Nevada Test Site Oral History Project
University of Nevada, Las Vegas

Interview with T.D. Barnes

January 12, 2007
Las Vegas, Nevada

Interview Conducted By
Julia Stetler

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Table of Contents

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[00:00:00] Begin Track 2, Disc 1.

Julia Stetler: *OK, are you ready?*

T.D. Barnes: Ready.

OK, then the first question, I need you to state your full name and the date of your birth and the place of your birth.

Thornton Duard Barnes, born Dalhart, Texas January 25, 1937.

OK, and now we could go a little bit into your childhood. So you said you were born in Texas?

Yes.

Do you have any favorite childhood memories? Just tell me a little bit about your childhood.

We lived on a ranch thirty miles from the nearest town. We had no electricity, no running water, dirt roads. Our ranch was the Two Bar T, and it was right on the New Mexico-Texas state line, and I actually went to school at a little, small school at Sedan, New Mexico. And let's see, I attended till about the sixth grade there, and actually I took two grades a year, one a year, so I was actually—I think I jumped from the third to the fifth grade in grade school. I don't know whether it was because the teachers didn't like me or [laughing].

But anyway, it was a quite a different, quite an experience living remote like that, and this was right at the beginning of World War II, and I can remember the bombers flying over and practicing around the ranch there. They had a glider base at Dalhart, Texas and they would pull their gliders up and then turn them loose over the ranch and then they'd glide back in to Dalhart. Another significant thing I remember back then was we got prisoners of war from Italy, and they would come out and work on the ranch. They'd deliver them out, and of course they loved it.

They didn't want to go back. They'd never had it so good. And I remember my mom used to make big old chocolate cakes and put on a pot of pinto beans and this sort of thing to feed them, you know. But I remember the prisoners coming in and they was tickled to death to be there.

So you spent time with the prisoners?

Yes. And one thing that's significant about that era, too, is I can vaguely remember having to do you might say a report for school and I did it on radar. Radar had just been invented, and I'm out in the boondocks, a ranch kid, and I never dreamed that that would become my specialty in life. You would never have thought it for a little, old country school like that, but I remember researching because this would be towards the end of the war, so they hadn't had radar but two or three years, and I'm not sure where I got my reference data but I wrote a report on radar, and I'll never forget that.

Where did you get the idea to do that?

If I remember right, my mom suggested it and I picked up on it real big, because in those days, you know, I thought, even through high school, I wanted to be a veterinarian, and I never dreamed that I would become, you might say, an expert in radar for my period of time, but that's what I ended up doing.

Wow. So early on, you already had the—

I often wondered about that, you know, what really guided me to that, you know. It's rather significant.

That's interesting. So when you started the radar thing, did you keep at it, or was it just a project for school?

No, I didn't. I thought no more about it for many years. Actually it wasn't till I got back from Korea that I got interested in picking it back up and I did nothing but go to school for years then on, various radars while I was in the military.

Interesting. So other than the radar project, did you have any other hobbies or anything you were interested in?

No, it was very simple, those days. Of course we didn't have TV or any of that sort of thing, so we rode horseback and in fact we worked. The kids started working even before they started into grade school. I remember we used to have to herd the cattle, keep them away from the rattlesnakes. They'd find a rattlesnake and then all gather up around it and want to smell of it and **[00:05:00]** they'd all get bit, so we'd break it up and this sort of thing. So we'd be out on horseback all day long, taking care of the cattle and this and all like that. And I remember the roundups. All the neighbors would come in and help each other. And the country dances. They had the country dances.

And this is amazing, in fact I can remember when World War II started, I know exactly what we was doing that day, and I couldn't have been but about four years old, but I remember the shock on my parents' face when one of the neighboring ranchers rode by on his horse and hollered at them that Japan had attacked Pearl Harbor. And we had a battery-operated radio and the folks turned it on. I remember how shocked they were. And I've never forgotten that. That registers up with when [John F.] Kennedy got killed and the *Challenger*, you know, it's in my mind and I'll never forget that moment. It's frozen.

Were you scared?

No, but I was a little bit—well, yes, I guess it was, just because I knew they were scared. And that was back when things was assured. We would go out and gather up rubber off the ground

and stuff to donate to the war effort, aluminum and metal and rubber, we were that short, people did that. They went out and gathered up in the trash piles, wherever they'd have an old inner tube or something, and they'd turn it in to supply the war.

That's very cool.

That's unheard-of these days, isn't it? [Laughing]

Yes. And so when you got out of school, what did you do?

I ended up going to high school in Oklahoma, and I was very big in agriculture. In fact, it's rather unique. I was an officer in my FFA class all four years, which is very unusual. In fact, I was president in my freshman year, which spoke, I think back now, spoke highly of my leadership. They were seeing something that I didn't know I had at that time, because every year I was selected as an officer of the organization, and we won several national competitions in agriculture.

And, let's see, I graduated from high school when I was seventeen. We was very poor and I couldn't go to college at the time, and I was dating my wife Doris and we decided to get married. She was sixteen and I was seventeen. And we immediately left the state and ended up in Tucson, Arizona. I went to work for an uncle there. We were independent. We wanted to get away from the folks because we was on our own. And that's when the Korean War was going. And I had been in the National Guard earlier in Oklahoma and I knew I was going to be drafted, so I went ahead and enlisted into the [U.S.] Army and went to Korea.

Was there a specific reason why you joined the National Guard?

Yeah, the girls liked the uniforms [laughing]. That's the only good excuse I can give you. But I joined the National Guard and we did, you know, we were very proud of our uniforms. I wasn't military-oriented at that time. It paid a little bit and of course going through school, I worked my

way through school, I drove a school bus to make extra money, but we were very poor, you know, the family was, and the National Guard paid a little bit, and I don't know why I really joined but I did well in it and then they got me started because I started taking all kinds of correspondence courses even then, and a lot of my education then became, even after I went into the Army, was through the University of Maryland. They had an extension program for the military and I took a lot of courses through that. And then once we—I'm kind of jumping ahead but once we got stationed at Fort Bliss and was going to school all day on radar, on electronics, I'd go to college at night at Texas Western.

Fort Bliss is in Texas?

Texas, yes. El Paso. But anyway, we got married and I went into the service and ended up in Korea, and I went over as an intelligence specialist, which dealt with intelligence matters, and I **[00:10:00]** never worked, actually all through the military service, I never did work like an ordinary military, always with officers. I was an enlisted man and I worked—in fact I had a two-star general that me and him was almost friends. It was quite an age difference but we got acquainted on the ship going over and every time he was in the area he'd drop in and see me and that's one of the reasons I went into the missiles, is they counseled me, they wanted me to stay in the service and they said, Missiles is the thing for someone like you to do. And so when I came back from Korea I knew I was going to try to get into the missile field, in electronics. But that was at the urging of my commanding officers. And it ended up that the general ended up, he was commandant when I went through officer training, he was the commandant, so our paths crossed again.

But anyway, that's how we started off very young, and in fact we went to Germany, I deployed to Germany with the first Hawk missile unit ever deployed for supposedly combat. We thought we was going to war over the Berlin Wall.

Do you remember when that was?

It would be 1961, right after [Francis] Gary Powers got shot down, and the Soviets were setting up a base in Cuba and they had sealed off the Iron Curtain, so they sent one battalion from Fort Bliss to along the coast of Florida with a missile set-up because we thought we might be invaded from Cuba, and then we set up on the Czech border, and we actually thought we was going to war. It's a long story. I got to take my family with me, the only American family on the ship, and the kids wore dog tags and the wife wore a dog—just like I did. And every six months they had to evacuate as though we were at war and go to Paris alone, because I'm supposedly back there fighting the Soviets. And my wife, she was almost twenty then.

And they lived with you while you were on mission?

Yes.

Why were they allowed to come with?

I had been working on a project with the CIA [Central Intelligence Agency] while—

You were already with the CIA [laughing]. OK.

[Laughing] This is a real funny story. I don't know if you want this or not.

Oh, yes!

We'd been at Fort Bliss—when I went through the first missile school, it lasted a year, and you're supposed to get automatic commission, a warrant officer commission. By the time I graduated, they had too many and no place to send them, so that's when I made my sergeant's stripes. And so they sent me home and told me they'd tell me when they had an assignment. And

about every three months I'd go into the base and say, You got anything for me? No, we'll call you when we're ready. So I was going to school full-time out at Texas Western is what it was called then, and then I was enrolled in various electronics schools on base, TV repair and all this kind of stuff. And I actually set up a side business of working on televisions. I was buying all these trade-ins at the store for two dollars apiece. I'd fix the electronics, my wife Doris would shine up the cabinet, and then we'd put a hundred-dollar price tag on it and sell them. And we had a heck of a business going, and they messed it up when they sent me to Germany. But anyway, I kept going to school, and after a couple of months I'd sign back up for another school, they kept opening up, and just moving up the ladder on that, and then Bud Wheelon whom I worked with later years out at Area 51 was working for the CIA in charge of Project Palladium, and what this was was determining the radar capabilities of the Soviet Union, and they were doing this all over the world with ships and testing to see just what these were capable of doing and, you know, because we were in a very cold war with them and we were basically taking the Hawk missile and putting it inside a plane, take the nose cone off of it and everything, and we'd take a sashay at Cuba, and we would activate the CW radar signals, we were homing in on them, they would start jamming us and then my job was to sit there and tweak on this missile where it could overcome their jamming, and at that same time we was recording their jamming so that we could come back and analyze it and use it to counter it. That's what we was doing was countering their jamming, and we would be able to fine-tune the missile where it would ignore it, **[00:15:00]** is what it amounted to. And then they started shooting at us so we had to quit that. But this is what I was doing for the agency.

But anyway, word came out that they were activating our missile battalion, a missile battalion, because I wasn't part of it then, but they picked me for it. And so we started firing out

at White Sands, getting ready, and it was classified where we was going. The rumors were we was going to Italy. And this was at a time when President [Dwight D.] Eisenhower had shut off dependent travel. There was no base housing available. They were trying to shut down the wives from going with the military. So the only way an American family could go was if they had relatives living there, or they were from that country, or otherwise had guaranteed housing. So everyone was drumming people they knew in Leghorn, Italy and renting a place over there so they'd have an address to put down for concurrent travel for the dependents. Well, the Agency boys told me, they said, You're not going to Italy. You're going to Germany. So we had bought a house from a master sergeant that was transferring over to Germany, so I looked him up and asked if his wife would be my wife's cousin for purposes, and we put down on the application that she'd be staying with her cousin, and we got it. And she was the only American—we were the only American family on the ship, that got to take the family with me. So a little bit of politics, I guess you'd say, or being in the right place at the right time.

But anyway, and then that's when Vietnam was starting, and because I had worked for the Agency, they came knocking on my door in Germany and said, we need advisers in Vietnam. And that was before we actually got into the conflict. I finally told them, I says, The only way I'll go is as a commissioned officer. Eighteen days later we're back in Fort Sill, Oklahoma and I'm in officer training, with the intent of sending me to Vietnam. And then I got injured real bad in survivor training and it ended my military career. It was about two years before they determined it was permanent. But they put me in JAG [Judge Advocate General] of all things. Here I am, I got electronics up the goozoo and they put me in a JAG office doing court-martials and this sort of thing, but I was still going to the hospital, convalescence and stuff for my injuries.

What happened to you?

Actually it was real simple. I scraped both knees real bad going through an infiltration course, .50 caliber machine guns shooting over the top of your head, and I developed some kind of blood poisoning, and I'd had this once before when I was a kid, almost died, and I was in the hospital for weeks, and it developed into what they call traumatic arthritis, and they eventually had to replace both knees. I've had both knees replaced. But it's just my system rejected it. And I had other problems after that. For example, I got radiation while working out on the NERVA [Nuclear Engine for Rocket Vehicle Application] project and lost sight in one eye. And the VA [Veterans Administration] was going to do cornea implants, but they knew I would reject because that's my nature. I was in the hospital for five weeks just for that, when normally it would've been almost outpatient. So it was my system, and that's the reason I had the knee problem.

OK, so you got injured and you got put with the JAG and then you decided to get out—

Yes, because I was already getting all kind of offers from the CIA.

How did they notice you, just through your friend, or how did they pick you, the CIA?

Because I had had such an extensive amount of training in a short time on radar. There wasn't a radar in the country that I hadn't been to school on. I had enough rank that they couldn't put me out just doing anything.

What was your rank by then?

I was just an sergeant, E-5, but they couldn't put me out doing, you know, manual labor. They'd send me home and then I'd say, Well, I want to go to school, so they would let me go to school, **[00:20:00]** and so I'd sign up and maybe each school would be six months, that's all you do, sit there in the classroom eight hours a day, and then you'd go to college at night. And I had

advanced into the ECM, we call it, ECM and ECCM, that's electronic countermeasures and electronic counter-countermeasures. That's your jamming and your anti-jamming. I had focused on that and that's what they were needing for Project Palladium. And it was because of my education that they picked me for the—I got on their radar screen.

On the radar screen on to the CIA, so to speak.

Yes. Yes.

And how did they approach you?

Actually they went through—I got a call from our first sergeant, telling me to report in. I hadn't been in in two or three months. And they said, Would you like to do a little interesting work? We got some people that want to talk to you. And I said, Yeah, sure. And at the time I thought it was Raytheon, who built the missile. Come to find out it was the Agency. And I thought I was going to be working for the manufacturer because they had had a few problems that they were still working out. It was a basic new missile. And it turned out to be the Agency and they wanted to know, Will you work with us on a project? And I said, Yes, of course. And so that's all I did for several months, then, was work on their project.

Did you get a clearance for that?

I already had a clearance. We had to have a clearance to go to school. Everybody going to the missile school. At that time we just had a secret, at that time, and later on I moved on up to top secret and above.

Well, I guess it was all brand new.

Yes. Yes, they were all classified, at that time the schools were, because it was pretty new.

So you worked for the CIA for a couple months on that.

Yes, actually I think about four months that we worked on that before they had to terminate it, and it wasn't too few months after that, they actually shot down one of our U-2 planes. We lost a pilot over Cuba. But they were aggravated at us shooting—coming in and shooting them with the radar signals and playing games. It happens all the time, at sea and everywhere else, you know. It's kind of interesting, the systems that we—we didn't use it in my particular project but they would have planes flying along their border and they would activate the radars and the planes had a simulator that would shoot back a signal that made it look like it was coming off of their signal, but we was actually giving them our signal, and then we would start cranking the volumes down on it where it'd get weaker and weaker to make them turn up their power because we wanted to see how far out they'd reach. So we'd just keep turning it down. Even though we were staying the same distance from them, they thought we was moving away from them and they kept turning it up and we would record this data and find out, you know, just how far out again this is, you know. So we had a lot of games like that that we played.

OK. And that project stopped—

It actually stopped when we started getting ready to go to Germany. That's when they pulled me off of it, because I'm sure they were moving into other things but they—to tell you how—we got—I'll tell you a little story on the missile. We took our own missiles with us. We took our own trucks, everything. We went over as a combat unit, ready to go to war. In fact, when we got there, my household goods were still on the ship, so I found a place about thirty kilometers out in a little village for the family, and so I went back in to get some blankets and cooking utensils and stuff from the base, and the Soviets were acting up and it turned out it was three weeks before I got to go back home. And I had just dropped the family off in this little old village, no other Americans in the whole village, and I could send my mess sergeant out or any of the—I'd send

people out there, but I couldn't leave. I was essential, that I had to stay with the **[00:25:00]** missile unit. But we actually thought we was going to start shooting, and that's sensitive. I got sidetracked. What did you ask on that?

I asked when the project ended and you said that's when you went to Germany with the family, a story about the missiles.

Oh, yeah, OK. I was going to tell you about the missiles. We had the missiles out there, ready to fire. We'd arm them. Every time an unidentified plane come across Czechoslovakia, we'd go out and arm them, be sitting there tracking. If we didn't get an all-clear, we'd have fired. We never did fire them, of course. So after ninety days, we pulled the missiles in to check them out, what we'd call "Go-NoGo" check, we hooked them up to equipment and made sure everything was still working. When we opened them up, Raytheon had built them for the desert at El Paso, they weren't waterproof, and we took them over there, and we had all these seeds in them from the desert. We opened them up and here's all this cactus and sagebrush growing right in the electronics. We had no idea what would've happened if we ever fired one. We had weeds growing right in the electronics. I mean they sprouted with it when they got over to Germany where it was moist, you know. So we'd have to use duct tape on them. When we'd put them back together, we'd wrap them with duct tape.

So that's where duct tape gets its reputation.

Yes, good old duct tape and baling wire.

That's funny. So the whole time you were over in Germany, your wife was living over there too.

Yes. It was about six months later, some of the other wives started—

She was all alone?

All alone, yes.

How was that for her?

Oh, well, she had the two little kids. Like I say, I think she was almost twenty then. The kids were just little bitty things then. I sent her out an international driver's manual because she didn't have anything to read or anything out there, and she studied that thing. She made 100 percent on the test when she took her driver's test. It was a little bit—we had a lot of fun, though. We had four missile units and they let us stand down while they were up. We didn't all have to be running at the same time. We'd overlap. And we'd get to do things, go to the Alps, and we did a lot of traveling while we was there.

Did she know what you were doing?

Yes, yes. This wasn't that classified then, what we were doing. She was pretty tense, too, because they had to wear the dog tags. And we lived above a little store and the tanks—there wasn't any sidewalks or anything in that little village. It's just buildings butted right up against the road. When the tanks would go by, we were on eye level with the crew, and they'd look into our kitchen or living room, and the kids would sit there and wave at them. There wouldn't be eight foot between us. They was on the outside; we were inside. But these tanks would be rumbling through the village and the kids sitting there waving at them. It was very military. And of course the kids, they started school in German kindergarten, and we fit right in with the local people. We got invited to all their little village things, which is kind of an honor because a lot of Americans didn't because they just didn't fit in, but we always had the policy of when in Rome, do as the Romans do, and the kids going to school and stuff, we fit right in.

So there were no problems at all with the Germans?

No, none at all. No, there wasn't any problems at all.

That's good. So how much time did you spend in Germany?

We stayed eighteen months. We were supposed to stay thirty-six months. That would've been a normal tour. But eighteen months and I went back to officer's training.

You came back to—

Fort Sill.

Fort Sill. OK. And your family tagged along back here.

Yes, brought them back, yes. And then I got out and I was actually trying to go to work for FAA [Federal Aviation Administration] in Oklahoma City, and while I was waiting on an opening, I got a call wanting to know if I could be in Nevada the next day. They needed a radar **[00:30:00]** engineer like yesterday.

That was the CIA again?

Actually it wasn't. They were involved, probably they submitted my name, but it was actually a contractor for NASA [National Aeronautics and Space Administration]. And the CIA was involved in the program. But anyway, this was on the X15 program, and they had an X-15 flight scheduled for the following day and they had some radar problems and they needed some overnight help. And I didn't go, I told them I couldn't that quickly, but we managed to—we'd just bought a home there in Oklahoma City and we sold it. The realtor was able to immediately take it off our hands. And we loaded up and the next day headed for Nevada. And we've been here ever since, almost.

You've been getting around. So you moved from Oklahoma to Nevada.

Yes, we went to the little town of Beatty, and there was ten of us on the radar site, and we got the town—very interesting period in our lives. They had a town party for us the night we arrived. The whole town turned out. We found out later, any excuse they had to party, they'd do it. Wasn't much else to do in Beatty in those days. But we had two NASA vehicles that'd pick us

up every morning and we'd ride up to the radar site. And we did missions for the X-15 and shortly after it was the XB-70, the major big bomber, and then we started doing the flights originating out in Area 51. We did some of those. We had the—it's the only radar in the area that had the capability of recording velocity, and that's what they was needing for the speed tests, so we'd participate. And just about everything that flew in this part of the United States, we'd participate in it.

OK. Well, for the X-15, that was a NASA project?

Yeah.

And you did what, exactly?

They called us "technical adviser," but it had more to do with the radar, and the data transmission system. We actually—we were tracking it. We had the—sort of like they did at the Cape [Cape Canaveral]. We had telemetry, we had everything that they had at the Cape, just a smaller field. In fact, our radar systems came from Cape Canaveral.

So you watched everything that moved.

Yes, and it was actually a mission because this was our first astronauts, were made there. I worked with Neil Armstrong before he ever went to the moon. That's when the first astronauts—anytime they flew over fifty miles up into the atmosphere, in those days that was the cutoff.

Is that when you earn astronaut wings?

Yes. And so Joe Walker and Neil, several of them were already astronauts before they went into the space program. But what we were doing was testing the stuff that they used in space, you know, that's what the X-15 was all about, was maybe there's a new guidance system they wanted to use in the vehicles that they were designing to go to the moon, we would test them in outer space and the X-15, it would actually go into the edges of outer space. When we'd launch them

in the daylight, it would be nighttime where they were at. They were seeing the stars, at ten o'clock in the morning down here, and we'd launch them up at as far as Wendover, Utah, was about the fartherest away, but they would launch and seven minutes later they'd be drinking coffee at Edwards [Air Force Base, California].

So what kind of things did you test?

We tested a lot of things on the X-15 that we even—I remember one mission, we had a meteorite shower, and we launched in to try to catch some meteorites. Had some little pods on the wing that we opened up and collected a little bit of dust, you know, nothing big because it—blow it away, but it was little bitty stuff. But we tested anything, like the tiles they used on the space shuttle, we would test something like that to see how it'd respond, because when the X-15 would reenter the atmosphere, it would just turn cherry red, just like the space shuttle or any of those, and to slow it down, because it'd be doing over mach-6, and to slow it down as it reentered the **[00:35:00]** atmosphere it had to—it slammed down into gravity a little bit and then it'd skip—That's how it would slow down because if it plunged, then it would burn up, you know, it'd get so hot. And then we run into a lot of the problems that haunted the space shuttle mission. For example, there's that one point in every mission when we'd lose radio communications with the pilot, and we had no idea what this was at first, and what it was was an ion field building up in front of the plane that blocked communication.

Oh, when it came back in?

Yes, as it came back in. But it was stuff like that that we learned for the first time in the X-15, and then they used that—and then we had what we called the lifting body, these little things I've got on the shelves. We would launch those off the B-52, just like we did the X-15, and they would zoom up, and these were to develop the space shuttle. That's all they did was the shape—

you see the shape on them? They're not cornered. They're kind of—we call them the flying bathtub. We would launch those for the space shuttle. And then the B-70 up here was for supersonic large transports. So everything that was done had a future application. But the X-15 was primarily for the Apollo missions and the missions to the moon. That's what it was about.

And you were right there with it.

Yes, and then that's another thing. I don't have any models of it here but we tested the lunar landing vehicles that they used to land on the moon. We were actually putting guys up in these things. It was like it was out of Buck Rogers. We tried more weird stuff and anything before we finally got the design that worked. And lots of the Roadrunners that I'm associated with were the pilots that flew those things. So we flew a lot of weird stuff in those days.

So you worked together with Neil Armstrong?

Right there is a photo he sent me just the other day. That's Neil Armstrong on the far side and the other, Bob [Robert] Gilliland, he was the first pilot of the SR-71, and they were having lunch in Pasadena or breakfast the other morning and one of them mentioned my name and said, Well, you know T.D.? Yes, I've worked with him. Well, I did, too. So they sent me that photo of the two of them. Yes, I knew a lot of astronauts because a lot of them worked as test pilots at Edwards. The pilots weren't necessarily NASA. NASA run the show but they were [U.S.] Navy and [U.S.] Air Force, a lot of them. Joe Walker, he was civilian, and he's the one that got killed in the midair collision with the V-70. But we had guys from all branches down there.

How long did you work for NASA?

I worked for them for about five years.

That would've been from—

From ’64 to—no, it wasn’t that long, it’d be three years. Now, I had a year break in that. They sent me to Wright-Patterson [Air Force Base, Ohio]. They was doing the integrity test on the Apollo 1 space capsule, and so I worked in the flight dynamics lab for a few months and then they sent me back to the X-15. So I got to do a lot of stuff. But it was just I got into a little narrow field there. There wasn’t that many of us. In fact, when we got out to Area 51, there was two of us that we was the only ones they had. We were not allowed to ride in the same plane or the same common carrier—even to the mess hall in a car, even though it was three or four blocks, we had to ride in separate vehicles.

In case something happened, because you were that valuable.

Yes, at that time, yes. So we were quite advanced in our fields.

Wow, that’s pretty cool.

We added up one time. All the schools I had gone to would have applied for like a Ph.D. I would’ve had over 400 credits. They were all specialized, you know, they weren’t academic, **[00:40:00]** necessarily, but once you got into it, you just kept going—and there really wasn’t schools, per se, for it. You were pioneering a lot of the stuff that we did. We would go and take refresher courses on this or that, but it was for something that we were going to design for the future. That’s the preliminary work and, you know, refreshers on how this works and that works, and then put it all together for what you’re working on.

OK. That was the NASA. What was next?

OK, in 1968 the CIA recruited me back as a contractor—I never was actually on their health plan, as a contractor—to work out at Area 51. And at that time, at NASA I was just working off a top secret. My top secret had expired because I wasn’t using it, so they had to redo it, so while they was doing it, they sent me out to NERVA project where we was developing a nuclear rocket

engine to go to Mars, and I worked on that for a while, while they was trying to get my clearance together. In fact, for that project, that was a combination of NASA, CIA, and—well, actually, those two, and so I had to have a Q clearance for that. So I got my Q clearance before I got my top secret.

"Q clearance" meaning—

It's just another level of clearance, way above top secret. But the Department of Energy [DOE] uses a Q clearance, where Department of Defense [DoD] uses top secret and above. So I got my Department of Energy before I got my DoD. But anyway, I worked on the NERVA project and three or four nuclear atomic bomb tests, and then even after I got to Area 51, I worked on some of these. Between periods, when we'd run out of money, they'd loan us out to what we called the white world. We had the black world and the white world, and they'd loan us out until they got some more funds. So we never knew whose payroll we were actually going to be on. If it was contracted, we were just on whoever—they'd put us on someone's payroll. All they knew is we were a name that they was supposed to send a check to. And the CIA was reimbursing them, of course.

OK. When you say "us"—

We ended up about twenty-three of us.

And you were one team that—

They called us Special Projects. Each of us had our own specialty, and you never asked the other what he did, but we all flew up there together and we worked in the same general area. But we know now that some of them were computer—this was the very early days of computers, and we had computer programmers, we had different types of radar people, we had telemetry people, even draftsmen, just a little bit of everything working up there. But that's what our group was.

We were what was called Special Projects and we worked together. And when they picked us, this is rather interesting, you either had a cabin cruiser on Lake Mead or you had a cabin on Mount Charleston, because we had two groups, and the purpose was, when we'd go up there on Monday morning and stay a whole week, and you'd come back Friday night, and a lot of times, because we were under such strict surveillance by the Soviets, you'd sit around and really nothing to do because they'd keep you pinned down where you couldn't go out and do your project, so they had to have a group of people that had something in common where they wouldn't end up fighting each other and that sort of thing. So we'd sit around and plan our weekend out on the lake or up at the cabin, and so you might say we worked together and then we played together. We did not go outside of our circle. And that's the reason we're still bonded today. We all became kind of a family. And at the same time, they interviewed the families and all the families were very compatible. A wife could get a guy kicked off the program faster than **[00:45:00]** anything. They didn't want them going to some congressman saying, Well, I never see my husband, don't know what he's doing, or something like that. So they picked—the families were almost identical to each other. All of us had two kids, and the wives got along good together. It was almost like the military, you know, they depended on each other because they couldn't call us. We could call them, but all they had was the phone number out at Nellis [Air Force Base] in an emergency that you'd call. But we could call them anytime we wanted to. But they had no idea where we were. All they knew is we got on a plane on Monday and flew—came home Friday night.

Did your wife ever ask?

No. They knew better. The Agency, when they interviewed them, they made sure, they really drummed it into their heads that you don't ever, ever talk about where your husband's at. If

someone asks where your husband works, He works out at the test site. In other words, the wives were trained to give the right answers. That was the general—what you'd say was you worked at the Nevada Test Site.

When the interviews were taking place, what kind of questions did they ask?

In our case, it's a little bit different because I'd worked with them before, but generally talking about the people that worked—the Air Force and what have you, they would take them to actually fly them out to Langley [Virginia], the CIA headquarters, and they'd start out just giving them, you know, We got an interesting job we think you'll like and we want to give you a series of tests, if you're interested, and most of the guys, frankly, they thought they were being interviewed for astronaut service. But they would run them through all sorts of psychological tests and stuff, and questions, and they, God, they checked your history, I mean they went through your history like a fine-toothed comb, because it was very, very sensitive. And then they'd send you home and still, when you left, you didn't know any more than you did when you went in there. You didn't even know the interviewer's name. In some cases, they didn't really know that it was CIA, because they'd do it at some hotel or something, and they thought they were NASA people or something, you know. You had no idea who they were. But they'd give them all sorts of tests and then they narrowed it down to just a handful of people, and then even then, when they sent them out here, they did not know what they was going to be doing. They was just told to report to—their orders said March Air Force Base [California], but they said, You go into Las Vegas and here's a number for you to call. And it wasn't till they got out to the Area—we called it the Area, or the Ranch—that they knew what they were going to be doing. They'd go in there and they'd see the planes for the first time and say, Holy mackerel, what is that? That's what you're going to be flying, you know.

But you didn't have to go through that because you already had a clearance.

I didn't, no, because they already knew me so well because I'd worked with them at Fort Bliss and different places, so mine was a little bit special.

So when you came to the Ranch, how was that?

It was about what I expected. We flew in, at that time—we never knew how we was going to get there—that's one thing that we still talk about—because we had a little plane sitting out on McCarran [International Airport, Las Vegas, Nevada], a little building towards the end of the runway, and they'd slip out unknown to anyone and just take off, and land. Of course the control tower knew we were doing this, but nothing said on the air or anything about it. They knew that it was a classified flight. But when I flew out there, they guys on the plane didn't know me that well, and they pulled the curtains as we came in to land at the Ranch because they was afraid—they didn't know just how much I was supposed to know because everything out there's on a need-to-know basis. And early on, there wasn't that many projects going, but still they pulled the blackout curtains so I couldn't see anything as we came in to land. And they still do that with anyone that they're unsure of that's going out there, until they know what your clearances are, because your badge told you what all you had access to, and no one had access to everything that **[00:50:00]** was out there, because there was things going on that wasn't any of your business and you start asking and you weren't invited back. You were through.

But anyway, I got out there, and I already knew that they had one of my old radars from Fort Bliss there. They had brought in one of my Nike radar systems.

So you had an idea.

I had an idea, because what they were needing was someone with that, they call it X-band radar, experience. There was very few. At that time the Army was basically the only ones doing it. As

far as I know, I was the only Army guy out there. Of course I was a civilian then, but most of them were Air Force-trained. And we had quite a few Navy, too. But there was my old radar system that they'd brought up from Fort Bliss sitting there, and then I branched on into that.

One of the things they wanted me there for is during the Six-Day War the CIA had provided U-2 coverage and provided the information to Israel. That's how they won the war so quickly. And in exchange, they had captured a bunch of Soviet equipment, and they were bringing it out to the Area, and that's where I came in, as they needed someone with my broad radar experience to be able to tackle these Soviet radar systems when they got there, and figure out what makes them work and get them working, and then we actually used them because we were starting the early Stealth programs and we needed to know what the Soviets were going to be seeing when they looked at it, so we were actually using their equipment to look at what we were doing. So that's one of the things I was brought out there for, was for the Soviet angle.

So we actually were flying Soviet planes out there and tracking them with Soviet radar. And the reason for this was Vietnam. We had just gotten into Vietnam by this time pretty heavy and the MIG-21, the kill ratio was 9 to 1 against us. We had all these super planes. They were killing nine to our one, and we was trying to figure out why, you know, how are they doing this? So with this project, we called it Have Doughnut was the name of the project because there was planes, they like had a doughnut in front of it. I'll show you a model of one of them. This is one of them. And this was actually a Korean War-vintage, a MIG-17, and then this is one, showing here below, that's the MIG-21 that was doing all the damage to us.

Anyway, we started flying those out there, and we had several phases. You looked at the technical aspects of them, you'd go in and check all their equipment, you know, and never leave the ground with them looking, what have they got? And then we started flying them and actually

firing their guns at targets. And the word got around that we had these out there and the Air Force generals wanted to come out and see them, so they had enough power that they'd come out and they'd want to fly it. And the idea came, well, why don't you fly against it? And this is where your Red Flag and Top Gun programs came from. These pilots would come out there and compete against our pilots flying it, so the equipment—and that's how they learned their strengths and their weaknesses. And that was a program, you know, I'll just give you an example, that if you were flying the F-4, an American plane, and you came up to one of these MIG-21s, if he was below 15,000 feet, you had one chance to get him. If you didn't get him, don't come back for seconds because he's going to get you. You just keep right on going. In other words, he could outmaneuver you at less than 15,000 feet. So that's what we learned is when to attack, when not to attack. And we turned the ratio around in Vietnam by doing this, and they still do it today with Red Flag and Top Gun, is they come in here, compete with what they call their enemy**,** and it would be American pilots flying foreign planes so that they know what to expect in combat, and they fly against them. They still do that today. We **[00:55:00]** started that out there.

Wow. So that was the reason why American planes got shot down so much.

Yes, yes. The Soviet planes, they were real simple. They don't believe in all the comforts and safety that we do. They won't have redundant systems. We got a backup for everything. They don't. They made them sly [looking], they made them simple, they were fast, and they weren't necessarily comfortable but you got the job done. And they could just outmaneuver us because they were lighter planes. It wasn't that they were smarter than us. They were just cheaper. But they accomplished it because, you know, we always seek too much comfort in our stuff. We got

redundant systems, this is backed up by that, and they didn't do all that. You might say the pilots were expendable, more so than ours would be.

But technology-wise, the Russian technology and the American technology were about the same?

Not really, because what was interesting is in these planes we started finding the electronics was made in Sunnyvale, California, Silicon Valley. The Soviets was getting copies of our planes. Like we sold some planes to Iran. Iran immediately sold them to the Soviets. The Soviets were doing the same thing to our planes that we were doing to theirs out at the Area. They were taking them apart to see what made them tick. But they started copying or even using our electronics. They'd shoot one of our planes down in Vietnam, they'd rush in there and grab all the electronics out of it because they could use it for spare parts in theirs. And this is one of the reasons we went to the metric system, is to change the tooling where the Soviets couldn't use our—they'd build all these planes using our equipment and all of a sudden we'd switch to a different system, and they'd no longer have a supply of spare parts. And that's one of the things that bankrupted the Soviets, was trying to keep up with us. They just couldn't do it. It was just too expensive, we just had that much more wealth. It wasn't that we were smarter than them, but we were just more capable of outlasting them, you might say.

Yes. So you had those planes, you said the project was called Have Doughnut—

Yes, Have Doughnut, and we had one that was called Have Drill which was the MIG-17, and then we had one that was Have Ferry and it also was the MIG-17. The MIG-21, we pretty well—Have Doughnut decided everything on it. We learned—and that was the most immediate one. But even the—well, it was kind of amusing to us, particularly the Navy pilots would come out there and they'd look at that and they'd, you know, they had very top equipment, and they'd go into their first encounter against our guys thinking they was going to really show us how to fly,

and we got a 100 percent kill against them on the first flight. They never beat us a single time on the first flight, because they didn't know how—that was the idea of the whole thing. They had no idea of how to fight against these planes. And they'd come in and we knew what we could do and we'd nail them every time. But they learned from it, and then pretty soon, of course, once they learned our tricks, it turned the tables and they would be the ones, but on the first get-around—but that's the reason they still do Red Flag and what all now, is so these pilots will know what the other side can do, what they're capable of doing, and not doing.

What was your role in those projects?

My role actually was the radars, and the ECM and ECCM. We were very conscious of having our planes invisible, or if not invisible, at least being able to overcome the jamming that the other side would be doing, so we were staying on top of what their capabilities were. They'd come up with a new way of jamming us, and then we'd come up with a new way of countering it, where we could get through it. It's all electronic games, is basically what it was. But at that time we were starting to build the first Stealth planes. The first two we built we called Have Blue. Everything had "Have" on it.

[01:00:00] *OK, was that in '69?*

This would be—yeah, '69. And what we'd do, they'd bring these prototypes out, and we had what we called the pole, or the pylon was the official name for it, but you'd put the plane on top of this pole and it would elevate it up and you could rotate it, tilt it, and you'd have all these radars sitting down there looking at it, and they're recording on a graph what they're seeing, the strength levels, and maybe a certain angle, all of a sudden you get a bigger spike, you know, or there's something there that they're going to see, so they'd have to work on that. And we got it down on the Stealth where the pilot's helmet would be the spike. They couldn't see the plane but

they could see his helmet. Or maybe a bird would land out on the model. You'd see the bird. We got it down that fine. But when it started out, of course, they brought some weird-looking stuff out there, to start with, the little mockup prototypes, and we'd look at them and then they'd be gone for two or three months, going back and changing this and change that, and then bring it back and see if the changes worked, and that's how we worked it out.

You started with the A-12 planes, right?

The A-12 with the—actually Gary Powers got shot down. We realized that the Soviets had the missile capability of shooting down our U-2s. For a long time we did not think they could ever touch us. They'd try, you know, the pilots would just laugh at them and keep right on going. But we realized then that the U-2s were no longer safe. So we decided that speed would do it. The same altitudes but a little bit higher. We could go up close to ninety thousand. And the U-2 didn't fly quite that high. But the speed would be the thing. If we could have mach-3 speed, we could outrun the missiles. And it worked. We never had a single plane shot down, even during Vietnam. Everywhere we ever flew, they never touched us. They tried and the best they could do is just shoot them up ahead of us and hope they would run into some junk that they blew up in the sky, you know. But that's what the A-12 was going to be. It was going to replace the U-2. And we developed it. And we flew several operational missions. We flew the actual missions out of Kadena Air Base in Okinawa, because that was closer to Vietnam and North Korea and China. That's where all the hot spots were. And we didn't fly it over Cuba there in the Cuban crisis because we had a great fear of one of the planes getting shot down. No one knew they existed. Well, they finally figured out we had them, that they could start tracking them, but they knew nothing about them. But we was afraid of one getting shot down and they would get our technology. And particularly in Vietnam we flew a few missions. Denny [Dennis] Sullivan—I

think all the pilots flew one or two missions over there. But at mach-3, the turning radius for the A-12 was like eighty, eighty-five miles. It took that much distance for it to make a turn. Well, Vietnam wasn't that wide, and we were afraid that we'd end up over China or Cambodia or Laos or someplace, someone else's air space, and they'd shoot us down. So this is one of the reasons we did not—we ended up still using the U-2 and other planes for surveillance, even though we had this one, because we was afraid we'd lose it, or afraid we'd violate some treaty. But later on, when they got the Blackbird and the Air Force took it over—or had the Blackbird, they flew all kind of missions with it. But initially the CIA, there wasn't any way they were going to fly where they might lose one. They were just too precious. We couldn't afford for them to get the technology.

So after Gary Powers was shot down, the technology was exposed, so you had to come up with something new?

Yes, it wasn't the technology—well, yes, the technology was, but really it was their missile capability—and that's what killed a lot of our projects, even like the XB-70 that I worked on, we didn't go operational with it because we realized, even though it was a mach-3 plane, just **[01:05:00]** like the A-12, the Soviets had the capability of shooting it down, and they decided that the satellites was going to have to be the answer. We had satellites in place by then that was doing the same thing that we were. They were unmanned, and as far as photography, they'd do almost as good a job. The only drawback was they were predictable. They knew exactly when they was going to come over the horizon and you couldn't change course with them and say, While you're up there, go and take a look at this, you know, everything was fixed, so just like we would hide from the Soviet satellites when they'd come over Area 51, we'd know exactly when they was going to come over the horizon, we'd run everything in to what we called the Hoot and

Scoot Building, you know, if we had a plane out on the ground, we'd run it into this little building so they couldn't see it, and we'd shut down all the radar and all the communications and go quiet, you go deadly quiet until he was gone. But you knew exactly. But with the U-2 or A-12, you didn't have that predictability. All of a sudden, there they are, and they catch you by surprise.

And then we were trying to develop the B-21 drone. It's a little drone aircraft that we would launch it off of the A-12 mother ship at mach-3 and then it'd zip on up to mach-6. And it was designed to—it was unmanned and it would supposedly take photographs, and then it would drop them off for a ship at sea to pick up. And that's how—in those days we didn't have all this digital stuff for airplanes' instruments like we do now, even with the U-2s. They would take the photos, and then a lot of times they'd drop them off at sea for a ship to pick up and rush them to Japan to be developed, so you may not know what was on them for a week. Now, you know, everything's instant. You know exactly—everything's live. But we didn't have that capability then. And our cameras, you know, what they got in these little Predators, you know, they weight 107 pounds, and our camera weighed around 700 pounds. And you can imagine, we had a lot of guys out there, Honeywell, we had a lot of companies out there, and a lot of them set up fictitious companies to work on these projects so that no one would know what was going on. And whoever was manufacturing had no idea what it was for, you know, there was a lot of that went on. But you got to imagine, first of all, that the camera could read a newspaper from 90,000 feet, which was quite a challenge, and then it was being taken from a vehicle that was going over 2,000 miles an hour, so you had to compensate for that so it wouldn't be a blurred image. But then one of the biggest factors was the skin on that plane was 1200 degrees. It'd melt anything we had. So you had to have a cover over it that could handle high temperature. Because even the

windshield on the plane at that speed would be 600, 700 degrees, a lot hotter than an oven. You just reach up and touch the windshield, you get a bad burn. So we just had a lot going to gain that capability. The engineers had to design an engine that could handle that speed at a prolonged period of time. It was quite a challenge. Like on the X-15, we used a propellant, it was nothing but rocket and it didn't burn but maybe six minutes, and that was it. You were through. But on the Blackbirds, they had to run for eight, ten hours.

OK. Maybe we'll stop here for a second. We'll continue with the next CD here.

[01:09:45] End Track 2, Disc 1.

[00:00:00] Begin Track 2, Disc 2.

All right, so we were just talking about new inventions that had to be made in order to withstand the heat in the A-12 and the U-2 airplanes. And you said the engines were brand new. They were developed—

Yes, Pratt & Whitney was the manufacturer of the engines. What they had to go through to develop an engine that could fly at a prolonged period of time at that speed was a major challenge. And they made a lot of headway on it over the years, and now they're much better, but back then everything was brand new. I remember, like our early U-2 guys, I'll give you an example, when they first came out to the Area, that was a brand new plane, and every flight they broke a record, because they'd never been up that high. And the planes had never flown before, so there was no manuals on them, no flight school for them, and they'd come in and say, Man, don't try this, or don't try that. That's how you learned. But it's not like it is today where they've got computers and stuff, they got simulators. They were doing it live, and if it didn't work they [said], Whoa, that was a close one, you know. But I think back, a friend of mine was giving a speech here a while back and he was talking about how many times he held the world record for

altitude. And then there's two of them that's flying the plane, and the next day the other one would beat his, and they'd just go back and forth on the world record. But you think about it, the pioneers, that's what happened, because there was no model to go by. It was just brand new. And the U-2 was developed from a thought to a flying plane in something like eight months, and under budget, and there's no way you could do that today, it just doesn't happen. So what we accomplished in those days, well, we didn't have unions and all the EPA [Environmental Protection Agency] concerns and everything, you did what you had to do. It's kind of like in World War II, what they did then to be able to turn out the quantity of planes and tanks and stuff that they did, it'd be difficult today to do that, because you just can't—work with asbestos, there are too many concerns.

Yes. So, while that was going on, you were working on different projects, but when you came to Area 51, you started working on the Russian, the MIG radar, right?

Yes, the Soviet radar and flying the MIG planes.

OK. So that was in '68? That was right at the tail end of the A-12—

Yes. I went out in '68, is when I arrived out there, March of '68, and that was right at the very end of the A-12 flights. I had however been participating in the program from the NASA range, all the years before that. I just wasn't at the Area.

Oh, you were watching the skies and seeing stuff fly by—

Yes, yes, we was tracking them—oh, we had some official flights, but a lot of them were unofficial. I would be in there on the plane—we knew they were out there. You'd hear them on the radio and we'd go in and crank the radar. We knew what direction they were at and so we got where we'd watch for them. At first, for about two years, we knew there was something very, very fast being flown out there, and we always knew when they was going to fly because they'd

send the chase planes up first, and we'd hear them talking. You'd hear the radio chatter. So what we'd see would be just a very brief time because we weren't tracking the beacon. We were what's called skin tracking, so it was in and out, you know, it wasn't a steady track, whereas on a mission we were actually tracking the beacon return rather than the vehicle itself. You're tracking an electronic signal, you might say. But we knew there was something out there.

And then when they did the speed run, the first official mission, I think it was May the fifth of '65, we had a speed run with the YF-12, which was a military version of the A-12. The **[00:05:00]** A-12 was strictly surveillance. And the Air Force decided they wanted a mach-3 fighter plane interceptor, so we developed the A-12. It was an Air Force plane all the way through but we built it using the CIA's contracts and cover and everything else, and actually flew it out at the Area, even though it was not going to be a CIA plane. And this was rather interesting because a lot of the people that we work with today or associate with today, this is when they were a lot farther down the ladder, but they were involved in the CIA.

And President [Lyndon B.] Johnson, when he was running for reelection, wanted to announce that we had this plane. And he and the CIA was really fighting over it. The declassified documents are very interesting to read on this. And finally Bud Wheelon and Jack Ledford both told him, Mr. President, there's no way the CIA's going to fly your publicity plane, or flight. If you want someone to break the record, get the Air Force to do it because they got the YF-12. And so he went on the air, radio and television, telling the world, We got a mach-3 plane and it's down at Edwards. Well, it wasn't at Edwards. It was still out at the Area. So they had to rush two of the planes down to Edwards because the media, they was going, they're wanting to see it. So they fly these two planes down there and they rushed them into the hangar when they landed because they were still—as far as they were concerned, they were classified, and they were so

hot from the flight, they set off the sprinklers in the hangar. And here's all the news media and stuff in there and it just drowns them. We still laugh about it today. But they had the official speed flight shortly thereafter and we participated in it from all the tracking stations, and they broke just about every record there was that day.

And this is kind of comical. The British came up with a plane, I forget which one it was now, but they thought they had broken all the speed records. And they made a little inquiry to the Americans about it, and they just laughed at it. They said, You didn't even come close. [Laughing] Dream on. You're not even close to it. But that was before they knew about the YF-12 or anything.

And then shortly thereafter they started building the SR-71, which was the Air Force's plane. And they took the U-2 flights away from the CIA as well. The CIA lost a lot of favor, or flavor, in those days because of the antiwar demonstrations that were going on against the Vietnam War. They got caught keeping dossiers on American citizens and stuff, and so eventually what they did is forbid the CIA from conducting any domestic activities within the United States. And they could still do scientific, but they clipped their wings and that's the reason the Air Force took over out at Area 51, is they were taking everything away from the CIA because they had—and they give them to the Air Force, because the CIA was too much in the spying business. That's their business and they were told to do it somewhere besides the United States. So that's the reason for a lot of the changes. But there was a lot of internal battles going on, even during the Cuban crisis, because the CIA thought it should be flying the surveillance missions over Cuba, and the Air Force wanted to, and they were fighting with each other. The Air Force was already flying. We trained them out at the Area. But they were flying out of Del Rio, Texas, and ended up they did all the flights over Cuba during the Cuban crisis. And so the

CIA sort of got out of the—when they parked the A-12, they got out of the surveillance business as far as using planes. I'm sure they still—they're probably still using the Predator and some of those, I won't say they're completely out of it, but there's nothing going on here in the United States. And they resorted to satellites, and the satellites took over a lot of that.

That's the Corona project. Last time when we talked, you told me the story about the Cuban

[00:10:00] *missile crisis with the attempt to assassinate [Fidel] Castro.*

Oh, yes. This is not one that we were directly involved in but we all knew about it. There were a lot of attempts to get rid of Castro, particularly after the Bay of Pigs incident. That really went the wrong way. But the one that struck us as being so humorous, you know, they tried to put explosives in his cigars and everything else and never could get close enough to him. But he had a cat, and the CIA managed to capture this cat and they loaded him down with dynamite, and they was going to spook him and make him run back into the house and they was going to blow Castro, blow him up in his house. So they spooked the cat and he took off running, and a car came down the street and run over the cat before he got to the house. [Laughter]

[Laughing] OK, that's life.

I got another funny story. One of our missions off of the Soviet Union, this one strikes me as very funny, during a normal mission we would have to refuel about five or six times and this involved slowing down and coming down from a higher altitude down to the fueler's level and creeping in behind him and taking on this fuel, and then you'd take off and continue. So we were flying along the border of the Soviet Union and taking radar photos inside the Soviet Union, and we was supposed to meet this tanker somewhere off of Finland, over there somewhere. But we knew where we was supposed to meet him. Of course, we weren't on the radio, but they knew where they was supposed to rendezvous. And plane jumps down from high altitude and he sees

these lights up ahead. He thinks that's his tanker, and he's getting low on fuel, God, thank God I found you, you know. He creeps up behind him, and it was a Soviet bomber. And they laugh about it. They don't know which one was scared the most, the guy in the A-12 or the Soviet bomber crew, but here comes this big old long black plane out of nowhere and creeps up behind you like that, you know. [Laughter] Of course, they parted ways and he found his tanker. But I always thought that was so funny, too, because if you can imagine, both crews, they was scared to death. These guys have more stories like that, though. There's always something like that, and that is so much fun when you get them all and get to talking and then talk about some of those stories.

OK. Well, let's get back to the Area. So you had all these projects, Have Doughnut, Have Drill, Have Blue, but you said in between you were loaned out to other projects—

Yes, we had a lot of projects start up out there. When the Oxcart people were there, which is A-12, we were the only show in town, but before we left, they were starting other projects out there. The security was in place and it's so remote. And to give you an idea, you didn't ask what the other guys were doing, and this is still the way it is today. It was compartmentalized where if you didn't have a need to know, you just didn't snoop around. And if something was going on that's going to be going on only outdoors that was real super-secret, they'd herd everybody up out there and put them in the mess hall and pull the blackout curtains and have Marines on each window, and you'd sit in there and play chess and visit for a couple of hours while they was doing whatever they was doing out there, because it wasn't any of your business.

Did anybody ever try to find out? You were all so highly trained—

No. In fact, we didn't ask each other what we did. You had a rough idea but you didn't just come out and say, What are you up here for? You just didn't do it.

So you're not aware of any security breaches or anybody snooping around.

No. And they're still so sensitive, you know, you're paranoid almost because in those days we knew there was a Soviet behind every tree. And they would, you know, you didn't dare go into a restaurant and talk business because you didn't know—because they were spying on us. They often said there was more spies watching us take off than there were those of us on the plane, because they knew we had some of their equipment out there. They knew we were **[00:15:00]** there. So you can imagine, there was all sorts of spies in this town.

And I might give you another little story. I called my wife one day and I could tell she was very upset and I said, What's the matter? And she said, I just had an obscene phone call. And she actually thought that it was the caller calling back when I called, they was just one after the other. So I immediately notified Security and within I'd say not more than an hour, they had security people with our kids and with my wife. And I don't know that they were—they probably weren't Secret Service but similar to, and they stayed with them every move they made for about three weeks, until we determined or we were satisfied it was a random thing. But they were afraid they were trying to get to me through my family.

And then, to carry this stuff forward further, when I left the Area and went into business for myself, I moved back to Oklahoma, for five years, about once a year the FBI [Federal Bureau of Investigation] would come into the little town we lived in and ask around town how our financial situation was, you know, ask just general questions, and of course a small town like that, everybody's calling me up and saying, Hey, T.D., they're back again, what have you done now? But then they'd finally come to us and ask us if we'd been approached by anyone or anything changed that—what they were looking for was, for example, if we were in financial

trouble, we would be susceptible to blackmail. That's what they're looking for. And so for five years that we know of, that went on, after we left the Area.

And so security was that tight in those days, and it's almost as bad now, even though everybody knows they're out there and have a good idea what they're doing, it's still very tight.

Were you ever upset that you couldn't talk about it? Because, you know, you're working on such important things and you couldn't tell anybody.

No. No, we weren't. I was used to working on classified stuff, even while I was in the Army. And no, this was never a factor, I don't think, with any of us. It was a very stable group. I'm not beating on my chest about it but, for example, almost all of us now are going through our fiftieth wedding anniversary, which means no divorces, but people were stable. They were family people, they were patriots, and a lot of the military guys went on to make general, two-or-three-star generals. A few of them didn't; they stayed lieutenant colonels and stuff, depending on what their career was afterwards. But it was just a very stable bunch, and that's one of the things that you got to give the Agency credit for is their screening process. It worked. And I saw the same thing at OCS [Officers Candidate School], you know, I saw guys that would just literally crack up over something that I thought was funny, you know, people are different. And that's what they were doing, weeding out the people that couldn't cut it. So they'd use those that they picked to go out there, this would never be a factor, saying, Oh, I got to get it off my chest, or anything like that.

Over the years, when all the rumors came up about aliens at Area 51 and all these special projects, were you laughing at what was going on?

Oh, yes, in fact we gave the Agency and the Air Force, whoever was running the show out there, credit for and accused them of even starting the stories because what better disinformation could

you do, and it made anyone, if they'd been reporting the truth, they'd think they was nuts because, you know, of what the general feeling was about the UFO [unidentified flying object] stories, all of us were a bunch of weirdoes, so if you came up with some story about some strange plane that you may have actually seen, they wouldn't believe you. I'll give you a good example. When the first jets came, we had our first jets, they was going to test them at Edwards. It wasn't Edwards then; it had a different name [Muroc]. But when they shipped them in they actually put a dummy propeller on the front of the plane, because no one had ever seen a plane with no propeller. And they started flying them out there. And one of the guys had been down to **[00:20:00]** Disneyland. They came back with a gorilla suit and so for some reason he took it up on—he was going to have some fun out of some of these other pilots. They were flying in a remote area at Edwards. And so he put on this mask and flew up beside this guy in his propeller plane, in this plane with no propeller. Well, when this guy went back, telling reporters, I saw a plane that didn't have a propeller and being flown by a monkey, well, they laughed this guy—and it got where the guys would see them and they didn't dare report it because everybody'd laugh at them. Oh, you're seeing them monkeys again, huh? So they were actually seeing them. So it was sort of that way with the UFO thing. They'd laugh at you if you reported seeing—you know, you may have seen something that was going on out there, but they didn't believe you.

So that was one of the things, how we considered the UFO stories, because frankly, back then, we didn't talk about Area—we didn't call it Area 51 at all. That was the terminology that the UFO people really came up with because it was labeled on a map they found somewhere. But in those days it was just the Ranch. That's all we called it. In fact, Kelly [Clarence L.] Johnson, when he first started, when he found it and started recruiting people to work out there, they called it Paradise Ranch, because it was no paradise, I assure you. You had atomic bombs going

off twelve miles from us up into the atmosphere. They were still doing atmospheric testing in those days, and the fallout would come out—we'd actually have to evacuate out of the Area for the fallout from the atomic bombs. And we'd come back and there'd be dust all over everything. It's a wonder, you know, that we didn't have a lot of cancer problems with the guys, but we never did. That has never been a factor. But we would, we'd actually have—in fact, they'd go out and they'd put radiation detectors on a lot of—in our buildings, in our vehicles, just to see—or maybe even our planes, to see how much radiation they would get.

But you were all evacuated in time.

Yes. Actually the atmospheric was going on slightly before I went out there, so I never was subject to that. I was there when the underground was going on and was talking—we got on the edge of that. They'd loan us out. I was on about five different atomic tests because they'd loan us out to one of the contractors who would put us on their payroll. And we needed experience, too. And there wouldn't be anything going on out there, it would be between projects, so we'd actually go out and work on atomic bomb tests, back over to NERVA, one of the other projects going on out there, and usually they needed an engineer. We never were given regular work. We'd be given some little pet project that they'd always been wanting to but never had time, something off the shelf, you know, We've been wanting to try this or try that. Would you guys give it a tackle while you're here? So we'd work on something special.

Can you give an example for when you work for the test site, what you worked on?

Yes, I'll give you one thing that it changed the course of my career, is they'd had one of the atomic bomb tests, underground tests that went off in a fracture, and the radiation had actually leaked into the atmosphere, and they had followed it for about three days with their special planes and stuff. So it just happened that a couple of us was being loaned out and they said, We

need someone to try to develop a substance to detect what kind of formation for setting the bombs off into underground. So we actually worked with the Birdwell drilling crews. That's the contractor with the big drilling rigs, drilling the holes to put the bomb in. And we worked with the drilling crews and with the geologists and took some real fast courses in underground water flow and geology and this sort of thing.

They trained you up for that.

They trained us, yes. And so then basically what we did is built a Geiger counter, the ordinary Geiger counter, put it in a round cylinder, and on the very tip of it we put a little low-level gamma ray radiation source. And you'd lower it down in the hole on a cable, from the drilling rig, and the cable had conductor wire in it, and so what you did is contaminate the walls. You went down the hole, and each soil formation retains radiation at different levels. Some of **[00:25:00]** them absorb it. Some of it retains it. And so then as you pulled the tool back up, that Geiger counter is reading the radiation levels and putting it on a chart up on the ground. And you're getting this beautiful little chart of the different levels and you was able to determine from that, exactly at a certain footage, this is limestone, this has got a lot of fractures in it, or sand, shale, all your different—or even water. And you could determine that from the graphs when you pulled the tool up. And then they later used this in the oil and gas business. That's where Schlumberger became such a large company. They developed that for oil and gas exploration.

But a lot of the stuff that we developed out in there in the Nevada Test Site and Area 51 later on became something that's used worldwide in commercial uses. And that's one thing about even the atomic bombs. You were working with professors and students, such as yourself, from [the University of California] Berkeley, [Lawrence] Livermore [National Laboratory], different universities, they had a government grant to work on, say, a radiation seal for medical use, and

what better source of radiation could they get than an atomic bomb as a source? So the bomb itself is nothing but a source of all these different radiations, of course the force and the temperature, and they set the bomb off at the end of a tunnel, and you'd have all these stations, all these colleges, universities would put their—maybe would have one different—everybody'd have one, each one, they'd have their own little station that they put their experiment at, at different ranges in this like a big old conduit, huge conduit, and the bomb would be up at the end. Well, they'd set the bomb off and the radiation would get through, and then they'd start sealing it off, and the experiments that required the force or the temperature would be right at the head up there, and they'd seal off behind them, but they'd start sealing it off where the experiments never saw anything but what they were supposed to see. And an hour after that, after the event, you'd be back in there picking up your experiment. It would be clean. You'd go right back in there a few feet from where the bomb went off, but they had sealed off the bad stuff. I mean there's certain radiation, of course, would be contaminated, but there's certain that was safe, and so you could conceivably, depending on what your experiment was, be back at ground zero within an hour or two of setting off the bomb, retrieving your experiment.

So the bomb, just like the X-15, was nothing but a source. And of course there was experiments to see how dirty they'd make them or how clean they'd make them. You had clean bombs and you had dirty ones. But that's all up to you. You had control over that. And, you know, then they developed the bombs that then does nothing more than knock out electronics, but no radiation. They've got those where they'd wipe out every automobile or anything using electronics, but it wouldn't kill the people. But they'd put you back in the Stone Age. So we had a lot of experiments that that's the sort of thing that was going on out there.

Very interesting. So you worked there for a while and you went back to doing the radar?

Yes, we would go back. Another project would come in, for example, the Stealth programs, and we went from Oxcart, we went from it to Have Doughnut to Have Drill to Have Ferry, and then Have Blue was starting up. And you might have a two-or-three-month period in between. And we was operating off of black funds (we called them black funds because that was the CIA) and maybe they wouldn't get funding approved through Congress, appropriations, until a certain period, you know, so we might run through a period when they just didn't have the money to carry us on their payroll, so they'd put us on someone else's, another contractor. I worked for Pan Am, never been in one of their offices, I got a check from them. And EG&G [Edgerton, Germeshausen, and Grier] was a big one, though. They were local and they had the test site prime contract. You had REECo [Reynolds Electrical and Engineering Company]. They did a lot of them. If they didn't have anyone else, they'd put us on their payrolls.

OK. So the Have Blue project was the first one where you actually started experimenting with Stealth technology, right?

Yes. We experimented to a certain extent with the A-12. It was really the first one but it was **[00:30:00]** not designed to really be a Stealth program, a Stealth plane, where you actually—we minimized the—well, even on the U-2 we were trying some things on it to make it where they couldn't see it, and what it would do on those particular planes, usually we had to pay for it. You'd lose several hundred feet in altitude capability or maybe speed. You sacrificed something to gain that, and you never did really gain what you needed anyway. They could still see it. So we quit even trying on those and just used speed, you might say, to our advantage. But on the true Stealth programs, we designed them where you could not see them with radar.

And your role in that was what?

Was still the radar. We'd operate the radar. We'd help them put them on the pole because they'd just send down a tech rep [technical representative] or something with the article and then we'd go out and put it on—because that was our—our expertise was how to do all that, too. But we'd put the planes up there and we even put the MIGs up there, at one time when we had nothing to do, and we were just curious and had the time on our hands, and out of that—that wasn't an official program, and we developed the capability of determining what kind of plane their radar was looking at, from us just horsing around out there, putting different planes on the pole and looking at them. And we done it to calibrate our equipment, maybe we was wanting to test out a new system, so just put one of the MIGs out there and we'll look at it. But out of that came this technology, and it was just almost an accident.

So you would look at a plane through the radar and then give recommendations to the technicians how to improve the planes?

Yes. Yes, they would be there and you actually did a printout. Most of them were circular. They showed the different—as it rotated, and you knew exactly what you was looking at. It's all correlated, and usually you had a camera looking at it, too, so you could compare your signal with a video of it, and you knew exactly what part was giving you the reflection, and then the engineers would take it back and they'd change the shape or do this or that, and come back and try it again, until they worked out all—as they worked out the kinks.

So what makes a plane stealthy?

It's a combination of shape and then they got materials in them that will absorb the return. But most of it is the shape. They deflect it to different—instead of going back to the source, they'll deflect it somewhere else. It's a combination of things, but it's the shape and what it's made out

of. They had more trouble with the—you'll notice there's no straight edges on any of the planes. Like the frame around the window will be jagged. Everything is jagged.

That's why it looks so crooked.

Yes, everything looks—yes. But such things as the helmets of the pilot became a factor. They had to redesign those where you wouldn't see the plane, you'd see the helmets, or his sunglasses, or something like that, you know. It was very sensitive.

So did you, while you were doing that, also improve your own radar system?

Not really. They were pretty well stable. We just maintained them. But they always had some little—we was always looking for something new to do, not to those systems but some new project we'd be working on that, out of curiosity—we had a lot—quite frankly, the time out there was, to me personally, the most boring of my entire career. On the X-15 flight it was very dynamic. We had missions every week. Every one of them that came in was usually under emergency conditions. They got ammonia in the cockpit, or smoke, or this or that. There was always something. So it was very, very exciting and we'd go out there and—I think even the one worse than that would have been the Apollo test, when we was testing the Apollo space capsule, because you'd put it in a vibrator and vibrate it for days. All you'd do is go in and check what the readings are, you know, write it down. There really wasn't much to do. The computers had done **[00:35:00]** all the work. So it wasn't that exciting out there, frankly.

OK. But you said last time we talked that you had some stories about the bar, about the good times?

Yes. In fact, I'll dig up something here that we can quote. This is going to be in my next newsletter to the Roadrunner membership. I'm pulling it up here as we— [looking at computer]

So the House Six Bar was the local bar.

The House Six, it was one of the barracks that they converted into a bar and a place for poker games, because we did a lot of poker games out there, because we were there all week long and there just wasn't that much to do. So the Air Force guys is the one that started it. Now, they were kept separate from us. We had our own because we—in those days, I did not know all these Air Force guys that I'm the president of their organization now. I knew who they were and I saw them, but we did not talk to—they didn't know who I was. We did not—particularly my group. The reason is we were working on other projects that they had no need to know. Now, they all knew each other because they was working on the same project. But because we were working on the MIG programs and the early Stealth and stuff we was already—we was doing, we wore a lot of hats, so we weren't allowed to associate with them. We serviced them. We had their representatives come in and we'd coordinate what we needed to do for them, but the minute they left, we were doing something for someone else, so they couldn't just freely even walk into our building. They didn't have any business there. So consequently our quarters was in a little bit different area from theirs. We all had kind of like a duplex. We had a common living room, and then you had two bedrooms in each one of them, and then you had the common kitchen.

But the House Six, the Air Force guys, they got pretty rowdy, and we was all guilty of this, we'd bring movies out to watch and stuff and entertain ourselves. But some of the guys took up model airplane flying. We made a little golf course out there, about two holes' worth, a little green. And our club was called Sam's Place. It still exists today. It had an Olympic-sized swimming pool, it had a little bar in it, and pool tables and all that kind of stuff. But our bunch didn't frequent it very much. Usually we'd end up in poker games in our individual areas.

But the House Six always had a name. First of all, they gave it a name. And I don't know if you, being military, are you familiar with what a six is?

Yes.

Yes, watch your six. That's one of our—we still use it today when you send an e-mail that you don't want just anyone seeing, you put a check-six on it. [Laughter] Then, of course, in the Army, too, your call sign for your unit commander is always six.

For the commander. Yes, right. So it says commander and—? OK.

Yes. But six also had—maybe it was more unique with Air Force because "you watch your six" ["**ass,"**] is —but that's where the six came from, and we still use it today. In fact, that's on my eval [evaluation].

[00:39:59] End Track 2, Disc 2.

[00:00:00] Begin Track 3, Disc 2.

House Six was a barracks that the Air Force guys converted into a bar, poker room, Playboy pinups on the wall, that sort of thing, and every night they'd have some very rambunctious poker games, sometimes lasting until the wee hours of the morning. And this was typical. We even did this on the X-15. I'll go back to that for a minute. We'd have a mission—this will show our mentality in our younger days—a very successful mission, we'd hit the bar. And then a couple of hours later, particularly in Nevada, we'd hit a jackpot or something and buy another round, buy another round. And pretty soon you'd call the wives up, Well, you might as well come down and eat with us. We're drunk. We're not going to make it home. So they'd come down and we'd have a big old steak, and we might stay out until one, two o'clock in the morning. And then at six o'clock, we're heading back out for another mission. I mean we'd go out there with horrible hangovers. And that's the same way with these pilots. I mean the military that way are pretty general—but that's the way it was back then.

And I got to tell you a real funny story. One night we had a big old T-bone steak about one o'clock in the morning. We were having a very early mission that morning that the vehicle was supposed to be by at 4:20 to pick me up. So I didn't hardly get to bed and so Doris wakes me up and says, I'd better fix you some breakfast, and so she fixes it, and I eat breakfast and I shave and I get ready, and God, I'm sick, oh, I feel bad. And I look at my watch. She had looked at the clock. I hadn't been in bed an hour. It had just been an hour. I wasn't hungry. It had just been an hour since we'd had that T-bone steak.

But the House Six bunch was the same way. In those days, we'd say we worked hard and we played hard, and we were all a lot younger then, and there wasn't any tomorrow. So that was the mentality of our group. But anyway, the House Six, the stories are still creeping out about House Six. But we had our own little house. We weren't as wild, though, as the Air Force guys were. The engineers, they're a bunch of nerds, you know, mostly.

So you said something about the food?

The food was the most outstanding ever. There's not a hotel in Las Vegas even today that can top the food we had in those days. First of all, they was keeping us happy, you know, that was one of their missions, was keeping us very content to be out there all week, not want to go home. And we had steak night, big old T-bone steaks, but we had a lot of lobster, and this was not lobster out of the store. We'd get hungry for lobster, we'd send a plane. We'd say, You need to check the engines on this plane. Let's send him back to Maine. And while you're back there, pick us up some lobster. We'd actually send a plane all the way back East to pick up lobster that we're going to have for dinner that night or the next night, you know. The same way with the steak. And I always like the oyster stew. We had the real oysters. But they just served some very, very exotic foods, all you wanted. One I really liked was fried eggplant. But you had particular

foods. But everybody, without exception, today, you ask them what's the main thing they remember about the Area, and it was the food, because you couldn't get better. But we had a lot of lobster, steak. We ate good.

What else did they do to make you happy, or to keep you happy?

Well, in my case, Special Projects, because we were not Air Force or actually government employees per se, we were contract, we'd go out on Monday morning, as I said, we'd work for eight hours, then we'd go on time-and-a-half for four hours, and after four hours we went on double time, and we stayed on double time twenty-four hours a day, because we was on call, **[00:05:00]** until we came home Friday night. We were getting paid twenty-four hours a day at double pay, engineer pay, so even in those days, I mean we're talking 1960s, late '60s, you know, a lot of us was making a hundred thousand a year, which was an ungodly amount of money back then. For doing nothing. We was bored. We envisioned our engineering group, we were good at the joke—well, the Air Force was the same way—we was always doing jokes, practical jokes and stuff, anything to keep ourselves entertained. We probably would've got fired if we did that today. Well, they still do it out there today. From the people I talk to out there, it hasn't changed much.

So to pass your free time while you were on wait, you watched movies, you said, and you played games.

Yes, we played a lot of poker games. But we were pretty serious, too, though. We were always—because we had everything we needed there for lab-type work, electronic work, we were always experimenting with something, just on our own, you know, I've been wanting to build this or do that. So we did a lot of serious work, too. We played hard but we did a lot of work above and beyond what we were out there for, because it was a challenge, and a lot of us, you know, did

have the education and if we'd probably went back to school and picked up some of the other subjects, we could've had our doctorates in our field. But we didn't need to. The money we was making, you couldn't top it. And while it was a joke, at one time the union tried to get us interested in joining a union, and we just laughed at them and said, There's no way you could ever top what we're getting.

I'm trying to think of anything else that would be of interest about out there, that's unique. I'll let you ask the question. I can't think of anything right now.

Well, I was wondering, what was the last project you worked on? Was it the Have Blue?

I probably can't talk about it.

Oh, OK.

No problem. I can talk about the Have Blue. At that time, it was the most classified thing going. No one knew all the picture. Let me tell you a little bit about how this operated at Lockheed, at the Skunk Works. For example, we'll go all the way back to the U-2. They was working on other things, the F-104s and stuff, which were not all that secret, but the U-2 was so secret, and when it first started out they was working on it strictly at night. After everybody else had gone home, a special crew would come in and work, and then they'd remove all evidence of their existence before the next crew came on. The spare parts would go to maybe someone's home, I mean when they'd order parts, or some fictitious company. A lot of them went to the residence of Kelly Johnson. And no one knew what they were making this for, what did this go on. And the same thing applied out there. You had a lot of companies, one of them was a little startup company called Firewell. One of the workers just joined our Roadrunners this week. But it was a company that converted stoves from a wood stove over to a kerosene stove. They made the little regulators. And the Navy had hired them to do a little project on making some control valves.

And they ended up designing all of our oxygen equipment for high-altitude flying, all the valves and stuff we used for our human support. It's still used today. They were eventually bought out. It started out with three guys working in the basement of their home in Lancaster, New York, and it developed into a major company. I think Arco is the name of it now. But they moved on into furnishing everything for space stations and everything, but it started out—the David Clark Company still makes all of the **[00:10:00]** space suits today. It's been the only company that's ever made them. It made brassieres. And they were approached about making the space suit. And they were also back East. And you know it's so interesting how these companies got started. But they got these little government contracts. And Hewlett-Packard that made these computers. When they first started out, I knew those guys. They were working in their garage. The first stuff they built was made in their garage. So that's real interesting to how a lot of these companies started. But they got that first little contract out at the Nevada Test Site or for the Area, and that was their start. But this is very interesting on these companies, how they did get their start and what made them what they are today, and it was mostly government contracts.

OK. You said earlier that when you were done with all that, you moved on, you moved back to Oklahoma and opened a business.

Yes, what I learned in working on the logging—we called it logging tool for the drill rigs to develop—I mentioned setting a bomb off into a fracture. Being from Oklahoma, I wanted to go back in the business, and I chose the oil business because I had learned enough that it intrigued me to get into it. And I was pretty heavy in politics at that time. I campaigned with Paul Laxalt when he first run for governor of Nevada, and they had a governor's convention here in Las Vegas, and I was with Paul and he introduced me to Dewey [F.] Bartlett who was the governor from Oklahoma, and it just happened that I was going back to Oklahoma about three days later

and Dewey was on the same plane, and I went back there and sit with him and we visited all the way back to Oklahoma. And my parents met us at Will Rogers Airport, and I introduced them to their own governor and just blew their minds, you know. And we went back and he had some pie and coffee with them in the cafeteria. They just couldn't believe it, how they met their governor.

But anyway, Dewey had started a program to bring the technical people back, interest them in coming back to the stable at home because there was no opportunities there. The minute we got our education, we got out of there. So there was nothing back there for us. And it just so happened the head of his program was my former ag [agriculture] teacher in high school, and he recognized my name, and I got all kind of job offers, everything. Everything I ever wanted. But I didn't want a job. I wanted my own business. So I used my introduction to Dewey, I wrote him back and I said, I want to get in the oil and gas business. Well, his family was in it, and what he did is made a few introductions, and when I went back and started the business, I started at the top and worked my way down. And the way I got into it, of course I didn't have the kind of money to start, so through introductions from Dewey Bartlett, the current governor, I met the different major oil companies back there, and it's kind of simple. They pay big money for the oil and gas leases. They'll lease a farm for three years for x-number of dollars per acre. And once they start drilling and hit oil or gas, they don't have to renew that lease. They pay royalties out of the production. And it saves them all that big up-front money that maybe is never drilled. They may lose it. So my approach was, You guys don't want all the shallow stuff. I do. Give me the right to go in and drill it. Give me your lease, for nothing. I'll go in and drill a well. If I hit, then you don't have to shell out any more money to renew your leases because you've got an interest in this well, a small interest.

So that's how I got started. I was partners with Texaco, Getty, all your major companies was my partners. I started at the top. And then I ended up doing a lot of joint ventures with Riddle Oil Company. Major Riddle owned the Dunes, Silver Bird, Thunderbird, several casinos, and he also headed an oil company—that's how he got started—down in San Antonio [Texas]. **[00:15:00]** So that's one of my connections back here, is I got acquainted with him and I come out here, I didn't stay in a hotel room, I stayed in his penthouse suite. He had a suite in the Dunes. That's where my family would stay when we come out here, expenses paid. I mean we loved it.

But that's how I got into the oil and gas business. And then at one time I had met the staff of Howard Hughes when he was staying in the Desert Inn, Howard Eckersley, and at that time I didn't know Floyd Bleak who was over his mining. But when Hughes died, Eckersley got a hold of me because he knew I was dabbling in a little bit of mining as an investor, more of an investor than anything else. At that time I had my headquarters in Grand Junction, Colorado. And he said, We got forty thousand acres of uranium property that the Hughes people are going to let go because they're not interested in it, you know, after he died, in this state. Would you like to do something with it? So I joined up with Howard Eckersley and Floyd Bleak on this forty thousand acres of uranium and got into the uranium business, and we were actually mining uranium about three months, we'd been in production when the Three Mile Island incident hit, that had the escaped radiation. Overnight, the uranium business shut down. The price dropped in half overnight. We was selling to Westinghouse. Westinghouse cancelled all of its contracts. And we went out of business. And so I had all this equipment, so that's when I got into the gold business. I invested into a gold mine there in Colorado. We started mining as a diversity from the oil and gas. You know, it's just fate. But that was what I did after I left the Area.

Did you just quit? What did you say? I'm gone?

Yes. I just told them, We're moving on. I'm going to start my own company. And a lot of the guys did that. It was really boring out there. A few stayed on, but most of us that left went on to business for ourselves. There's some here in Vegas that went on to make very successful businesses. But we were a bit more ambitious. It was a boring job. And even though we was making good money, that encouraged us. We had the money to take that next step. And never in my life did I really work for someone, even in the military. I was always in an area that I was more or less my own boss. In the intelligence business, you didn't really have anyone telling you what to do, to a certain extent. You reported up the ladder but you were sort of your own boss. And especially out at Area 51, no one else knew what I did. They couldn't tell me what to do.

Did you ever miss the military aspect or life?

Oh, yes. Continuously. In fact, I often wondered—I missed having to give up a military career, because I would've made a good officer, and I excelled in just about everything I did in the military. When we started out, proficiency pay, which I'm sure your husband probably is aware of, I think they still do that, don't they? I don't know. They gave tests. To keep people in the military, if you could pass a test, you got extra pay in your MOS [military occupational specialty].

I don't know about that.

And when we went to Germany with the Hawk unit, they had just started out with a second level, and this you almost had to be a college grad or something, I mean this was a really high level. They called it a P-2, proficiency two. I was the only one in Europe that passed the test in my job. And what this did, it really kind of messed things up because on the job you outranked soldiers that outranked you in rank rank. You'd have a master sergeant, you was telling them what to do

because you outranked him on the job. But off the job, he outranked you. And there was a problem. I mean we blended well. It worked well. But even then, you know, I really didn't have a boss; because I was able to pass that test, I outranked him, and this was because I was still taking college courses, I was still keeping—I was very ambitious about my career. And I never **[00:20:00]** gave up the electronics, even after I went to oil and gas. I've always been into electronics. And I still get calls from the Area, electronic-wise, even now, on various things.

And at OCS, they brainwash you there. I'm not saying that in a bad way. And throughout my career, I've never been one to be able to waste time. I'm always doing something, even when watching TV, I've got the computer, I've got a book or something, I'm doing two things at one time. And that's training. They train you that way and it's tough. And in my business career, always, everything I had was lined up in a row like the military does, everything painted, I always run a clean shop. And so that all comes from the military, yes. I missed it very much, especially today, because you got to remember, too, though, I was permanently disabled while I was in the Army, so I've always had a relationship with the Veterans Administration, and I've had that little bit of exposure to service people throughout my life. And I'm real big now on supporting the airmen out at Nellis. I'm on the Nellis Support Team. We meet regularly and our sole mission is supporting the airmen, the families and what have you, at Nellis. We make big contributions at Christmastime and at all times to help those that need help out there. And then I'm also on the Civilian-Military Council. We do a lot of stuff community-wise, along with all your business people, to help the community relationship with the military. So yeah, it's still a big part of my life.

When a lot of the information was declassified, that was in the nineties, right?

Yes.

How did that feel for you?

There's some of it I still think should be classified. I feel very uncomfortable with some of the stuff. Bill Clinton declassified a lot of stuff, and then even worse than he, and this didn't affect me directly but Hazel O'Leary who was head of DOE did not believe in classification, and she gave away more secrets. And I thought Clinton did, too. There are certain things that should never have been declassified. And even though it's been declassified, there's still a lot of things that you won't find any of our—the Roadrunner group will talk about, because in our hearts we feel that it should still be classified, and a lot of it has been—the Agency has, even though it's declassified, refused to distribute a lot of material to the media because they just do not feel comfortable, in the interests of national security, letting it go. And I get a lot of stuff as the webmaster for these different organizations, I get stuff all the time, I'll get stuff that I'll say, This should not be published, and I won't publish it. It's more of a commonsense thing. It's something that you know the enemy could use.

Yes. Do you have any other stories that you want to share?

If we could turn it off a minute and just think a minute.

OK.

[00:24:12] End Track 3, Disc 2.

[00:00:00] Begin Track 4, Disc 2.

I just read through the interview with Roger Andersen this morning and he said that you might have a story about women that fly the U-2. You went to their reunion in Pasadena, was it?

No, it's actually at Beale Air Force Base at Sacramento [California]. Yes, that was rather interesting. In fact, the commander over the U-2 division is a female. But they got a lot of

women pilots flying the U-2, and they found that they're more adaptable to flying reconnaissance than men are.

Why is that?

For example, on the U-2—well, on any of them, you're flying a high altitude, you're way up there, you're not talking to anyone, you're not doing a thing except flying your plane, and most of that's done by computer and autopilot now. They know what course you're going to take. So there's really nothing to do up there, just kind of monitor everything. So pretty soon a guy, he's tapping on this or he's shining on this, where women are more adaptable to sitting there and not tinkering with stuff. Their mind doesn't wonder what makes this work, or what would happen if I do this. So they're more at ease. But men are always—see, that's the problem with a guy. He gets bored too easily. He's got to be banging on something. So the women, a lot of the jobs that were normally for, you know, in the old T&A [tits and ass] Army, is now they found the women are better for them than the guys were. They're more dependable. And even in my business, when I was in oil and gas and the mining, I preferred the women like for loader-drivers or something like that over the men because they were a lot more reliable workers. I just found that to be true.

Roger said something about putting on one of those flight dress suits and you helped a woman with that.

Oh, yes, yes.

He suggested that I should ask you.

I've got a photograph, I don't know where I've got it, but it was joking about it because they pressure the pressure suits up to a few pounds and adjust it for the altitude, so the joke was, I was checking her psi, the pounds per square inch, so we got a photograph of me with one of the

young pilots in the flight suit, we're clowning around a bit. I wish I knew where those are. I just cleaned out my computer and I put them on the hard drive and I don't—I mean on floppies. But it was comical. Of course, me and her both had a big grin on our face.

But yes, they are using women, and you probably noticed it on the news, even, we even got a Thunderbird pilot now that's a female. In fact, we had lunch with her, her second week here. I get invited to all the events out at the general's quarters and we got invited to the Thunderbird party, and the new Thunderbirds had just arrived about two weeks before, and we were seated at their table, and she was there. We got to talk to them, and it's quite interesting how they recruit them. It's very much an honor to be a Thunderbird. And they only fly for two years. But they handpick them, about like they did us for our jobs. You really go through a screening process. You know, it's interesting, even your Predator pilots that's flying out of Creech [Air Force Base, Nevada], the unmanned aircraft, they have to have so many hours of fighter jet experience to even qualify to pilot an unmanned plane. And they actually get credit for flying it as though they were in the air, because they're sitting there actually flying it. Even though they're on the ground, they're controlling that plane. They're pushing a button to shoot the missiles, the whole works. The only difference is, they're on the ground. But I found that was very, very interesting to talk to them, you know, the new pilots that we got. And they're just now starting to saw through the rules where they don't have to have all this flight time, but the initial **[00:05:00]** pilots for the Predator were seasoned fighter pilots.

OK. We have about five minutes left, so maybe one last question. When you look back at everything you've done, is there something that you're the most proud of or that will always have a special place, something you've done?

I still think on the X-15 program because I had some real challenges there. I can give you a real fast story. First of all, getting to work for the astronauts, and we had a lot of responsibility because we were putting them into outer space and bringing them home. Without us they were in a world of hurt.. And we had very antiquated equipment. It was hand-me-downs from the Air Force. And it's unbelievable what we used to accomplish the missions we did.

But I remember one particular story, when I went to Beatty, and we had all three—Edwards, Ely tracking station, and us—was all ganged together where they could pick whichever day that was the best to use to control the flight. In other words, when you got out of the range of Edwards, out of their radar range, ours would be the one. The whole range would be watching it. And anyway, I noticed right off the bat when I got up there that every time you switched to Edwards or Ely radar data, there was a 2,000-foot jump in altitude of the target, of the plane. But theirs agreed. But I also noticed that ours agreed with what the pilot was saying they were at. If he said he was at 45,000 feet, that's what it was. So I questioned them, being you might say an expert in radar, I said, This is not right. And I questioned NASA about it. I said, You've got a problem here, and they said, Well, that's an inherent problem in the system. But to me, there's no such thing as an inherent problem.

Nothing you can't solve.

Especially if I was a pilot and they couldn't tell me when I was within 2,000 foot of the ground. So we lived with it and I had them come up and fly several of the sites and give me their altimeter readings and I'd see what my radar was showing and they agreed. I knew I was right. I did my homework.

So one day the NASA people called up and said, Looks like we're going to be down for two or three weeks here. I forget what the problem was or what the deal was. So anyway, and we

had had some bad weather, too, and so I thought about it a little bit, so I called him up. And our communications is a network. It went to White Sands, it went to Vandenberg Air Force Base [California], NASA, Dryden, Edwards, it went to a lot of places. It was just tied in.

Well anyway, I called my counterpart down at NASA and I said, John, this would be a good time for us to fix your and Ely's radar problems. And boy, it got quiet. And each station had a monitor that worked for NASA and he graded us and if we did bad, they'd deduct it off our pay, the company. It's an incentive-type contract. Anyway, he gave me the thumbs-up because he knew I was right. I had talked to him about it before.

And it got dead quiet down there, and then John said, Well, it's not our problem. It's an inherent problem in the Beatty radar system.

I said, No, it's not. First of all, it's not an inherent problem. It's a manmade problem. And the problem is in your radar and in Ely's, even though the two of you are grading me.

So he tried to just hand me off. He said, Well, we're not going to mess with it.

And I said, John, are you going to tell me you're comfortable with not being able to tell one of those pilots down there when he's within 2,000 foot of the ground? I said, You're going to kill someone.

And he tried shutting me up, and Joe Walker, the chief NASA pilot, they were listening to all this in the pilots' room. (They had their own room.) And Joe got on the horn then and he said, Officially, as of now, there will be no more flights until that problem is fixed. Period.

And so they determined that we were right on the money. They already knew it. And they tore those radars down for two weeks. They tore them down completely. And what they found was when they were first built back in the forties, they had field modification. They'd found an

error. They sent out a publication, Fix this. Ours got fixed; theirs didn't. And the two radars had an inherent—it was, it was a factory defect that they should've fixed years before.

[00:10:16] End of Track 4, Disc 2.

[End of interview]