

**BEVERLY SWANSON COTHREN
NASA ORAL HISTORY**

INTERVIEWED BY SANDRA JOHNSON & REBECCA WRIGHT
GRASS VALLEY, CA – 15 JUNE 2001

JOHNSON: Today is June 15, 2001. This interview with Beverly Swanson Cothren is being conducted as part of a NASA Headquarters History Office Herstory Project. The interview is being conducted in Grass Valley, California, by Sandra Johnson and Rebecca Wright.

Good morning, Ms. Cothren. Thank you again for taking time to meet with us and to discuss your experiences while employed with the NACA [National Advisory Committee for Aeronautics] Flight Research Center in California. We'd like to begin first by getting some information about your background. Where were you from originally?

COTHREN: I was born in Birmingham, Alabama, but my father was with the railroad, so we moved from Alabama to Virginia to Tennessee, and then I went to college in Valdosta, Georgia. I actually have no place I really call home.

JOHNSON: So you went to college in Georgia. Can you tell us about your college years and what you majored in?

COTHREN: You probably aren't aware, but it was strange because I was there in—like, Pearl Harbor was at my last year of high school and then the war was on, so most of the men were all sent somewhere else and there were hardly any men at our school. I think in my math class we were only four students in my math class. I majored in math.

On the weekends sometimes we would have sailors come up from Jacksonville, or we would go out to Moody Field to dances. I worked at the USO [United Service Organizations] on the weekends, I'd go to dances on the weekends. That's the only other

entertainment we had, other than studying. And at that time my father was with the railroad, so we had tires and we had gasoline, where other people didn't have it. So he could drive his car to work.

When I'd go back and forth to school, I'd go on—it'd be like a troop train because all these soldiers would be on there drunk and laying in the aisles. We had ration tickets, so that the school got the tickets for the sugar and whatever else they did. I don't remember food being all that thrilling.

But my father was at Valdosta. He moved from Tennessee to Valdosta. I lived right across the street from Georgia State Woman's College, which is now—it's one of the parts of University of Georgia, and it's a university itself. But after I went there for two years, they moved to North Carolina, so I stayed in a dormitory then.

JOHNSON: And you majored in math?

COTHREN: Yes.

JOHNSON: Was that subject a normal subject for a woman to major in at that time?

COTHREN: Not too much. As you can see, there were only four in there. When I started out, my mother was pushing me to study art, and I figured I didn't have the personality to sell my art if I did, if I was that good. So I went into school so naive. I said, "Couldn't I major in art and minor in math?" and they said, "No, you can't do that." So I really suffered.

I don't think that I was a good student, and I did my homework all the time, but I do think that I would never have been going on into something, you know, high-level math. But the math we used at NASA was about my speed. We basically just used equations in the work, so it wasn't that I had to do any high theoretical stuff.

JOHNSON: What year did you graduate?

COTHREN: Graduated in [19]'47.

JOHNSON: Where did you go from there?

COTHREN: Well, I went home to my family in North Carolina, and, of course, I didn't know anybody because I never lived there, but my cousin was there and I had a friend whose father also worked for the railroad. My family were pressuring me to go into teaching and I thought, "No way am I going into teaching." But I didn't really know how to get a job.

I had a railroad pass where I could go anywhere from New York to New Orleans for free, so this friend of mine was going over to Langley [Research Center, Hampton, Virginia] to apply for a job as a secretary. She had a college degree. I don't know what it was, whether it was business or what it was, but when we got over there they interviewed both of us. She said, "Just go on. Just give me company."

What was really odd is that when they interviewed her, they offered her \$3,000, about \$3,000, and they offered me \$4,000, just because I had a math degree. She got a little—I don't remember what her problem was, but she went back home after a while. She didn't stay very long. I don't remember whether she had other things going at home or whether she wasn't happy with what they did, but while I was there, I shared an apartment. They assigned me to Loads Division, and I shared an apartment in Hampton [Virginia] with three other girls. I don't remember. They worked in gust loads or something.

There were a lot of big divisions there at Langley. And we cooked together, and at that time—that was when cars first came back and one of the people in the house bought a car so we were having a little bit more mobility at the time.

JOHNSON: The Loads Division, you said you were assigned there?

COTHREN: Yes.

JOHNSON: Can you explain a little bit about what that was?

COTHREN: Well, you know when you're driving a car, you know you have pressure on the car, and that's basically what it was on the plane. Like loads on the plane, you get drag and lift. Somebody had to give me a basic little class in aeronautics. I mean, most of the engineers there were aeronautical engineers, and I didn't know anything about airplanes. So they gave us a little thing, and basically what—you really have to understand what you were, I mean, except the basic terms of maneuvers, but you basically were just putting data into a machine and cranking it out, and then getting a final figure or something.

JOHNSON: You worked there for how long?

COTHREN: I was hired in the fall of [19]'47, and my mother had like a nervous breakdown about a month or so after I went to work, so I went home for a month. I believe in the fall of [19]'49 is when I went to Edwards [Air Force Base (prior to December, 1949 – Muroc Air Force Base), California, NACA High-Speed Flight Research Station], but Roxanah Yancey had been in the Loads Division and they let her come back [from] Muroc [NACA Muroc Flight Test Unit, Muroc Army Airfield/Air Force Base] to recruit math people to come out to Edwards, and they said if you'd come out, they'd pay your way out to California if you'd come out and stay for a year.

So after I talked to her I thought, well, I haven't been anywhere past the East Coast. I thought that sounds interesting to do. I think [I rode in] a DC-3 or something. But the work wouldn't have been that much different than what I was doing there at Langley. At the time I'd been dating a fellow who was Roman Catholic and he was diabetic, and since he's passed away I can say that one of the reasons that I went also was to kind of get away from that for a while and look at the situation.

But I was also unhappy in my office. I didn't feel I was getting a raise. A new girl came in, they gave her raise right shortly after, and I didn't feel that I was getting promoted, so that entered into it, too.

What is that? My background? What else do you need about my background?

JOHNSON: Roxanah Yancey asked you to come out there for a year?

COTHREN: She talked to people in all the different divisions. It's like they put out a blurb, "You can come over and talk to Roxanah if you want to." And so you just go over to the main office and she would tell you what was offered. I guess I just was ready for a little adventure.

JOHNSON: Ready for a change. When you went out there, the terrain and the climate and everything was quite different. Were you expecting it to be like it was?

COTHREN: I grew up in the East Coast, you know, with all the humidity and the trees and grass, and when I got off that plane, what was really funny is that I got off the plane, and my boyfriend had sent me roses, but I got off the plane and I kept hearing them say, "Beverly Swanson, Beverly Swanson." And I said to the bus driver—they had the Trona Stage [bus route between Trona, California and Los Angeles California], which was a bus that went up

to the desert. I said, "Do you hear them saying Beverly?" "No, let's get going." So I didn't get my flowers. But I got on the Trona Stage and I guess it's like ninety miles up to Edwards. Did you go up on the—did you?

JOHNSON: Yes.

COTHREN: So we drove up there and then when I got there, I got there about the middle of the day and it was hot, bright, sunny, like it usually is. It just overwhelmed me. I thought that's what the Sahara Desert is like. But at that time, they had those big—oh, I don't know what you call those buildings. Great, big—

JOHNSON: The hangars?

COTHREN: Yes, hangars. And then we were right at the main base, right next to the service club where the airmen came to eat and there were movies. It was like right out our back door.

JOHNSON: Where did you live? You lived there at—

COTHREN: They converted a dormitory, an old base, where the men stayed, and one side had like eight rooms on it and then the other side, they had about four, and each side had a kitchen, and then we shared a living room. Basically, all I remember was—I don't remember the exact dimensions but the room was large enough for, like a school dormitory room. And it had a cooler by the window, and every day when you would come home, the first thing you would do was turn on this swamp cooler to cool the room down.

It was clean and neat, but I don't remember doing anything there except—because we didn't have, you know, no TV at that time. I don't remember listening to the radio that much, so we wrote letters, and we could go to the movies at the service club, but I don't remember going. All the latest movies were there but I don't remember going to the movies that much because it felt a little strange. You'd just be surrounded by all these airmen.

We were permitted to go to the Officers' Club and eat, and use their pool, but if you've ever been in the desert and go swimming, the lack of humidity makes the water just like ice cold, so the first time I went swimming, it just really—I thought, that's it. You would go over and sunbathe some, but for some reason, though, I don't know, it seems like California, you don't tan like you do on the East Coast, so that wasn't a novelty.

When I first went there, whenever the desert was dry, they would fly as much as they could every day, so they could get in as many flights as they possibly could, because when it rained the mud would be like about a foot deep so the plane couldn't—you know, they could land on the runways but they couldn't go off into the dry lake because it would sink down.

So when I first got there they were working on the X-1 and we were working every day, every day, even Saturdays and Sundays, so the first six weeks I didn't do anything except just pound on the calculator. We had Frieden calculators and you just read the data and worked up the data. I don't know what time of year it was, but we never had any really fun time or play time or whatever it was, and if you wanted to—none of us had cars so you couldn't get into Lancaster [California], which was the nearest town, like thirty-five miles away.

You could take the Trona Stage, which went one time a day, I guess it was, and go in to Los Angeles, and it would stop right in front of this one hotel and that was close to the shopping areas. But I don't remember getting into town but maybe once a month or something like that, to see civilization. On Saturday, somebody would go down to the post office, which was down at Muroc, and at that time I couldn't drive, but I learned to drive on

this [old] station wagon we had. I would shake my way all the way down trying to get it into gear because it would just barely make it, but that's the only thing we had to drive around in. So if nobody else wanted to get up on Saturday morning, I'd drive down there like a mile or so and get the mail and take it back.

JOHNSON: When you were living in the dormitories, you had kitchens in the dormitories? You said you shared a kitchen?

COTHREN: Yes.

JOHNSON: Did you usually cook then?

COTHREN: I don't remember cooking with anybody else too much. There must have been a PX [Post Exchange] there so that we could get food to cook, but I don't remember cooking with anybody else because [Gertrude Wilken] Trudy Valentine was there and she was a very elaborate cook and she was always make big to-dos or something, but we probably shared sometime. And then when Julia Woodbridge came, I don't think she could cook very good, so I think I might have cooked for the two of us.

Different people came and went, so I don't even remember the other girls, but there were a number of different people who came and worked as a computer for a while, and then they didn't stay a very long period of time.

JOHNSON: So there was a turnover as far as people coming and going? Do you think it was because of the climate? Do you have any idea?

COTHREN: I don't know. I don't know. There were basically, I think, maybe six or eight of us that stayed there most of the time. Mary Little [Kuhl] and Roxanah and I think her name was Lilly Ann [Bajus], a computer from Cleveland, and a secretary, was on the side with the four, and then on the other side we had another girl. Trudy was from Cleveland. I don't remember who else. Beverly Smith came at a later time.

Let's see, I was in the dorm there for two years and then I got married in 1952, so I stayed on working for another, what—after I was married, I lived like a year in Palmdale [California], and drove back and forth. Then after [19]'53, my husband and I decided to go back East.

JOHNSON: While you were there, can you describe your working conditions, the room you were in? I know you said you had the Frieden calculators.

COTHREN: I can't guess an amount of feet, but there was room for about eight desks around the room and we were basically around the circumference of the room. Right outside my window was the runway. Sometimes they would put the X-1 right outside our room in the hangar and test the fuel or something and it was a terribly loud sound, terribly loud sound. It really hurt your ears.

Actually, I think I was there—when you could look out the window and you could see, that's [where] the Flying Wing [YB-49] crashed right there [June 5, 1948], so you could see stuff going on outside the window, but basically we didn't leave the room. You'd take a break and walk across the hangar to get coffee, but you basically just sat there and read film.

Each flight would have something like—they'd have a little box of film and I asked Mary Little if she could remember what the different films were and she couldn't even remember. But we would read like air speed and altitude, and you would read them with a

little scale that measured inches, and then you would, after you record them, about all I can remember is having pages of data.

The engineer would synchronize all the film so that you knew what time was zero and then you'd read the maneuvers, the film for particular maneuvers, like a roll or a pitch or whatever, off of various films. After you enter them on the data, the equation was already figured out across the top so maybe you would just multiply one column by a constant, and then you'd maybe just subtract something on another column, so it was all set up so all you had to do was just work your way across the calculations.

Mostly I worked alone on whatever I was doing. Roxanah would assign you to an engineer and then maybe they would bring the material to her and then she'd give it to you, or maybe you would just work individually with the engineer. Maybe like once or twice a week they'd come in and look and see how things were coming, or if they were really anxious about some flight, the engineer or the pilot might come in and look and see what it looked like, whether they got what they wanted to, so they could plan what they were going to do the next day.

But basically, you could hear—when they were flying, you could hear the pilot talking, and once in a while we'd go outside and see, because they would drop that X-1 from the B-29, and you were out in that bright sun trying to see this thing way up there. I don't know whether they were 30,000 feet or what it was, but you would finally see this puff of white smoke and you'd know that it had dropped and the rockets had fired, or whatever it is, so that they were on their way, but that's basically—I don't know how the telemeter people ever focused their camera on what was happening.

I worked on the X-1, I worked on the D-558I, the D-558II. Then I was assigned to [Melvin] Mel Sadoff from Ames, and I worked on the X-4 with him for almost a year, I think. Then I think they were planning on working on the X-5, and I was really angry that I got pregnant, because I wasn't planning on getting pregnant that soon and I had my heart set

on working on the X-5. It never entered my mind not to stay home with my children, and I don't know where I would have found a babysitter in the desert in the first place. I think [Mary Tut] Hedgepeth did. She kept on working, so it [could] be done, I guess.

In the office, basically we just had, I called them "posture chairs." I don't think it was good for your legs to be sitting there that much, but I guess it's no different from any desk job. If I had it now, I'd probably get up and walk around a lot more than I did, but I never minded the work. I really enjoyed really getting involved in plotting the data to see if it was accurate. Maybe I'm a boring person, I don't know, but I like manipulating numbers.

When I was teaching, I enjoyed just dealing with all of the grades and stuff. I think the conditions were pleasant. I don't think Roxanah was ever a very difficult person to work for. I think she was very easy-going. At least she helped me get a raise right shortly after I got out here, because she had come from the same office that I did.

I was a very conscientious worker and at that time we were very patriotic and we felt proud to be doing this. It was kind of exciting and you felt like you were on something that was going to be great. It's hard for me to believe that they actually got to the moon in such a short time after that. They were just bringing in the computers at that time, and Mary Little worked with them, and working with the new computers. I was not involved in that much when they first came in.

We had one of the first copying machines next door to us, you know, and we were always copying these records. It was something like an ammonia smell or something that would come out of that office. I wonder today how that person survived that cranked out all of those records.

When I was talking to [Euclid C.] Ed Holleman last week, he was saying that most of the data was sent back to Langley, that they were basically the ones who were running the show, and that they kind of decided what happened with stuff, so I don't know about that.

John [P.] Mayer, that had worked in the loads office with me, got married to one of the computers there in the office, Geri [Geraldine C. Mayer], and they came out for a year to work on, I think it was the D-558II, which was the Skyrocket. At that time, I don't know whether he was just being kind to Geri because he felt sorry that we weren't getting the recognition, but he did at least put her name and my name on a report, so somewhere I've got a report out. I don't even know what the name of it was, but it probably had to do with loads. Mostly the engineers just wrote up the reports.

I did get to do a little bit of art, but at that time, most of the art was done with these little inking machines that you—very formally fill this thing and there wasn't any free-handed art designs or whatever. Of course, now they probably would do them on a computer. But I did get to plot my data and I did get to do a little bit of art.

Well, let's see, where are we?

JOHNSON: Some of the tools you worked on. We read about the light boxes. Can you explain about that a little bit?

COTHREN: They were about twelve by nine [inches] or something, and they were on a slant so that you could just lean over there and put the film down. You just had this little measuring device that you just measured them at. I was asking Mary Little, I said, "It seemed like to me we had three significant figures" and I said, "I don't know, unless it was—" I think what you did was convert the quarter-inch into like 2.5, that way or something, because it certainly wasn't done in metric scale, in centimeters.

But you just usually had a box of film on your desk and you'd just take the film and put it over this light ring and it probably was difficult on your eyes over a period of time, but I never really suffered any problems with it. But once you got all the recordings down there—I don't remember which project I was working on, but one of the projects, I had two

or three computers that were working for me, and you really had to scan the data to make sure they were not—you know, it was so boring, some people—like one friend of mine used to stay up half the night and read and she would mechanically lock the constant in there and just write the numbers down, and so I'd have to look for errors, with a recorder that you know you can spot. A person was kind of like off.

But basically it was probably very boring, but I guess I saw the over-pictures, so it wasn't boring to me. Most of the time we didn't read the whole record, we just read the part that was really crucial to what they were looking for.

JOHNSON: You were aware where your work was going and the end result of your work.

COTHREN: Yes. And what was interesting at the time, the *L.A. [Los Angeles, California] Times* always had a person that would write up aeronautical news, and they were always trying to outguess what was going on there and whether we had passed the speed of sound or what was going on. It was kind of interesting to read the paper, what they were guessing and what was actually happening. But I don't think they were too far off the mark, because I think the government probably wanted to get as much advertising as they could. Because every fall it was a job to get a budget approved, and so they would have to really crank out this material to show how it was progressing, I guess.

JOHNSON: When you were there, it was about the time that World War II had ended and there were a lot of men coming back from the service and getting their college degrees. Did you see an influx at that time of men coming back?

COTHREN: I guess they must have gotten approval to hire the people when I came because I think the Cleveland [Ohio, Lewis Flight Research Center] girls were there. There were three

or four of them came from Cleveland before we did. I don't know how much, maybe six months before or something, but when I came, maybe Julia Woodbridge came about the same time I did, but at the same time there were, it seemed to me, about eight fellows that came with Ed Holleman. They came as engineers. And they were mostly, in fact, I think all of them were ex-GIs, and they had gotten their education through, what is that [bill]?

JOHNSON: GI Bill.

COTHREN: GI Bill. When I was talking to Ed, I really don't even know what service he was in, but they had just come back and most of them were just happy to have a job and be out of whatever service they were in so there was not any goings-on between the women at the dorm or the men up north base. Ed told me that they had their meals furnished during the week, but on the weekends they had a couple of cars up there. They had to go out and look for a place or come down to the main base to eat, so basically we didn't have anything much to do with them except at the office.

But I think everybody was very serious that time. We'd lost friends and people in the war and we were just happy we were out of it, but things were not back to normal yet. It's hard when you look back and see exactly—now that I see history and what was happening, it's hard for me to look and see like all the business that's going on with the Jews in Germany, and you'd have no notion. You'd think, how in the world, with the way we know what goes on today, how things could have been so terrible out there.

I lost some friends that were in the Air Force. At the same time, my brother was at NC [North Carolina] State, and was in his last year at school and he was drafted and he went to Korea and then I don't know how long he was over there, but it was in the period of time I was at Edwards and he signed up in the reserve, and he went back to school. He only had to

finish physics. He called me and told me he was going on a troop train through Mojave [California], so I went late at night one night.

I believe that was after I was married, or after George [Cothren] was there with the car, and we went over to Mojave to the train station, to see this troop train and the train was like a mess. All these guys were drunk and broken windows and all that stuff. We talked to them for a few minutes. They were headed back to Korea again and it was so bad that time that he just never would go back to school. He just said forget it. When he came home, he stayed drunk for like a year or so, then he got into flying or something.

My family itself was still being affected, because, you know, you think the other war is over, but it wasn't really. We were still over there in Korea. A long period of time there through my high school years and college years that were fighting going on in the world.

JOHNSON: And a very turbulent time to be trying to figure out what you wanted to do with your life and everything that was going on.

COTHREN: Well, and see, we were very—with this space program we were very competitive with the other countries, trying to beat them and then with the Russians already out there, it's hard to believe. I went camping a few years later up in Red Rock Canyon, outside of Mojave there and we were laying on our back on our backpacks, looking up at the sky, and they were saying, "Yeah, well, you see that satellite going there and you see this one?" That's one thing about the desert. You can really study the stars. The skies would be so clear and you could see.

One thing I remember about that area, and even after I moved to Palmdale [California], I really hated the afternoon, about five o'clock. When the sun goes down, the wind comes up and the wind just blows, blows, blows, blows. When I was actually on the base, it didn't affect me as much as it did after I lived out in town.

JOHNSON: When you were working as a computer, were there any men computers at all, or were they all women?

COTHREN: No, no. The engineers were men and the computers were women. I was actually wondering when they actually changed it from computer to mathematician, because I think when I was hired I was a computer, but some time in the five years that I worked it was changed over, and when I was at Langley, in loads, there was a young woman there who was an engineer, aeronautical engineer, and she was fighting all the time, trying to get them to call her an engineer. They didn't even want to give her the title of engineer, so I don't know what her title was. But I remember it being a focus at one time and I was very proud when they changed it to mathematician.

JOHNSON: Was that more of a step up as far as status was concerned?

COTHREN: I don't know that it changed my GS [General Schedule], whatever it was, but at least it looked better on paper to be called a mathematician than to be called a computer. The computers were just coming in at that time, so maybe they needed the term for the machine.

JOHNSON: Wanted to free it up so they could use it somewhere else.

COTHREN: The first computers that they brought in there would take up a room size, and they were very massive.

JOHNSON: Did you have any opportunities for advancement there?

COTHREN: I think Roxanah really went to bat for us, and I think we did as well as anybody else. She probably had to appeal to De [DeElroy E.] Beeler. Walt [Walter C.] Williams was the head, but I think De Beeler was probably in charge of engineering or he was my superior. But I felt that Roxanah really had our interests at heart.

When I was at Langley I felt like I was just being pushed around a lot. I was assigned to one project one time and I thought this is really, really the pits. I don't really see any purpose in this. It seemed like I was just marking time or something. Maybe overall whatever he was doing was something important but the engineer was not very helpful.

But I learned a lot when I was at Langley because I didn't know anything about the type of work I was doing, so I learned. And I think I might have taken some classes in aeronautics or something while I was there.

JOHNSON: So that prepared you for your work at—

COTHREN: Yes. I think I was learning a little bit, you know, catching up with some of these aeronautical engineers.

JOHNSON: So when you went out there, how did your family feel about you going that far away?

COTHREN: I don't think my parents were—oh, I did have a terrible time the first Christmas. We were working so hard that I really hadn't had time to think of anything, and when Christmas came, like the week before Christmas, it turned out that every single person on the base was going somewhere, and I had not made any plans.

I remember crying and crying and crying because my family—there were five children in my family so it was seven in the family, and we were very close. At that time, we

all ate dinner together, and we were very—and went to church together on Sunday morning. So it was like, I was just devastated.

Julia Woodbridge was going down to Pasadena [California] to visit a cousin so she said, "I'll call her and ask her if you can come," and I really felt like I was imposing on them because they had two little children and they probably didn't have room for me, but at the time, I thought, "I've got to get away from this place."

The idea of staying—I don't know whether we had a holiday of three or four days or something, because I thought, "Gee, I just can't stand it here all this time by myself." And it was too late. You know, you couldn't make a reservation on a plane that late. Julia and I were pretty good friends. Her father was head of the [College of] William and Mary's law department, and she had an uncle who was an ambassador and he had retired to Santa Barbara [California], so one weekend, I don't know how we got there, but we must have got all the way to L.A. and back up to Santa Barbara on the train or something.

We went up there and when we got there, her uncle wasn't in town. She hadn't even contacted him to see. So we had a good time. We rode all over Santa Barbara on bicycles and went to town. It's a pretty town, really. But we basically kind of hung out together. She went on to TRW [Thompson-Ramo-Wooldridge], I think. I think she basically was a better mathematician than I was.

JOHNSON: In some of the research, I read a story. I believe that she's the one that was trying to grow flowers.

COTHREN: Oh, yes, yes. You know, the ground's just like a hardwood floor, and she didn't even have any tools but she'd go out there with like a spoon and try to dig up this ground and get these flowers in the ground, and she'd water them regularly. Did they tell you about the coyote under the house?

JOHNSON: I think we read a little bit. Go ahead and share that with us, too.

COTHREN: It was really strange because it was basically like underneath my room, and the coyote had her nest or something in there. There was scurrying around the bottom of the building. We wouldn't see her going in or out very much, but we were aware that there were baby coyotes underneath there or something. I don't know how we figured out that a snake was in there or something, but the coyote must have been standing outside or something, and they had to take the side off the building or something to get in there. But a snake was getting in there. You were scared of the coyote. You didn't want to go into the building because this coyote's outside the building, blocking the door. I don't know, I just remember it being very traumatic.

JOHNSON: A little too close to the wildlife.

COTHREN: But Julia, she really missed being back East. Actually, right now, it's really funny because I went back East, because I'd lived in New Jersey a few years ago. I went back and I thought, "Well, I'm going to go see all these things that I couldn't afford to do while I was here," like take the ferry across, see the Chesapeake Bridge and all that stuff.

So I rented a car and I was driving down there, and I hadn't called anybody but I called—one of my former roommates lives in Yorktown [Virginia], so I called her and I went over to see her, but when I got to Williamsburg [Virginia], I thought, okay, I said to my daughter, "If you want to sightsee, okay, but I'm going to go see—Julia's family used to be here and she's moved away, but maybe somebody will know where Julia is," because I didn't know. I called and Julia answered, so we sat there for like two hours in downtown Williamsburg on a bench and just reminisced.

But she's doing history back there, and so I hear from her regularly now but she's very much a Virginia person and she really didn't like the desert. You know, if you're working every day and you don't have time to see outside, it really doesn't matter whether it's just hard pan or whatever.

A few times, somebody took us out riding over to—they took us out to show us where Pancho's [Florence “Pancho” Barnes] was because we had heard about Pancho's, so they took us out there and rode us around in circles on the dry lake to let us see what it looks like in some of the areas.

But basically, I think there are one or two people who tried to go to the nightclubs and went to Pancho's a few times, but most of us were—I don't think we were straight-laced, it's just that it didn't appeal to us particularly. But that's where a lot of people hung out to drink and party.

JOHNSON: That was the ranch?

COTHREN: Yes. Actually, years later, it was really funny because I got an Irish setter, and the woman who was teaching me how to train it turned out to be a niece of hers, so we were talking about it.

JOHNSON: Did you meet your husband? Was he working there?

COTHREN: He came down from New York to work at Langley, and there were several young people there, but he and I started dating and we dated for a year or so there. He didn't have a car and we used to have to take the bus around Hampton to go to dances. He's from New York so he was used to going dancing and that was different for me in the South. We didn't have any dance places to go so it was kind of different.

And drinking mixed drinks. I drank wine and stuff, and some in the Episcopal Church. I was not against drinking, but it was a novelty. And in Virginia, you had to carry your alcohol in a paper bag if you wanted to go somewhere, so here we'd get on this bus with a paper bag and a bottle, and we didn't drink but two or three drinks. He was diabetic, so he had this bottle of Scotch. We'd just have two drinks and then take it home. They'd give you the soda or whatever it is you want to drink with it, but it's a little weird.

It was also different when we'd go into Langley because when I grew up in the South, I really never came into contact with anybody except white Caucasians and blacks. When I went to Langley, there were lots of people from all over everywhere. A lot of Italians, and what I considered foreigners. So it was really different. I remember going to the beach one time over in Atlantic City [New Jersey]. We went to the beach one time and I thought, "Gee, this is really different."

I know that when I went to visit George up in New York that was the first time I ever heard of pizza. Now you think how everybody's eating pizza everywhere. But it was kind of different. For me it was really a culture shock. My family basically were just like typical Southerners. We went to church. The blacks lived on one side of the town. I was talking to Mary. I don't believe there were any blacks at Edwards at all. If there were, I can't recall having seen them. So it was like a white society here that ran things then. We've come a long way.

JOHNSON: Certainly have.

COTHREN: But it really colored it when I went into teaching, though. It really broadened my outlook on life and I was a Girl Scout leader for like ten years. When I was living in New Jersey, I was a member of the Christian Jews group and I belong to League of Women

Voters, so I'm really into rights for everybody, so I think it had a lot to do with coloring what I became.

JOHNSON: Having those exposures early on. Did your husband follow you to California? I mean, he was your boyfriend at that time. He followed you?

COTHREN: Actually, what it says is, "Beverly's boyfriend is coming out here, and I felt sorry for him." But I don't think he felt like he was going anywhere at Langley. If I had really been serious about breaking off with him, I probably shouldn't have contacted him or had anything to do, but we really had a lot of things in common. I'm not sorry that I married him. I have three lovely girls. They all did well in school, but it was not—I had been active in the Episcopal Church and I knew the problems with getting into a mixed marriage, so I really didn't—

He worked on basically the same planes that everybody else worked on, I think, but he got discouraged with government, and I think he thought private industry had a lot more going for it at the time, and then everybody was leaving at that time to go to Cape Canaveral [Florida] and they were going. His boss went back to Republic Aviation in New York and he told George if he came back there he could work for him or something, and that was where he came from.

His parents lived up on the Hudson River, so I think that's why we went. I think if I hadn't gotten married, I probably would have stayed with NASA as long as Mary did, because I liked it.

JOHNSON: You enjoyed your work.

COTHREN: Yes. I never felt that women were put down in their work. Everybody was contributing what they could contribute.

JOHNSON: You felt like you were treated well, even though you were a woman?

COTHREN: Yes. And I think I liked it a lot better. It wasn't until after I did Girl Scouting that I realized that I could teach, and then after my kids got in high school, I thought, what kind of job am I going to get as a mathematician these days. I'm really kind of out of it after I've been a housekeeper for so long, but I really enjoy teaching. And I really did a lot of science with the kids, and I really pushed mathematics.

I get really discouraged these days about—actually, at dinner last night, either my daughter or my son-in-law said that somebody said as soon as you put an equation in a book, it cuts down 40 percent of the sales and I thought, "I can't believe—" But I used to just go to all these, every training class I could go to, to encourage girls to study math and do math and it's hard for me to believe that people don't like it. And I think it's because we have unqualified teachers who didn't like math itself and they shouldn't be teaching it.

When I was in Fullerton [California] teaching, the people who—you know, in the school district, the people who have seniority are the ones who get the plum jobs and all of their junior high teachers were all social studies majors, and I couldn't get my way in there. They would give me the bottom kids but they wouldn't give me any of the top kids. And I thought, "Oh, okay, I can handle that," but I thought they were too firmly entrenched.

JOHNSON: So you waited for a few years after you left NACA before you started teaching?

COTHREN: Since we were moving a lot, basically, I just, I really home-taught my kids, basically, is what I was doing. I was really involved with everything they were doing and

when the oldest girl hit fourth grade, I said I wanted my kids in Scouting and they said there's not room. They said, "Do you want to be a leader?" and so I said, "Okay. I don't know a thing about outdoors but I'll be a leader." And immediately they gave me thirty-six girls.

JOHNSON: Thirty-six?

COTHREN: A couple of years later than that, I had another troop. I had two troops and I was the neighborhood chairman for about ten years. So after I got through the Scouting experience and my kids were at junior high age, that's when I decided to go into teaching. I went back and I had to take arithmetic. It's really funny. It's a college class but it's arithmetic. It covers all levels of math. I thought, "Gee, this is neat. You go back and you learn stuff all over." You know, it's like you never learned it from the proper context when you're a kid.

But I taught fifth and sixth and taught summer school junior high. Then one year I decided I was going to be bilingual and I taught bilingual fourth, so I've tried hard to learn Spanish, but I still can't master it. I got angry because the fifth grade kids were coming in not knowing their times tables so I thought, "I can make them learn," so I went down to third grade where they learned their times tables. I don't know what it is about their brains these days, but they just do not memorize, and their parents don't push them, except for the Oriental children. They're the only ones that really care.

But we used to be able to teach like you teach the threes one week, the fours next week, fifth. By the time Christmas came, they knew all their times tables. Not any more. I kept telling them, "You won't even know whether your calculator's working right if you don't know it." I don't know, I guess they're surviving.

JOHNSON: Well, technology has certainly changed a lot since you started out, and while you were there at NACA, did you see a lot of the technology changing, even in the time you were there?

COTHREN: Well, only the computers were coming in, but it was like another ball game over here. I wasn't really involved, but I was amazed at some of the—I'm always amazed that they could put these little holes in the plane's wings and put a little diaphragm over them and measure the fluctuations back and forth, and be able to read it on film. To me, all of this is like a mystery that they were able to read all these.

I mean, of course, they'd been doing it at Langley in the labs and stuff before, so they'd already built up the technology, but I'm just really amazed at the human brain, when they need to, what they can invent or figure out. And I'm sure, when [Charles E. "Chuck"] Yeager would get in that plane, you know, it's like, my brother had an airplane. At one time, the door was held shut with barbed wire or whatever it was. I imagine that Yeager had to improvise. With his size, to get in that plane and make things happen, he had to have a lot of nerve. So I think we really were determined to get there, and there were a lot of people that were really interested in research.

JOHNSON: Did you have a lot of contact with any of the pilots? I know you've mentioned Chuck Yeager.

COTHREN: Not too much. They would come in once in a while, but mostly they were just in the office. I think when [A. Scott] Crossfield was there, I think he might have come in a few times. When I first went out there, the Air Force was still flying the planes, and then I don't know exactly when it turned over, that NASA got their own pilots and then the Air Force was not involved, or how they were involved. There obviously was some protocol involved in it.

But the pilots to me were all very—well, they're like my grandsons. I think men just are not afraid to take chances. They don't worry about the consequences like women. Not having had any boys, bringing up any boys, I didn't realize how nutty they are. I'm sure that they just probably drank a lot and lived, just enjoyed life, and they were just cocky, that's all it was about.

I'm sure I probably wouldn't have tried doing what they were doing, but it seems to me we did have some accidents while I was there, and planes crashed and people died and whatever. But basically it was pretty routine. They just flew all they could while the weather was good and then when the weather was bad, we'd just work up all the back data. You'd just work up the exact maneuvers when you were really flying and then you'd go back and catch up with all of the rest of the film when they were not flying.

JOHNSON: Was the atmosphere out there more of a tight-knit group, because it wasn't a large amount of people working when you were there. Do you feel like you were like a family?

COTHREN: There was a little camaraderie, but basically I don't think we were very close. I think everybody was just doing their work. We never really had any time to socialize. You'd walk across the hangar and get coffee once in a while. We used to have this theory that when you were walking all the way across the hangar, if you would wave your coffee cup from the right to the left, maybe you could keep the waves from creating so that you'd have some coffee left when you got back to—stupid things.

I think I went on a picnic one time and I was having a wisdom tooth—I had to go all the way down to L.A. to some dentist that somebody back East had recommended and I was having wisdom teeth either pulled or had been pulled or something. They had a picnic out there at one of the ranches outside of Lancaster somewhere, and I had never been a beer-drinker, but when I got out there, there wasn't anything to drink except beer. I found out that

if you put that cold beer on this toothache, it does numb the pain after a while. So I started to drink beer a little bit, if it's ice cold.

But I don't remember—you know, you couldn't get in to Lancaster to shop or do anything, and so basically I probably was lonely. By the time George got out there, I probably was glad to see him, and he and I used to go down to L.A. all the time and we'd go to listen to these combos and dance about every other weekend or something.

So after he came, I basically had a good time, so it's not hard to realize that I would drift into the marriage, and we had a good time the first few years. But when his diabetes started taking over, the last few years was pretty rough.

I feel like I've been rambling all around and back and forth.

JOHNSON: No, no, no. That's fine. It's exactly what we need.

COTHREN: I don't know if I'm getting anything that anybody would ever be interested in.

JOHNSON: Well, while you were working there, some of the projects you mentioned that you were working on, are there any other details about any of that, or the X-1 or the D-558 that you can remember that you'd like to share with us?

COTHREN: No, not really. I think it was all just—Ed was probably right. Most of the stuff went back to Langley and then they figured out where they were going, or they looked at all of the reports, you know, like if you didn't see any of the reports, you didn't really know an overall picture of where they were headed. I'm sure today they've used a lot of the research in creating new airplanes. I really loved the little X-4. I think they made a video of that from Ames [Research Center, Mountain View, California], because I remember them saying they were thinking about getting somebody else to be the computer in the picture when I was

doing all the work and I thought, "Well, I may not be good-looking, but for crying out loud." So I don't know where—that's probably floating around somewhere, but it was a cute little plane. It had elevons. The elevator and the ailerons were together so it was like a neat little thing. I'm sure that's what they probably use nowadays for some of the little jet planes, but it was really a fun little plane to work on. I could see it taking off outside the window.

JOHNSON: That must have given you a feeling of satisfaction, knowing that you were helping.

COTHREN: Yes, but it was fun. I liked working on that one more than I did the others. Mel Sadoff would come in. He'd come down from Ames and he would be there, maybe during the week or something, but he'd come in and look at the stuff and I think I got a little bit more of an idea about what was going on. He'd say, "Do you see so-and-so?" so I think I had a little bit more personal interest.

JOHNSON: More input.

COTHREN: Over the long range, I don't know how they—and I guess all that material is unclassified now, so it's out there if people want to—if they used it in building airplanes today.

JOHNSON: What do you think was the most challenging part of your job?

COTHREN: I don't know if there were any at the moment. I don't know if it was challenging or not. It was just interesting, and I just liked working with the data, so I don't know that it was—

JOHNSON: Well, you mentioned the X-4 was probably your favorite project that you worked on. Were there any people out there that you felt like really made a difference in your life or in your career or acted as a mentor?

COTHREN: I think Roxanah was a—I think she came from North Carolina and she basically had the same background that I did and the other people that I worked with, and so I think that she was fair and I don't think she ever tried to overwork anybody or put anything on somebody they didn't—and most of us were just willing to do whatever she gave us.

When she was not there, Mary Little was supposed to be second in command, but Mary basically had her own projects most of the time, so we didn't have anything to do with her. But I think Roxanah really went to bat for us, and if there were any conditions, like the lighting or the heat or whatever it was, those things were all taken care of. Somebody always took care of them. I wasn't unhappy working with them, so I think it was a pretty good life at the time.

My mother probably was that way, but I never was a person that wanted to get married or have children. It was not high on my list of things, where it seems like nowadays, so many of the girls seem to be pushed in that direction, and to me it was like it wasn't inevitable that I was going to get married and have children. I was perfectly happy doing what I was.

I talked to Mary Little the other night because I usually e-mail her, and she really doesn't use the computer. Her husband, Al Kuhl, gives her the message or prints it up and gives it to her, but she either had an operation on her eye or her diabetes is causing it, but she was going blind. I don't know. Did you talk to her?

She didn't want to talk to you, I don't think, because she has had so much pressure, but either because of the diabetes, she's having trouble with her retina. For the past few

months, she hasn't been able to see and it's been really difficult for her. So when I was talking to her she said, "I think we just did what we were told. We were all obedient and we didn't make waves in those days." I think we were just basically—in fact, I wonder, did you see *Pearl Harbor*?

JOHNSON: The movie? Rebecca has. I haven't seen it yet.

COTHREN: They put it down, you know, like it wasn't like it was real, but to me it was about as real as you can get, and I thought it was a good movie. I thought it would portray the people today who had no feeling for it, but I remember the day that Pearl Harbor happened. Half the boys in my class went down and volunteered in the Navy, in Tennessee there. I mean, we really felt like fighting for our country, and we were very—but it's like, I think all of us at that time were very patriotic.

I look at the population today, and I don't see that, and I'm just wondering if we were ever forced into a war again whether the young people today would come out like we did or whether we'd all come through. My grandparents came from Germany and Sweden and I do a lot of the genealogy—and Switzerland—so I've got three sides of my family all the way back into the 1700s, so when I've been over to Europe, I've been over there two or three times or something, I go over and it's really strange to be in that environment.

When I went to Scandinavia last year, they were talking about how the Germans had taken over Norway, and they had all that area under observation and stuff, and it was talking about how the Norwegians would still be able to do their activities and get around the Nazis and stuff. It's hard to go over there now and think how part of my life, we were really at war with all those people over there, and it's changed so fast.

JOHNSON: It definitely has. When you began teaching, you mentioned that one of the things you've done is try to stress to girls how important math and science and those disciplines are. I think it's interesting, when you started, all the math people were women, and I know sometimes in—they have programs like "Take Your Daughter to Work" and those type of programs, trying to make girls understand that there's other things out there like math and science that you can get into. Do you feel when you were going into math that anyone discouraged you from doing that because you were female, or do you feel like you had encouragement then?

COTHREN: I think if anything, they encouraged me, and I felt it was kind of like something special, if you could do it. Let's see, I went one year in Virginia and three years in Tennessee, I think. I never felt that I was particularly talented in math, but I don't think that anybody ever discouraged me from going into any field.

My father was a master mechanic with the railroad. He was a foreman but he also—and today, I really regret the fact that if I had been growing up today, maybe I would have been encouraged a little bit more by my dad to work on cars, because I have this really strong instinct all the time that if anything's not working correctly, I've got to fix it. I've got to fix it today.

I see a little of that coming out in some of my grandchildren, but it was really strong in my sister and I both. We really are the ones like—my husband never fixed the faucet. I had to fix the faucet. I had to fix the toilet. So I think my father and my mother basically taught us that we could do anything that we wanted to do, and they never discouraged us from trying anything, and my mother used to take us—I went when I was a kid because we had railroad passes. She took me to New York City, she took me to Washington. I went up to those places lots of times, so I got out to see the world.

But I think it's great now to see girls who—there's one here in Auburn [California], I think, that's a woman mechanic. I think I'm going to take my car down to her. But no, I don't think my particular family—however, I do think there's a large portion of women in this country who have been encouraged to get married, and I really resent the pressure that's put on my granddaughters to buy cosmetics and be beautiful-looking and all this stuff. I think if they were not so involved in how they look and impressing the other sex and being skinny and all that stuff, they could get on with their lives a little bit better.

JOHNSON: That's true. How many years did you teach?

COTHREN: I think about twenty-three. I was living alone toward the last couple of years after my husband passed away, and I really didn't feel safe staying after school and the neighborhood was kind of like going downhill. I felt like any day I'd go out and somebody had taken a nail and scraped me on the side of my car or something else.

Parents are getting to be so—they think their children can do no wrong, and it seems like they're always in there hollering and saying, "They didn't do this," or "You didn't do that." I thought, "I don't need this." I worked until I was sixty-seven, I think.

But I'm very active right now. I volunteer. I tried helping in the schools with math but they basically were giving me the kids that they wanted to get out of class, that were in their hair. I can do that, but I need a little fun stuff once in a while.

I volunteer at the library and I extract records for births, deaths, up on the 1890 newspapers up here in the [Doris] Foley [History] library. I do genealogy and I've really found a lot of cousins, two or three cousins, in the last year on the Internet, from this genealogy, so it's kind of a kick. And I'm active in the League of Women Voters. We studied education in this area last year.

So I basically am not home all that much. They're very strong in art up here, so I belong to the art group but I haven't started painting again. I feel like I've got a pretty full life in the summertime. In the wintertime, it's like stay in the house.

JOHNSON: But you're keeping busy, that's good. Is there anything else in your notes that you've made that you'd like to share? Or any other anecdotes that you can think of about your time there that you'd like to share with us?

COTHREN: You know what's really strange to me is, one of the reasons I try to keep myself so active is they it can keep your brain working, and now they're saying that the brain cells do grow. They thought for a while that you didn't grow any more, and I'm trying to keep from getting Alzheimer's [Disease] because they said if you keep your brain active, maybe it would do that.

But it's really strange to me. My dad could remember the names of anybody he met, up and down the railroad, for years and years, and I didn't get that, but I noticed that I have whole blanks in there where I haven't the slightest idea what I did while I was at Edwards. And my sister remembers. She can tell me I used to, when I was studying I used to make her go downstairs and get me lemonade or something. I don't remember these things, and it really annoys me now.

I'm glad that you're doing this, because maybe I'll remember. I'll read about it or hear about it and I'll understand what actually went on because to me it's like a vague cloud there that I must have just gone to work and gone back home and it's not something I can pull out and say, "This is what we did every single day."

We were like—I don't know the exact distance—a mile from the hangar. I don't know how far it was, but in the wintertime it got cold sometimes, but we didn't ever walk to the hangar in the morning. Roxanah drove this old gray station wagon and drove us all down

there, like six or so of us, in this station wagon. We drove down to work and then in the afternoon we drove home.

But I don't remember all these details. I remember how huge the hangar was, and that it was a long way to walk across the building to get to the copy machine. And they were always in there working on—the X-1 would be here and the D-558 over here or something, but they've torn all those hangars down now, and I didn't go over to the new building. It was built after I left, so the area's kind of different.

It was kind of sad. When I went back there when they had the fiftieth anniversary or something, I went back there and they took me on a tour around, let me get in a simulator and fly the plane or whatever it was, and that was cool, but it seemed kind of desolate in the place. It seemed like the offices were kind of like empty and they didn't have much work going on.

But they're still doing stuff. They've got those satellite planes up there, or whatever they call those, the remote control planes that they're working on. I hope they don't let go of all these facilities we have around the country where they did all this research, because once they let them go, it's kind of hard to get them back again.

JOHNSON: Did you ever have any desire to fly yourself?

COTHREN: No, not really, but my daughter really wanted to in the worse way, and if she weren't bipolar, I'd encourage her to do it now. She went up and worked at Edwards one summer and they took her up in the F-86 or something.

No, in fact, lately it seems like all the fun—like the first time when I flew across the country, they had that noisy motor and you had a stewardess that brought you in chewing gum and Chiclets or whatever it was, and they would ask if you need anything, and make sure you were seated. It was like having a hostess.

And now when I fly—you won't like me saying this—but I'm sick and tired of having to fly to Texas to get to anywhere in the United States. You used to be able to get on in L.A. and get off in North Carolina in five hours. And it's like, no matter what you do now, you've got to go to all these stupid hubs.

JOHNSON: Dallas. Everyone goes through Dallas.

COTHREN: I know. It's like they don't worry if you miss your plane. There will be another one going, but not when I want to go. One time I was going to Mobile [Alabama] and they missed the flight. They had to take me all the way over to Delta to get on another flight, and when I got to Mobile it was like eleven o'clock at night and there was only like two cars, and I had to rent this car. I didn't know how to drive it in the dark.

They don't seem to understand that when you have to stop there it's going to be midnight, for an elderly person to rent a car that they don't know, and go driving around the countryside. But I don't know. I really believe in flying, and I think there are less accidents than there are on the highway, especially around here. I still get a charge when I fly, but not fly it myself. I look in at those controls.

When I lived in Pismo Beach [California], they had the little, what do they call them, Eagles. They're very small planes, and you have to step over something in the aisle. They may carry like ten people, and you can see right into the cockpit. There's no screen or anything there, and when the wind's blowing, this little plane, with the wind from the ocean, it goes rocking back and forth when you land. So that's like real flying is, I think.

Probably those little planes are safer, but it always used to amaze me that they would take that X-1 up there and it would shoot off its rockets and go as far, as high as it could go and then it would just coast all the way down, glide down to the base, and could glide

themselves and land where they were supposed to land. It makes you believe in—have you ever been on a glider?

JOHNSON: No, I haven't.

COTHREN: Well, in the central—not central valley. It's in back valley there in California. They have a lot of those glider planes. I think that's where you could basically learn how you could—once you get up in the air, you can probably glide to anywhere, just like a bird, if you knew what you were doing.

JOHNSON: I'm going to see if Rebecca has anything that she'd like to ask.

WRIGHT: When you were talking about the X-1 and some of the early projects that you worked on, it made me think about the classified type of work that you were working on. Was there a level of secrecy that was going on at the Flight Research Center at that time, that you all felt compelled to maintain while you were working on those projects?

COTHREN: Oh, yes. Oh, yes. I mean, when I went to Langley, I don't know whether I had top secret clearance, but I certainly did when I was at Edwards. At that time, the FBI [Federal Bureau of Investigation] would go back and they would actually interview people you went to high school with and they really thoroughly checked into your background. I always felt that I had to keep my mouth shut, off the base.

But basically we were kind of closed in and we didn't have contact with—unless reporters came up or something from L.A. and there was a big thing, but we didn't have contact with them. But one of the reasons I got upset about the X-5 project was because I

was supposed to go to the next level of clearance. I don't know why that was so special to me.

WRIGHT: That's about the time that you were pregnant?

COTHREN: Yes.

WRIGHT: Was that your choice not to work anymore, or were you not allowed to work because you were pregnant?

COTHREN: No, no. It was my choice, but I think at that time most people stopped. Women don't go to work; they stay home and take care of their children. I don't think I ever would have trusted anybody else to take care of my children.

WRIGHT: Roxanah would pick you up at your dorm in the old base you called it. But what were your hours like? I know the first six weeks you mentioned that you just had really multiple days, that you just worked constantly.

COTHREN: Yes, and we worked overtime, too. I remember getting a big, fat check after the first couple of months or something, because I had worked so much overtime, and I never had an opportunity to do that before, and you really had no choice. It needed to get done and it needed to get done right away. I've forgotten what you asked.

WRIGHT: Your hours.

COTHREN: We must have worked like eight hours, generally. But we started early enough in the morning before the desert got hot, but we were inside and we must have had those swamp coolers to keep the place cool, because it was a noisy atmosphere.

WRIGHT: Your lunch breaks? Was that a time to talk more about projects, or did you talk about—

COTHREN: No, and I think we probably just made a sandwich ourselves and brought it. I don't think we went out. We didn't go out anywhere to lunch. It couldn't have been exciting or I would have remembered. But no, I don't remember getting together. I must have done a lot of reading, because I would read whenever I had spare time or something.

WRIGHT: Was there any type of library or did someone send you books?

COTHREN: They had a library at the service club, right behind us, and you could check out books there. You could go over to the service club and buy various things, but for the life of me, I can't remember where the PX was.

JOHNSON: You had to have one somewhere.

WRIGHT: We touched briefly about today's emphasis on dress, and the impression that young people have. During that time, was there a social acceptance or a social expectation of how you should dress when you go to work, or were you all able to dress comfortably for your jobs?

COTHREN: The desert would get to like 125 [°F], and I think basically we just wore simple cotton dresses and sandals, because that was about the coolest thing you could wear. But there was no consciousness about it. I think everybody was really casual.

I owned a house down in Palm Springs area for a while. I was going to retire there, and when it got to be 125 [°F], and you had to have those air conditioners going night and day, I thought, "No, that reminds me too much of Edwards."

But at night, you're aware of how the desert—it's not like Texas where it's humid at night; the nighttime stays as hot as the daytime. In California, in the dry climate, as soon as the sun goes down, the temperature drops like twenty or thirty degrees, so it gets cold at night.

So basically you wore sweaters every time you went out in the afternoon and evening. But there was no dress code. I guess we wore slacks then. I don't remember when slacks came in but I think the war is probably when women started wearing pants. They were wearing pants in the factories or whatever it was.

WRIGHT: Well, that's about all I have. I was just trying to fill in a few of those details about your actual—the days of coming in and coming out of that dorm, and staying away from coyotes.

JOHNSON: And the snakes.

COTHREN: You know, it's hard to look back at that time and think that we didn't have television. If I got married in [19]'52 and my daughter was born in '53, before we left California, we were beginning to have the early television sets and the tower was outside of Pasadena, up on the hill above Pasadena. The rays or whatever it is, the view or whatever, had to go over the top of these mountains to get to Palmdale. Well, it was very scratchy, very

whatever. That's the time, I guess, when Milton Berle and all those people came out, but it was black and white, and it was really the pits in those early days.

It's hard to believe what we did for entertainment. We had a living room and we had a radio or some kind of record player or something, so you could go and socialize in the living room if you wanted to. And I guess I've always read newspapers.

WRIGHT: I also was going to ask you, too. You mentioned that there were rooms. Did you have your own private room, like a bedroom?

COTHREN: Yes, yes. It was about—I suppose it—what is this, like twelve by—it's like a regular dormitory size, and it was painted cream. It was clean. They probably took an Army barracks and converted it, and so it was fairly comfortable. You had a dresser and a bed, just basically like a dormitory.

And at one time, when I was planning to get married, I decided I was going to make my own dress, and I had to go into L.A. to the May Company and try to find materials or something, and if it wasn't right, it's too bad because I couldn't get back down there again anytime soon. But I wanted a sewing machine and I did talk Ed Holleman or somebody to drive me into Lancaster so I could buy a sewing machine, and I got this horrible, icky sewing machine that kept tangling the threads.

But I know for a while there, I did make my dress and my sister's dress for the wedding, and then when George and I drove back East—we got married back East—so I just took all that stuff with me and drove across the country, but a lot of people would drive, once we got cars, they would drive all the way across the country, night and day, without stopping, you know, take turns, drivers. I did it twice, I think.

JOHNSON: We've heard some other people talk about how hard it was to keep the dust out.

COTHREN: Oh, yes. Oh, yes. And I remember at least one windstorm. When they would have windstorms, these tumbleweeds would fly up in the air like fifteen to twenty feet high. Most of the time out there you could have your windshield replaced for free, because it burned the windshield so bad when you would drive.

It's like we'd have a period of time, but almost every day you had to wipe the dust off your windshield, off your windowsill at night, and all the furniture and whatever it is. Somebody was saying we had a housekeeper or something, but I don't remember having a housekeeper come in and do anything for me. Maybe she cleaned up the living room or something, but I don't remember anybody coming in there, cleaning, but maybe they had somebody that would come in once a week or something.

JOHNSON: How did you do your laundry?

COTHREN: We must have had a washing machine and dryer, I don't know.

JOHNSON: A dryer, too? With all the dust and the wind, I can't imagine hanging clothes.

COTHREN: It had to have been done right there, because we were right in the middle of the base and there was nothing except airmen walking all around outside, so there were no clothes lines. There was no fence around our area. We were just sitting right out in the middle of nowhere, so if we opened our window, you could see in. I think we must have had Venetian blinds.

But no, it was totally not private. But we never had any problem. We never had any problem with any of the airmen or anything going on, as far as I know with that. Nobody dated the airmen. Nobody, as far as I know, dated any officers. But sometimes they'd go

over to, you know, like if they had a party at the Officers' Club, sometimes some of us would go over and just stay for a while and have a drink, but we never felt like we were involved in their life. We were not excluded, but we were not included, either. I would imagine that people like Walt Williams and De Beeler probably had a lot more to do with them, since they were on a day-to-day basis, talking to them.

WRIGHT: Were you there when Walt Williams left, or was he still there after you left?

COTHREN: I think that was probably about close to the time when he was leaving. I don't remember exactly when he—but there were a lot of engineers that were looking around to find something else. Some of them went to TRW, some went to Cape Canaveral, some went back East. I don't know. Some of them thought they'd get in on the ground floor at Canaveral, I guess.

WRIGHT: Your salary was somewhere around \$3,000 when you were at Langley. Did you get a bonus for moving out to Muroc, or any type of substantial increase? What was your salary?

COTHREN: I could probably tell you later when I actually quit, but I looked for my other records and I couldn't find them, but it was, you know, even though I got \$4,000 when I started, I don't know that the increments were that great at that time, compared to what it is today. But they just paid my way out there, and I don't remember them giving me any bonus.

JOHNSON: Were the dormitories free or did they charge you?

COTHREN: I don't know whether we had any stipend for them or not. If it was, it wasn't very much. I have to think about that. I don't remember it being taken out. Mary might remember something like that, I don't know.

WRIGHT: While you were there as a computer, were the computers, the women, all in that one room all the time, or were you—worked with men during the day as well as in your rooms, or were you secluded from the men?

COTHREN: I don't know that we were secluded but basically, if the engineers wanted to know something about the work, they came down to our desks, so basically we stayed in that room most of the time. But you could walk down the hallway when you wanted a break, and after George came out there, he used to come down and talk to me a lot. Trudy [Wilken] Valentine was going with George [Valentine] at that time, so he used to come in once in a while and talk to her.

It was basically like it was at Langley, except at Langley the engineers and the computers were in the same room and you would make passing remarks to the engineers then, but we were basically secluded, if you get right down to it. But you could walk down the hall and there wasn't anybody keeping you from visiting, but there was just not that much socializing, I don't think.

WRIGHT: Too much work to do, I guess, too.

COTHREN: There seemed like there was pressure to get it done, somewhere.

WRIGHT: Was there ever a time where you felt that there was information that they didn't want you to know, with all the secrecy going on, or all the testing of the airplanes? Was

there a time when people were not knowledgeable about the projects that were going on in the time that you were there?

COTHREN: I think we were a pretty close group in that everybody shared information. Sometimes you'd be aware if a pilot was in trouble or if there was something going on. Because we weren't out in the hangar area, we didn't hear the problems with the instrumentation or if something went wrong or whatever. You know, sometimes you'd get a record and something didn't record at all, or you'd have to use a fudge factor to figure out what was wrong or something, but I don't think anybody ever kept us from knowing.

In that respect, I think we did have some sort of a camaraderie as far as interested in whether you made it, or if somebody knew they were flying for a particular thing, they would pass around the information, whether it made it or didn't.

I feel like I'm talking way down here in my chest. When I first was tested to go into teaching, they do a tape of your voice and I hated it, but they said, "Oh, don't worry about it because children can sit and listen to a lower voice than they can a high-pitched all day." High-pitched kind of makes you agitated.

I just read something recently on—or I heard on national [public] radio that, you know, as you get older, your muscles shrink, unless you keep exercising them. So I go to water aerobics two or three times a week or something to try to stretch everything. But they were talking in connection with, you know, how women have a high-pitched voice because their vocal cords are longer or something, and men's are shorter, and as you get older, they were saying that possibly the reason women's voices get lower and you squeak in church is because you haven't been speaking in that high voice and keeping your voice way up there, and exercising those vocal cords, so it's like, every once in a while, I go around singing in the woods and I get my voice way up there. If I'm really conscious, I can answer the telephone with a high-pitched voice and get it up there, but it's like lazy, lazy voice.

WRIGHT: Well, we've given you a good workout today, then. Got your exercise.

COTHREN: It must be difficult when you're trying to interview somebody and they're not a talker at all.

WRIGHT: Well, every interview is different, but the one thing that we always feel confident is that we've learned so much from each person we talk to. Even though you might have been with a group of people doing the same thing at the same time, everybody has a different experience and perspective. We certainly have enjoyed this morning talking with you.

COTHREN: Basically, I was shy when I was a kid, for a long time. In fact, it may have been all the way through high school or college that I was still shy, and I don't think it was until I really got into Girl Scouting that I felt that I could teach. I taught one training class and I said, "Every woman or every trainer has something they can teach somebody else. It doesn't matter whether it's making a bed or whatever." And this one woman said, "No, that's not necessarily true."

My mother was in Eastern Star and my dad was a Mason, so when I was a kid I was taking ballet and tap dance and all that stuff when the Shirley Temple business was going on, so I was out there tap-dancing and doing all that stuff in front of audiences, but it's not the same as talking to a class of people up close.

WRIGHT: Well, we promise we won't ask you to do any of that today.

COTHREN: Well, you have an interesting job, I'll say that, and you both do a good job as far as encouraging people. It must be difficult to try to come up with some kind of questions that would get the answers that you want, or get something.

JOHNSON: But we appreciate you sharing this with us today and giving us some more information, and taking your time out to come here. Thank you.

[End of interview]