. So then he figured out a way to calculate the cost, so he got so he was outputting not only all the technical designs you needed for construction but he was outputting what it was going to cost to run the thing, see. So, hell, we had what we needed. And, one year—one week, all of the gas companies in the country came to El Paso, and they would meet all day long and come up with new possible routes. And, at five o'clock, they would hand that to me. I'd get the civil engineers to look at the maps and choose the routes, and the construction people would estimate the rock ditch based on what they knew about the terrain, see, because they had built two pipelines through there. But they were designing pipelines from Salt Lake to California—there were no pipelines ever been built there. And from—there a—there already was one they build from Amarillo all up to the Pacific Northwest, and so, they'd give me that. I would give the stuff to the people who worked the computer. They'd have it done by, say, eight o'clock at night. The economics people would go to work and make the report, and the poor secretary would start typing probably at two or three in the morning, and by eight o'clock the next morning, why, they had a bundle on my desk, and I'd hand it to somebody to take up to the top floor, and they would talk about it all day long, and that went on for a whole week.

AW:

So, overnight—

MA:

Yeah.

AW:

Calculating.

MA:

Several cases.

AW:

Yeah—what used to take six months. That's amazing.

MA:

Okay, now, the—this kid that I had trouble thinking of his name—the mathematician, the computer expert asked me, he says, “Is there anything else that you do that's time consuming?” And I says, “Oh, yeah. When you're designing the plants, you take the gas—the analysis of the gas that's coming out of the well, and you start compressing it. And some of it's going to condense, so you have to make a calculation that is time consuming, and it's repetition, and you don't get an answer—you have to plot it up to see what the answer is. You do this over and over again until it finally converges to the answer.” So he says, “Okay. Give me a sample.” So he designed a program to do that, and he designed a converging factor which allowed him to see where the answer was coming. And, so, when he first started out, it took him ten times to get it, and, finally, with his converging factor, he'd have it at three. So he was cranking those things out, so we quit making that calculation. We just sent the results to him, and he'd give it back to them in about twenty minutes, see.

AW:

What—with your background in both engineering and mathematics, how would you describe that calculation? Because, when I was in finance many years ago, we had the same problem with a factor called internal rate of return. There's not algebraic formula. You had to calculate from both ends and figure out where they met in the middle. It was iterative. What is that kind of calculation that has an answer but not an algebraic answer? What is that called? You said convergent, and that seems to make a lot of sense to me, but I don't remember.

MA:

I'm not sure I ever knew an actual name for it, but I wrote—after I retired, I wrote a computer program which was published and sold by the Gulf Publishing Company for a time. And it had—it calculated discounted cash flow, is what we called it, and I build a converging factor into that.

AW:

Yeah. When did you do this? What year? Do you remember?

MA:

That would be 198—'81—'81, '82, and, right now, if you look at a spreadsheet that will calculate a DCF, you have to put a guess in there to start with. Mine didn't.

AW:

Yeah. We had the same problem. The business I was in—we were—the internal rate of return was a big issue because you had an investment that had both tax advantages and cash flows.

MA:

That was the answer, the DCF.

AW:

And you—and the calculations in the spreadsheet—I was using Lotus—and it would give you odd answers. Sometimes you would get a negative internal rate of return, and it was as valid a solution. So I had to, on my own—and I don't have any of the background you did, but we—I finally figured out this iterative thing that you let it work until it found the spot. But I never did have a—I never did figure out a converging factor to speed up the—

MA:

What I did to get the conversion factor, is I put—I made a whole bunch of calculations, and I plotted the assumption versus the answer.

AW:

On a graph? Yeah, on a graph?

MA:

On a graph.

AW:

Yeah.

MA:

And I saw the shape of the curve, and it was—

AW:

Ah. And so then you could calculate the curve?

MA:

And the shape—the shape of a curve was a log shape. So what I did is we would take the results and approximate where it was going along that—log curve. Hell, it would converge in three

times. I mean, you would be within a penny at the end of three times, and I—I should have broken that off and sold that little subprogram.

AW:

Yeah, because I would have bought it instead of having to do what I had to do. (laughs)

MA:

No—in chemical engineering, you do that a lot. You've got too many unknowns to solve it, see. So you make an assumption and see what you get, and then—we used to use that new result as the next assumption. But, see, that takes a long time because it's not converging that fast. With this conversion, you get a better guess, see. But you do it on a lot of different things.

AW:

Yeah. Let's—it's so interesting. The logarithmic curve. Of course. That makes perfect sense when you explain it. Golly. It's great. That's really interesting.

MA:

Well, anyway, after we've got this ethylene plant built there at Odessa, and I'm living in Odessa. And people are talking about computer control plants, and there's a few of them in operation. So we make a trip to see them all, and there was one down at Texaco, near Houston, that the guy told me—he says, "Are you thinking about doing this?" I said, "Yes." He says, "You need a man. I know that man. I know what he's doing now. He used to work for us. He did ours. If you can hire him, you've got no problem." So he gave me his name and number, and I called the guy, and he was in the middle of a deal of somebody had a batch process that he was putting—making so it—a computer could control it. And he had needed another month to finish that. So I got him to come out. And his name was Bill Baker, and he turned out to be the best manager I ever laid eyes on. And he—he hired—we hired a company. They had some programmers. And that company went broke, and, so we hired them. And he did that—took about eight months to design the program for computer control. And he was using things I didn't know existed.

AW:

Like what?

MA:

Well, a Nixie tube. You ever hear of a Nixie tube?

AW:

No. Like N-i-x—

MA:

It's a vacuum tube—looks just like a radio tube except it shows number. It has a—

AW:

Oh, yeah. I've seen—yeah, it's a—

MA:

See? That's a Nixie tube.

AW:

Yeah. So it'd have a—what looked like a wire mesh grid or something, and it would light up with the number—?

MA:

Yeah.

AW:

Yeah. I didn't know that's what those were called. How do you spell that? N-i—

MA:

N-i—I think it's N-i-x-i-e, I'm sure. But, then—of course, he wants electronic controls, but ours are all based on pneumatic—on air control. So he's got a bridge for that. I never thought of it. He just knows what he's doing. And so he gets all this stuff ordered just like clockwork. It all comes in on time. He's taught the people how to install it. The thing just goes like clockwork: on schedule, on budget—everything is perfect. Never saw it happen again. He's getting ready to start it up, starts it up like clockwork. It's running every day or so, and all of a sudden we get a telephone call that "Some guy says there's a bomb in your plant." So we had had problems with a guy that had drove a screwdriver into a big transformer that shut us down for a week until we could get a replacement. So we'd had labor problems. We had an open shop. We never had union workers—not in Odessa. So he—boy, they believed that—so everybody left, and the computer was running the plant. And they came back, oh, a couple of hours later—decided there wasn't any bomb there—and they went in. And the weather had dropped, so the computer had called for more feedstock to go to the crackers, had prepared the fractionating columns by increasing the reflux, and the plant was producing more ethylene than it was when they left. And somebody—a salesman—that I knew quite well told me that I—at that time, I was the only guy that ever closed a loop, and it was only closed because I insisted that they do it. I said, "Now look, we spent the money doing this damn thing. You can't sit here and watch it do it without letting it do it." And so they did it, and this guy gave me the credit for—closed the loop, as he said. The only damn time anybody ever closed one for a long time. But that was a classic project that one was. The—after I left the Odessa works and was working at the gas company for quite a while, they sold the

plant, and all of the officers of the gas company—of the products company—made millions of dollars. And I had walked off from that. Story of my life. They really didn't need me. Well, let's see—

AW:

So, now you're back in El Paso for the second time after Odessa, right? Is that were we left off?

MA:

Yeah. We had—we had done everything. Finally, why, it was clear that the project was going no place. And I was meeting with Pete Demedici and all the other people.

AW:

This is the project that—the coal gasification project.

MA:

Yeah. That project was dead as hell. We were still having meetings and stuff like that. We had a meeting with the Navajo utility authority, and they—on their board was Johnny Carson's father. I never met him because he had got off the board before I started dealing with them, but they called him Kit. (both laugh) And they kept referring to him all the time as we'd talk around him because he apparently was a good member of the board. The guy's name was Ken Ares.

AW:

Ken Ares.

MA:

Ken Ares. And—sometimes it was George Ares, but when he left the gas company, he went to North Carolina to work in the computer industry.

AW:

A-y-e-r-s?

MA:

I think it was A-r-e-s. Ares. Justin Dart was the name of the guy that ran Rexall Drugs. He had married Ruth Walgreens as a young man, but then he had swapped her for a trophy. I never met Ruth, but I met the trophy. He was a smart man. He really was a smart man.

AW:

Is Justin—is he the Dart that created Dart industries?

MA:
Yeah.

AW:
Okay.

MA:
Well, after I retired from the gas company.

AW:
When did you retire?

MA:
Nineteen eighty. December of 1980. The gas company called me and they said their engineers in Midland were not cutting the mustard, and could I find them about six engineers. So I called my guys that had retired from the products company and hired them six damn good engineers. And they were in hog heaven. They—the gas company in Midland started functioning, and they were really were good—that went on for a couple of years, and they hired them out from under me. And I didn't have a clause in there for a finders fee.

AW:
Oh really?

MA:
Yeah. They had a—they were building a pipeline for crude oil from California to Midland, and they needed some inspectors. So they asked me to hire them, and so they found them and put them on my payroll. And I had to pay them. So I had a payroll to meet, and at that time interest rates were sixteen percent? So everybody was borrowing money from anybody they could, and so the gas company was borrowing money from me, and I never made a damn dime out of it.

AW:
Yeah. That was a tough time.

MA:
Yeah. That was Jimmy Carter for you.

AW:
It was a very tough time. My father and I were in the agricultural commodities business—cottonseed oil and cottonseed meal. And I'll tell you, it was—it was really tough.

MA:

I bet that was hair-raising from time to time.

AW:

Yeah, and it was tough because the way that we—we were brokers, and the way we made a living was selling, you know, being the go between on sales, but if you could buy short term seed e and get 14 percent, you know, or 12 percent, why were you going to trade things and take a risk? So the markets really kind of went to a standstill. Now, did that happen in petroleum products?

MA:

I was out of it from the time that I left Odessa. I really didn't know anything that was going on about it. I was traveling all over the world making speeches, negotiating with about ten different outfits, and just really having a hard time. My wife was concerned because I would go to the office on Sunday, and she convinced me to buy a condo at Ruidoso. So we got up there, and I could work on it on—I liked to build things. And—so I got a place up there and enjoyed it, and, when I retired, started spending more time up there. I was still working long hours because I was working on the computer programs. After I'd designed the one for the economic studies, the gas company called me. And I went up there to meet with them, and they had a company by the name of Hysim in Houston that had designed a system of designing plants and refineries by computer. And it was pretty sophisticated. And they needed something to—for the economics part of it, so—and—they needed an optimized which would take their design and go back and forth until it came to the very best one. They called it climbing the hill—to get to the top of the hill.

AW:

Climbing the hill. Yeah.

MA:

Okay. And they told me what they needed, and so we had a group there at Odessa—a couple of engineers and a computer terminal that was tied in to the outfit in Dallas. It had a mainframe there—and they would put all this information I don't know whether it was on a tape or on cards or what, but they would put it in this terminal, it'd go to Dallas, and next morning they'd pick up the answer, and it would be printed out for them. And when we were designing an ethylene plant expansion, we wanted to continue what we had—just add to it—and people, at that time, were designing trains, where—you'd have a line that would start from the cracker and go all the way to the end, and if it went—if any part of it went down, the whole thing went down. Well, we didn't want that, and it didn't fit with ours that we'd—we only were going to increase it by half, see? Something like that. So—we had a—now I've lost my train. Going back to the Hysim people—oh, I better—let me get—I know what it was. Anyway, we—I had a fellow up at

Chicago that I knew and trusted. He had designed the original ethylene plant, and he came back to visit and second guessed their design. And he came to me and told me that their design was right on—to go ahead and build it, but, he says, “Let me tell you something. I am responsible for the computer back in Des Plaines. I have spent millions of dollars, and I still haven’t got it working. You guys, with two engineers and a goddamned terminal, have done what I can’t do with my crew of about fifteen guys and my own mainframe and everything. I am going back, and I am going to tear me some new ones.” By any of those one little guys—the youngest one—was a wiz at using a program that IBM had designed to do a non-linear optimization. Linear optimizations were straightforward; non-linear weren’t. So he knew how to do that, so I asked him to design one that would be independent of IBM that we could sell. So he sat down with a VIC-20. You remember?

AW:
Yeah. Golly.

MA:
And worked that thing out, and then used a word processor to put it into basic that—

AW:
Into code?

MA:
I had an IBM computer that could read. So I took it, and I built the rest of the program around it—including a compiler where if you could write a program or a—it was a—it would simulate the way your business ran. If you could put that mathematically, you could put it into our program, and it would—it would be able to come out with an optimized way of running your business. And we sold one to Coors. I don’t know if we—we might have sold others, but I moved from Odessa, and my partner, while he was a relatively honest man, his wife was a little shady, and they could have had a lot of money come in without mentioning me. And the reason I know that is because the first payment came in, I insisted that they send some money to the kid in Odessa, which they were not going to do. So I knew I had a problem. But anyway, I worked on it, and sent a copy to the kid in Odessa. And he sent me back a note, says, “You did some fancy programming.” It was pretty fancy, but it would get you the answer real quick. And that was back in the days when they were running it at eight per second, not the—the gigs per second.

AW:
Oh yeah. Yeah. Man.

MA:
But anyway, I’m a workaholic—have been. I’m not anymore.

AW:

Well, what—? So you did a lot. I mean, you retired, but you didn't really quit. You did—you were doing lots of things, and—

MA:

Well, I quit when my wife died.

AW:

And what year was that?

MA:

Be 1986. Craziest thing in the world: when she died, I did all of the home improvements that she had asked me to do. That just shows you. Boy. Now, we had lost our boys before that.

AW:

Oh, really?

MA:

Yeah.

AW:

Yeah, now you had four. How many of them were boys?

MA:

Well, now, the two—the niece and the nephew had gone to California. They had—

AW:

Okay, but you lost both your boys.

MA:

The first one got into drugs. He was in college doing good,⁵ and somebody gave him one marijuana cigarette, and that's the end of it. He ended up shooting himself.

AW:

Was that Tom?

MA:

Tom. That was Tom. Now, Jim was three years younger, and he had moved to California and was working out there. And he was driving a little Fiat 850.

AW:

I used to have Fiat 850.

MA:

And—yeah. And he was in a bar, and he met a couple of sailors, and they bought him a whole lot more beer. And he got in his car, and he was driving them, and some older folks in a big, heavy car hit him, and it killed a passenger. And Jim was banged up, but not hurt too seriously. And the—few months later, well, the DA decided to—to convict him or accuse him of vehicular—

AW:

Homicide?

MA:

Mans—yeah.

AW:

Manslaughter or something?

MA:

So Jim hung himself—and that would have been—Tom was in, probably, '66 or something like that, and Jim would have been, probably, early seventies or something like that.

AW:

That's awful tough.

MA:

I went back to El Paso in '72, so Tom would have been in '74 and Jim would have been in '78. That's about what it would be, '77 or '78. Jim was a smart kid. Tom was short and strong, and—but having problems in school. But Jim, they called him the genius—all his friends did. And—but he got mixed up in drugs. Odessa was a bad place to be at that time.

AW:

Oh yeah. Yep.

MA:

I wrote a note, not long ago that I sent to the newspaper telling them that the reason that I had turned out to be a good citizen was because of my sister working there, and them giving her all these free tickets that let me go to the wrestling matches and the touchdown club and all those different things where kids weren't supposed to be but I went anyway.

AW:

Let me stop just one second and change some batteries. I don't want to run out in the middle. We're back. This is the sixth of May.

MA:

It's the fifth. It's the Cinco de Mayo.

AW:

Yeah. That's right. Cinco de Mayo, 2016, here at Mack Atcheson's house. Andy Wilkinson. We've been talking. Well, this—these things that you've given me today add more detail. Okay.

MA:

I mean, I worked on this for several months. Had a little girl come in that I'm not related to but she thinks I'm grandpa, and she asked me if—she knew I was working on this—she says, "Can I have a copy?" I handed her a printed copy, and she said, "You mean I have to read this?" And I said, "Well, I had to write it." So I'm sure she's never seen—the computer guy, Ken Ares, told me—he says, "If you ever get your hands on a computer, you'll never be able to turn it loose." And that was one of the smartest things that I did, was to keep my hands out of his business and out of the computer control business also because, when I did get the computer, I did—I couldn't turn it loose.

AW:

I know it. It's—I resisted it for a long time, and, then, I don't know how long I'd had it—maybe twenty seconds—and I didn't know how I'd ever lived without one. It's—they're something.

MA:

Mine's obsolete now, so I'm not trying too much with it.

AW:

Really? What kind of computer do you have now?

MA:

I've got a HP—I'm still running XP—Windows XP, so—I think someone's tampered with me because, every once in a while, I can't do something I could do the other day.

Aw;

Well, did you do other kind of consulting jobs?

MA:

Yeah. Yeah, I had. After I retired, why, Lummus hired me.

AW:

Yeah, the gin company.

MA:

Yeah, for a year, and I—they were paying me.

AW:

Were they still in south—in the south, then, or were—

MA:

They're in Houston.

AW:

In Houston.

MA:

They were in New Jersey, there, for a long time. And there was a project there, where—you know, we were—we had a group working in Algeria, and they had discovered gas. And they had joint ventures with Phillips and a whole bunch of outfits, and they were just drilling gas and so forth. And they had the idea of bringing that gas to the United States. And so they—while that was going on, why, somebody offered us a chance to work with them on developing a new way to do that. Instead of having the gas at two hundred something below zero, well, they would have it maybe fifty below but under a little bit of pressure.

AW:

And about what year was that that you were discussing this?

MA:

In the early fifties.

AW:

In the early fifties. Okay.

MA:

So I had to spend three weeks in New York City while going over to New Jersey to the Lummus research outfit, and in Manhattan, also, working in the office there. And then I had—there were a few trips to Chicago where there were usually some—do some research work there for them. But this was called the River Gas Project. It was a British deal. And I signed a secrecy agreement for life on that thing, so I can't tell you anything more about it. And I don't really know any more about it than that, anymore. But anyway, the gas company then started working on a gas

liquefaction plant in Algeria, and they designed it, and started construction, and asked me to come over and check on it a few times, and I did. And, one time, they handed me a report that was that thick. They gave it to me on Friday and told me there was a meeting on Monday. So I went back to the—I was staying at the Prince de Galles Hotel in Paris—and I went back and rearranged the furniture to get me enough light—which was hard to do in those old castles, you know—and sat there and studied it, and called in Monday morning and begged them to wait until Tuesday because I still needed more time. So I continued. Next morning—Tuesday morning—I went in, and here's a group of Frenchmen and a group of Norwegians. And the Norwegians are the ship owners. And so they started asking me questions, and they're talking French. Now, the Norwegians could understand English. Like they told me: if you're born in Norway, you know you're going to make your living on the sea, and you're not going to come back to Norway very often. You're going to be using all kinds of languages. So, he says, "In the first grade, they start teaching you English and French and some others." So anyway, there—my friend that I worked with in El Paso is doing the interpreting. So they're speaking French, and he's talking. And, when we go to lunch, he said, "You know, you quit waiting about ten o'clock this morning, for me to interpret. You started answering their questions that they said in French. Now, a few times, you answered not the question they asked, but the question they should have asked. So that's why they didn't ask you again because your answer was better than their question."

AW:

So, did you know, before that morning, that you spoke French?

MA:

No. Hell—I could read the French reports because of the—

AW:

You'd been looking at them all—

MA:

— of the units, see?

AW:

Yeah, and you'd been looking at them all weekend, and—

MA:

Yeah. Now this report was—it was in English, now, by the way.

AW:

Yeah. Oh, it was? So it wasn't in French.

MA:

Yeah, this report was in English. And I wasn't supposed to have ever had it because Shell was one of the co-owners of the thing, and I wasn't supposed to have it. But Shell wasn't in this meeting. Shell hired me, one time, after I got back from coal gas and tried to milk answer out of me for nothing. And I told them what I wanted to tell them. So that's about it. And I had been warned that that's what they would do. I—a guy up in North Dakota—a gas company up there—hired me to consult for a day. I was getting a thousand dollars a day at that time. And the New Mexico Power Company hired me to do some checking of designs and economics reports of guys that wanted to do some work for them there. It turned out to be the guy who claimed to be an engineer. It was a guy that I had fired. (both laugh) And he wasn't an engineer when I knew him. So he'd taken the test, and he'd become an engineer; but he had no business designing the plant. The Consolidation Coal Company hired me to go up and transfer the negotiations with the New Mexico state on the water over to them, so I went up there to them. While I was in France one time, I went to Algeria, and I saw the plant under construction and talked to the people—the construction people—and tried to show them that they needed more workers on the job; but they had to get people from England, and it was hard to find people to work. And I—they were—we had trained about twenty Algerians, in El Paso, to run the computer that IBM had made which was their idea of a PC. It had a cassette tape memory and wasn't very good. It was using Fortran. I always did my work in Basic, but I was compiling it. I went down to the—a place called Hassi R'mel—or Hassi Messaoud. I don't remember which one it was—where the field was. And I met with the Algerians. I met with them first in—Oran. No. I don't remember where I met with them first, but anyway, they made the arrangements to fly their plane down there to it. And I spent two or three days down there. It was really interesting, went out into the field, and there—you know, in the United States, they measure porosity in millipoints. Over in Algeria, it's measures in poise, which is a thousand times more porous.

AW:

So, they must not have quite as good of equipment?

MA:

They have a well. It'd be a hundred million cubic feet a day.

AW:

Golly.

MA:

Their choke was a block of lead about this big.

AW:

—about two foot—

MA

Cubed. And they drilled a little quarter inch hole through it and then put a tinier hole than that, and that was the choke. And it lasted about three weeks or a month, and by then, it was worn out. It was just—the hole had opened up too much, and it was producing more gas than they could handle.

AW:

That's amazing.

MA:

It sure is.

AW:

Golly.

MA:

It was really an odd thing. They had their big ceremonies with the barbecued goat standing on his hind legs, you know. I had to do the honors by cutting it open, and stuff fell out on the tray. Then I had to go up and get a morsel, the first morsel, and stuff like that. That was—that was a real experience.

AW:

Was it good?

MA:

Oh, hell yes. It was real tasty.

AW:

I'll bet it was. Yeah.

MA:

It was a baby goat.

AW:

Well, what—when did you come back to Lubbock? When did you move back to Lubbock?

MA:

In '03 I believe. It was at the end of '03.

AW:

And why? Why did you come back here?

MA:

Well, I had a doctor here and a dentist here, and I had finally sold my condo and had moved in—married Sandy and moved into her condo there, which was a little-bitty condo.

AW:

In El Paso.

MA:

No, that's in Ruidoso. That was in Ruidoso.

AW:

In Ruidoso.

MA:

Biddy died, and I was the executor. So I had to spend about—off and on—about a month and a half in Lubbock and—taking care of the deal, and getting the house sold, and everything—and the—working with the lawyers. The—but I had tried to get a doctor in Ruidoso, and the only one that I wanted was full. I had one for a short time, and they moved. The dentist: I went to him, and he wanted to pull my teeth. That's the only thing he knew, was pulling. And so, I just thought, Well, you know—at that time, I was old, see? (both laugh) I got married at seventy-five, you know, which, I thought—I never dreamed of living beyond seventy-five. And then, when I got to be eighty-five, I couldn't believe—so anyway, why, sometime along there, I decided I was getting old, and, so, we moved—moved here, so I might live a little bit longer.

AW:

Well, you're doing a good job at it. Can we do this? This sounds like a good time to take a break for the next time. And I would like to look through these and look at those disks.

MA:

And I'm sure you'll have some questions.

AW:

Exactly. That's what I'd like to do. Does that work for you?

MA:

Okay. That'd work fine.

AW:

Okay. Now, it may be another week before I have time to do all this and call you back.

MA:

Oh, yeah.

AW:

Is that—is that going to be good?

MA:

That's fine with me.

AW:

What's a good phone number or email or whatever? How's the best way to get ahold of you?

MA:

It's [REDACTED]. That's the house phone. Now, Sandy's got a cell phone, but I never use it.

AW:

This is fine.

MA:

In fact, to communicate with me by ear is the worst possible way.

AW:

Do you have an email address?

MA:

Do I what?

AW:

Have an email address.

MA:

Uh, yes.

AW:

I'd rather use that.

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MA:

It's [REDACTED]—

AW:

[REDACTED].

MA:

[REDACTED]. And I check that every day.

AW:

Okay. I prefer email, anyway, because—

MA:

Oh, yes.

AW:

I can—I travel a lot, and I can answer it in the middle of the night if I want to.

MA:

Yeah, sure. Sure.

AW:

That's good. All right, well, let's do that, and one of the questions I'm going to ask you—I'll just give you fair warning is I want to know what it is that you've done in your life to stay so sharp and so alert because I want to start doing it.

MA:

Well, I—as far as I know, I'd have to give credit to genes. I had two grandpas that lived to be old, and they were business men or politicians. My dad was smart. My mother was smart. I never smoked. That's the reason I'm alive. I have never taken Tylenol. I've taken just a handful—when it had to be with something else like when a dentist gave me a codeine deal that had Tylenol in it. And the reason was: my first wife was an RN, and she was smart. Now, she didn't work while our kids were growing up, but after that, she went back, started working, and started re-training herself. And her best friend was an RN here, but she would have been a doctor in London—in England. And she was the charge nurse of the ICU and Cardiac Care units in the biggest hospital in El Paso. And she was teaching doctors heart problems. And she—if she learned something, she would tell me about it. And when—you remember APC pills? Okay, that's an aspirin, phenacetin, and caffeine. Okay, they found out that phenacetin was kill—was ruining people's liver and, actually, was causing headaches, too. So when they changed—when they outlawed that, Tylenol came in immediately. And the doctors told San—told Marianne, they says, "Don't

use that for a while. Let everybody else use it.” And so I got to looking in one of my chemistry books, and I looked at the phenacetin and Tylenol. And, boy, they look an awful lot alike. So I just quit, and then I find out that in Europe—in England—you can’t buy more than about a dozen Tylenol tablets at a time. And the reason is is because that’s their favorite way of committing suicide. And I was—a dentist—this was an oral surgeon—was removing one of my teeth, and I asked him if he knew anything about that. And he says, “Oh, hell yes. Everybody’s keeping it quiet.” But he says, “A person can take—” I think—I don’t remember what he said—“three dozen, or something like that, Tylenol. When you go to sleep, you never wake up. You—you—you—you’re—you’re dying for three years.” It takes that long for—I mean, for three days. It takes that long for your liver to be destroyed. So—but I knew this long before I ever heard of that. I just did it because of what the doctors had told Marianne plus what I saw in the chemistry book.

AW:

How did you keep from taking up smoking?

MA:

I never had time and money at the same time. Now, when I was jerking sodas, why, you started work and you—if you had to go to the bathroom, you had to put it off. And, finally, at quitting time, well, then you could relieve yourself, so—I mean, I just never—and I wasn’t working, and never had any money. Now, people would offer me drags off their cigarettes and stuff like that, and I’d say, “You know, just a little bit ago, you were having a sinking spell where you couldn’t keep up with me. Now, after you’ve had that drag on that cigarette, you can keep up with me, but you ain’t running any faster than I am. I don’t see the benefit.” There’s one other thing—when I was a little kid. When cigarettes—you know, a lot of the cigarettes—up until, oh hell, probably 1910, you rolled your own. Well, they started taxing cigarettes. The first thing was that they started making a long cigarette that you had to cut into pieces to cut down on the taxes. And then they started selling equipment to roll. And one of the boarders bought one, and he hired me to make his cigarettes for him. I don’t think he ever paid me anything. I was will—I liked to work, so I was making all the cigarettes for all the guys in the boarding house. And one day, some guy—I don’t remember who he was—came by, and he was talking to Mama about it. And he took his handkerchief, he took a drag off his cigarette, and he blew it—the smoke—through that handkerchief, and it was a godawful-ish yellow-looking goo you ever saw.

AW:

Yep. Yep.

MA:

And he said—and my mother said, “You know, that’s after it’s been in your lungs.”

AW:

Yeah. What did it look like before it went in there?

MA:

Yeah. Now, I never forgot that. And I'm not sure that that would have kept me from smoking, but it damn sure had an effect on it. The—in the army, everybody—they would have a ten minute smoke break every hour. I'd lay down and go to sleep. I could sleep for ten minutes and wake up, which did me a hell of a lot more good than smoking a cigarette. I don't know.

AW:

That's pretty impressive. Well, I'm going to stop it here, saying thanks again. It's a—

MA:

You bet.

AW:

—again, another wonderful afternoon, and I'll email you as soon as I get through all this reading matter.

MA:

All right. Well, I hope someday somebody—ten, fifteen, twenty years from now get around to being interested in something like this.

AW:

Oh, I think they will, and, you know, our thinking is. not just ten or fifteen years from now. but a hundred years from now. You know, they won't be able to find out any of this—thing—any of the things you've talked about. This is the only way they're going to learn most of it, you know? So, that's what we're—

MA:

Well, and hope to hell that there's no batch of Arabs have taken us over and burn it up, you know, in the meantime.

AW:

I hope not.

MA:

That's what happened to so much of it.

AW:

Yeah, well—

MA:

However, the Romans did their share in Alexandria.

AW:

Yeah, if it's not the Arabs, it will be somebody else, you know. It's a whole lot more to do with how we take care of ourselves than it is the other.

MA:

There's something else I was—but it's crossed my—can't pull it up.

AW:

That's all right. We'll come back to it. Thanks.

MA:

Okay.

End of Recording

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