

**NASA HEADQUARTERS NACA ORAL HISTORY PROJECT
EDITED ORAL HISTORY TRANSCRIPT**

SUGENIA M. JOHNSON
INTERVIEWED BY REBECCA WRIGHT
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WRIGHT: Today is April 2, 2014. This oral history session is being conducted with Sue Johnson at her home in Newport News, Virginia, as part of the NACA [National Advisory Committee for Aeronautics] Oral History Project, sponsored by the NASA Headquarters History Office. Interviewer is Rebecca Wright, assisted by Sandra Johnson, and we thank you for letting us in your home and sharing your afternoon with us. We appreciate it.

JOHNSON: It's a treat for me.

WRIGHT: It is for us as well.

JOHNSON: The children have wanted me to write things down, and I don't.

WRIGHT: This is going to be great for them as well, then. If you would Sue, could you start by sharing with us some background on how you became interested in working with the NACA, and how all that happened.

JOHNSON: That starts in high school then, because that's where I met—my father was really brilliant in math, and my mother would say, "Don't come to me with your math. You go to him." I had a wonderful teacher sophomore year in high school, George Passage. He and his

wife [Mary L. Passage] ended up here; they were friends of my family, actually. She ended up an educator here with a [middle] school named after her now, and George was a prime person with the newspaper. He was a verifying editorial writer, and right arm of the one that owned the paper. It was funny that they ended up here, but he was a wonderful teacher, and made math fascinating. It was fun.

Then my senior year, I had a woman who was a wonderful teacher, but I couldn't stand her. She had been educated by Dr. Barton [phonetic] at Woman's College [of the] University of North Carolina [Greensboro], where I was headed. I didn't know at that time that I was, but I was. She was a very good teacher. We had a good math department there.

My father didn't give me a choice; he told me I could go to the Woman's College University of North Carolina for two years, then I could change to the University of North Carolina at Chapel Hill two years, if I wanted to after that length of time. He required me to go there. We had a wonderful math department, and Dr. Barton was a marvelous teacher. She showed just how good she was, because the year that we took calculus, she had shingles for six weeks. The teacher was nice that took over, and she had her doctorate too, she was an assistant in the department, but she just couldn't teach. None of us had any inkling of lights turning on until Dr. Barton came back. That's kind of getting ahead of myself, but I really was glad that I went to Woman's College. I had a lot of nice friends there. There were 17 of us there, and they were all nice girls—one of which I ended up here with, but I'll tell you about that.

I guess I'd always liked math, because I liked to know whether I was right or wrong. I didn't like shades of gray. It was fascinating to me, just working something out. I'd go to sleep and not know a problem, but I'd wake up in the middle of the night and know the answer, and get up. I had a really good roommate for three years, after the freshman year. There was a girl

that said—we had become friends, and she was a biology major. She said, “Let’s room together.” It worked out fine, so we ended up three years. She was a nice person; she ended up marrying a doctor in Winston-Salem, and we’ve remained friends. The husband is dead now, but she’s in a retirement home in Winston. Betsy and I lived together for three years. I don’t know—there’s so many avenues I could go to, that I don’t know really where to aim, except that math was fascinating to me.

WRIGHT: Let me ask you, did you know this at an early age?

JOHNSON: No.

WRIGHT: As you got older, it started?

JOHNSON: I think as I got older, I realized when I had George Passage for sophomore year that it was something I was interested in, because he showed the fun that was in it. I didn’t have any aim for leaving home, or the state of North Carolina, when I graduated. The people that were the representatives that came to talk to you about whether you would like to come to here or there. I remember there was Dahlgren [Laboratory, Virginia], and then there was NACA. I didn’t really talk to them; I wasn’t really interested.

There were so many things that were happening at that time, but NACA was one of them. They liked the graduates from the University of North Carolina in Greensboro, because we had a good math department. I understand, somebody told me recently, that they would take any graduates from [there], which now is a part of Carolina; it has men and women, but at that time

we just had women. When we finished, there was so much activity, I didn't have time to think about it. There was so much activity at graduation time.

When I got home, I was perfectly happy to stay in Concord, North Carolina for the rest of my life. I knew I didn't want to be a teacher, though. When I was a junior in college, the principal died, and the head of the math department had to step up. They asked me if I would take the summer students. Of course, summer students are people who flunked out.

My father finally said, "Look, I didn't send you to college for four years to sit around here and play bridge." NACA kept sending telegrams. I just didn't answer them. This happened to my friend, Mary. She was Mary Morris then; she's the one that I've given you the name, Mary Houbolt. She called me from Winston-Salem. She said, "If you'll go, I'll go." We decided we'd both come, because her father was doing the same thing. I guess the two towns were about two hours apart, Winston and Concord.

My family started planning the way to get me up here, because it was at the end of the war. We had a different situation during the war, at school, than a lot did. I will say this, that my father—I did go to the University of North Carolina one summer school. I went to take one course—I can't remember what it was—and they didn't have enough people. It was only three. The teacher also taught geology, so I just signed in his class, and then I took contemporary literature because I was a glutton for books. You can imagine what you would learn in geology in a six-week course. I was miserable if I was not dating, and I was miserable if I was dating because I needed to be doing work. Then if I was dating—so I decided I didn't want to go. I had a lot of friends at University of North Carolina, Greensboro. That decision was made, and I liked my roommate, we got along fine. We were very different people, but we got along fine.

My parents started checking in to how to get me up here. They decided that I would go—now this is where the story is just—that I was going to go to Richmond [Virginia]. They didn't want me to change trains in Richmond in the middle of the night, which was what you had to do to get to the peninsula. They found out how difficult it was to get to the peninsula at that time. They sent me by sleeper, which went up to Richmond, but you didn't have to change. Then it came down to Portsmouth. It went over the ferry—the train did, to Norfolk from Portsmouth.

They didn't know all this; they didn't know the location of things. Here I was with all this luggage, ended up in Norfolk, knowing that I had to get over here on this side. They had signed me up for government housing, which was a joke, because it was like a two-story chicken coop. That's the only way I could explain it. It was rather large, and they had built it during the war for this reason. Singles could not get apartments then. The woman that was in charge of it looked like a madam, and then girls were coming in. I tell you, I would go in and I'd lock the door. I was really afraid, because I just didn't know what the situation was. You didn't have a telephone; they'd have to call you on the intercom, and you had this great big bathroom that had curtains in it.

What happened is that Mary thought I signed up for the 15th of August. I thought she'd signed up for the 1st, so I ended up here two weeks before she did, by myself. It worked out fine, except I didn't let Mary know about the situation. When she did come, she walked in our room, and it was about the size of this, and it had a bunk on either side, built in. It had a closet that was about as big as this, but it had a curtain over it. Each one of us had a closet. There was a desk about where the TV is. She walked in, and she said, "Why didn't you tell me?"

I said, "I knew if I told you, you wouldn't come."

She said, "I wouldn't have!"

I know I'm jumping around. The trip from Norfolk to get over here was really—it was a miracle. God did look after me. You had to come down to get a ferry that went across to Old Point Comfort. You were way up here in Portsmouth and near Norfolk. I don't remember how I got there, but I got—with all this luggage—to get on the ferry. I was sitting there with all this luggage, really enjoying the scenery coming across. This woman said to me—and she had a little girl—she said, "Where are you going?"

I said, "I'm going to Annewith Hall [phonetic] over in Hampton."

She said, "I have a driver that's coming to pick me up, and we'll take you." That was really nice; that was a miracle. And they did, they took me right to Annewith Hall. He unloaded the luggage, everything. It was a really nice limo kind of thing.

Later I was in a restaurant that was up there. I was telling someone about this happening, and they said, "You know who that is?" They said, "She's the girlfriend of the local bookie." She was so good to me, was real nice, and had this little girl about four years old. It was so funny the way it worked out, that I found out who she was.

When I got to the dormitory—I can't remember how I got to Langley [Memorial Aeronautical Laboratory], which was some distance from Kecoughtan Road—they didn't have any transportation any more. They used to have streetcars, but they had taken them out. I can't remember how I got there, but my destination was the computers pool on the East side. It ended up that Barbara Weigel was head of this computers pool. They had all these girls in there, and I walked in, and that wasn't very thrilling to me. Just being in a room, they just had desks there, with girls sitting there, really basically waiting on assignments.

Barbara said to me right away—and this caused some problems because you're supposed to stay in there until your turn is to go, to get out. It was like being released from prison. She said, "Sue, I wonder if you would take a job over on West side, because we have a call for a special job, and we think you would be good for it. Would you mind going to the West side? But there's no transportation there." She said, "I tell you what, I will arrange for you to be picked up by a group that ride together. It's John Hobart's car."

Of course, John Hobart's the one that ended up putting us on the Moon. She said, "John will be driving, and then there are other men in the car." I get in this car, green as I am, talking lickety-split. There were either three or four men. I was Joe this, and Pat this, and John this. John immediately asked me for a date. As it turned out, they were playing a trick on me, because Pat was driving. I said to the girl in the room with me, I said, "Lou, Pat asked me for a date. What is he like?"

She said, "Sue, he's married." She went and found out the joke. It was funny because in the meantime, the first day that I rode over there with them—with Pat, John, and Joe—I was assigned to Ken Margolis. We were in a Jewish section, brilliant men, four engineers. I was assigned to Kenneth Margolis, who I loved. I loved working for him, and I loved Leonard Sternfield, who I was in the office with. Two of them, I couldn't stand. In fact, they ended up trying to get rid of me, but they couldn't. I was in this big office with only two mathematicians, what we really were, then Leonard Sternfield, and then there was a glass cage with the head of the section in it. I've forgotten his name. Then one of the ones I didn't like was in my room too. Ken was over by himself in an office across the hall.

It was in that building—it was 7 X 10 [Foot High-Speed Tunnel] was the building. They had a great big wind tunnel. Stability Analysis did not have anything to do with the wind tunnel.

They did, and all the engineers were down there. They were at one end, and then the division office was at the other. That was the only place they could find to put them, so it was kind of funny we were mixed up, but we didn't mix. Then they had a bunch from free flight that came over, and there was glass between their room and Ken's. Of course they all went [making faces] when I was in there with Ken.

It was just really fine. It was really one of the first two or three days I was in there, I looked out and there were three guys walking down the curved sidewalk down there. I looked up at this one, and it popped in my mind, "That's the person you're going to marry." I said, "Hey, Lou"—Lou Bird, she was married to an engineer already—I said, "Who is that guy that's in the middle out there?"

She looked, and she said, "That's Hal [Harold S.] Johnson."

I said, "Does he go with anybody? Is he married?"

She said, "No."

I said, "Does he go with anybody specially?"

She said, "He dates, but I don't think there's anything really special."

I told Lou what happened. I said, "Don't tell anybody, but this is really funny. I've never had this happen before."

Hal went on a two-week trip with his father and sister across Canada. His mother had died the year before and she was buried in Wisconsin, so they were going to visit her grave. I didn't see him anywhere for a long time. In the meantime, John Houbolt had asked me for a date, and we got that straight. He lived at Club 55. Lou told me, she said, "Hal's in Club 55 too. There's seven guys in that house, and they won't date somebody else's girlfriend." She said, "If you're interested in Hal, I would advise you not to date John." I was so bored in this two-by-

four room, I didn't know anybody. I was leery of who maybe getting to know. I accepted it. Club 55 was a delightful place. It was one house off the water, on Chesapeake Boulevard. It had belonged to a doctor, and there were four bedrooms and a half-bedroom upstairs, and a bath. Then downstairs they had a sun room, living room, dining room, big kitchen, and a garage out back.

I was there with John, and I would see Hal's mail on the table there, waiting for him to come in. That just really thrilled me to see Hal's mail. Getting ahead to Mary, when Mary came up, she was assigned to Structures—which is where this group that I was riding with worked. She came home the first day, and she said, "Sue, do you know who those people are that you are calling Pat, and Joe, by their first names?" They didn't look like anything to me. She said, "That Joe is Dr. [J. N.] Kotanchik who's Head of Structures." She said, "John is high up there, and then Pat," I forgot.

I said, "Nobody told me." They kind of fell in with the newness of me being wide-eyed and bushy-tailed, ready to just answer any question that they gave me, which could be totally wrong. Like how many steer were born in the United States last year? Things like this. I showed my ignorance, but they got a kick out of me, and I did, then.

Mary ended up—I said to her—John was going to get her a date, and we were going to double date. He was going to get a date with Pat's brother, who was coming to see him. I said, "I'm not interested really in John, I'm interested in Hal Johnson." She was like this, because she had seen John by that time, so she was interested in dating him. To make a long story short, they did start dating and I started dating Hal. The double date didn't come off, because Mary had a friend come up from Winston-Salem, and she couldn't go. What did Hal do but take another one of the engineers with us on the date.

We got along just great. He liked dancing, I liked that. He was a good dancer; I was a good dancer. I said, “Why didn’t you ask me right away to dance?”

He said, “Because I didn’t know if you were any good.” We hit it off, and the two of them were sailing that weekend—it was Labor Day weekend—over in Norfolk, in a sailboat race. They asked me if I’d like to go, and I said, “Sure.” They were going to pick me up the next morning. What we did, we would sail the boat over, and I was afraid of the water, and I was not able to swim. I had an ear problem young. I know I’m wondering for you, but it’s kind of—but it was funny how it all worked.

They were the ones going to crew, and then they would take me along if it was heavy weather, which I was hoping that we wouldn’t have. We did have heavy weather on that Sunday, so I raced the first time in a raging storm. Coming back—we sailed back then, to save the ferry amount, so we take the car over and then sail back—I was so mad at the way they acted coming back, I got off the pier at Hampton Yacht Club. I came up, and I said, “Don’t call me anymore, because you’re different from what I thought you were. Don’t call me anymore.”

They thought it was funny; I didn’t think it was funny, some of the things they were doing. It was just fun, it wasn’t anything really bad. That didn’t deter us, so we did start dating. I spent a lot of time in the garage helping him hold planks while he built this beautiful sailboat. We were racing another one that belonged to Don Talmage.

Gloria [Champine] was one of the girls that was in the building, and she ended up dating—it is a long, involved story. I ended up taking a course in aeronautics at Hampton High School. Hal ended up taking an art course, Don Talmadge did too, and he got Gloria to pose for him. He was doing a portrait. Then because of that time of togetherness, they started dating, and they were in our wedding later on. I came up in ’46, and Hal and I were married in January of

'48. In the meantime, we'll get back to what was being done at the office. You can just leave all this other out, if you'd like.

WRIGHT: No, it's great.

JOHNSON: My father was thrilled, because he heard we were working on breaking the sound barrier. I didn't work with the machine; I worked with a pencil and paper, that was it. Of course, I had all of these formulas right at my fingertips because I was fresh out of school, which now, I don't even know what the formulas are. Ken would give us these long equations that I was supposed to bring down to the smallest common denominator. It would come down to a little thing like this, where it might be pages of equations. Each time you would do a substitution, you would have to insert numbers, too. Then I would do a machine, that would not be anything complicated. I really loved working for Ken; he was good.

In the meantime, a lot of things were going on in the office that were sad things. It was when they gave out the loyalty pledges to sign, so this would be '46, still. I know that two of men and then one Black computer who was a buddy of them. They were burning these loyalty forms and dropping them in the wastepaper basket. I didn't have anything to do with it. The next thing I know, I'm being called over to East side, and it ended up it was a person—he and his wife ended up friends of ours—but he had been with the FBI [Federal Bureau of Investigation] and he was head of personnel at Langley. They wanted to know what was going on in the office about these loyalty pledges, because they had heard something about what was going on. I found out later that they had been following these two during the war, because they really had them pegged for Communists. It was during that time, too. I know when I went home one time, the

doorbell rang and it was two FBI men. It scared my mother to death; she went upstairs and wouldn't come down.

As it turned out, these two engineers were involved with the [David and Ruth] Greenglass spy case, and they were convicted. One I know was fired from NACA; one was transferred to California somewhere. All that was going on, and in the meantime, since they found out that I had been called over to personnel, they tried to get rid of me. Those two tried to get rid of me, but they couldn't do it. I stayed there, and Hal and I were married in January of '48.

We were married in the Presbyterian Church in Concord, North Carolina, in the worst snowstorm the south had ever had. Still, bless their hearts—it was a big church and three-quarters of it was filled. People in a small town go. His father was the only one that had chains in town; he had driven down from New Brunswick, New Jersey, because his father was comptroller-treasurer at Rutgers [University]. He was quite a person in New Jersey, so Hal had gone of course to Rutgers Prep [Preparatory School] and to Rutgers. He said he didn't have a choice. They gave him a good education, and he was a very smart, talented person.

We were married; we had not planned to have children for about two years. I guess it was about May or June of that year—we married in January—that I got pregnant. There were five of us that got pregnant at one time. We'd all go out walking together on Kecoughtan Road to get the exercise. It was so funny, the way it happened. My mother cried when she found out. I said, "What are you crying for? I came 13 months after y'all married."

She said, "Yes, but I wanted y'all to wait a little longer." I had a good marriage. Before we moved—then I had a little boy, and that was four years after.

Getting back to NACA, Ken Margolis kept telling me, he said, “Sue, you’re not leaving this place. If you have that baby on the property, you will have it on the property, but you’re not leaving until you finish this job.”

WRIGHT: They allowed you to work up until you had the baby?

JOHNSON: I worked up until three weeks before she was born. When it got to that point, we called the computers over with the machines. There was a big computers office; two of them, in fact, in 7 X 10 [Building]. They called special ones to come over with their machines, so I didn’t do the final thing. By that time I knew that it was true, because I had tested everything coming down.

WRIGHT: This was still working on the sound barrier?

JOHNSON: As far as I knew.

WRIGHT: Did you know a lot? Did they tell you a lot about what they were working on?

JOHNSON: No, they didn’t.

WRIGHT: They just gave you the equations?

JOHNSON: Yes. You knew it was something because we had deadlines. It was an interesting place to work, because you were in-between people leaving after the war, and they were trying to get people to come. We were part of that; they were trying to get people to come. I only stayed about six weeks in the Annewith Hall. We found a couple that was going back to school to get their doctorate, I think it was. We sublet their apartment, because you couldn't get one yourself. We had that, and that worked out well. Mary and John had their ups and downs, but they were going together. They were married about a year after we were. That kind of a gives a description of coming into the situation at the time that you were coming into.

At lunchtime, we had a really good cafeteria that we would all go to. Then there were other activities that were nice on the field, and there were just a lot of nice people that I ran into, that ended up friends for a long time. It was interesting how you would meet people out there. Like Charlie [Charles F.] Barnett, he was head of personnel, and later his wife and I ended up in a bridge club, and we were all friends. John and Mary were our special friends, and we've been friends all through the years. He was sent on a special assignment to Switzerland. It was a special award that he could go and get his doctorate. He did that in a year and a half, can you believe? Not speaking the language, but as he said, "Math is the language."

When they came back, they had skied some over there, and they are the ones that started. Hal was a skier already, and they said, "Come on, let's go skiing." We started in Stowe, Vermont. For five years I skied, before I broke my legs. It was quite a busy time for everybody, having children and trying to get settled and really adjusting to a whole new environment. I'm telling you, it was really hard coming up here, because I would've never taken the route to Richmond, to Portsmouth, to Norfolk on the train ferry, then down to Old Point Comfort, and

come across—and then come all the way back up. That was a hard thing, and how I managed it, I don't know, because I'd never been anywhere.

WRIGHT: I have a question about your dad, the fact that he wanted you to go to college. Was that something that was unusual at that time period?

JOHNSON: No, it was an accepted thing. You expected to go to college, the people that we ran with. You did that.

WRIGHT: You said your dad was brilliant in math. Was he a teacher as well?

JOHNSON: Yes, and he had gone to bookkeeping school. He could go down a whole line of numbers and give you the answer down at the bottom without—and what he would do, when he would help me with my math, he could skip steps. He'd say, "Now do you understand it?" At each step, I'd say, "Yes." Then when he finished, I wanted to take the paper. He said, "No, you said you understood it."

I said, "I want to fill in the gaps."

He said, "You said you understood it." He'd take the paper and tear it up. That made me do some work that I wouldn't have done otherwise. I was going to go and find out how he did the skipping, because I couldn't. I had a lot of education that way.

WRIGHT: Yes, a lot of problem solving in there, from him leaving you to those gaps. How long did you end up working at NACA? Did you go back after your daughter was born?

JOHNSON: Yes, let's see, Clara was born in '49, February of '49. We were in the apartment until our second child was a year and a half. At that time, Hal went with Fort Eustis Aviation, because they wanted him to be head of preliminary design with the Army Aviation. We left NACA then. We had to think.

One day we were out eating, and they said, "We heard you say something about NACA, what did that stand for?" It had been NASA so long, that we had to think about what is the abbreviation, being NACA. I can tell you this, Hampton [Virginia] and the area did not like the engineers. They were called "Nacas," ["Naca Nuts"] because when they came—this was a small community, and when Langley was started, it was a small community. They were used to doing things a certain way. The engineers, when they'd go to the hardware store to order something and they didn't have it, then that's what they wanted, they didn't settle for something else. This was a smart bunch of people that were coming into this peninsula.

It changed things, and they would say to us, "You're not like other Nacas." That was how you'd find out that they didn't like invasion of Langley, really. It was a part of their economy that has made Hampton. I didn't want to come; I had never heard of Hampton, Virginia, and did not want to leave North Carolina or my town of Concord, because I loved it. I knew I didn't want to be a teacher, and there wasn't anything else to do and I wasn't trained to be a secretary. I didn't want that, so that's how I ended up here.

WRIGHT: Can you talk about some of the tools? You mentioned a pencil and paper, and then is that about pretty much what you used? And your mind?

JOHNSON: Yes, it's just like you're working a math problem, because you'd have this long equation and you'd see something that would substitute for that whole bracket. Then each time, you would get it smaller. You had to bring it down to its lowest common denominator.

WRIGHT: Did it take you days to do this?

JOHNSON: Yes, it did. I enjoyed it, though. It was a challenge, and it was a lot of fun being at NACA, two 7 X 10 buildings. For a long time I could show the children the sidewalk where I first saw their father. They had a lot of nice people in that building, and the ones that ended up [famous] names too. It's nice that Mary and I, through the years—because he got involved with space. He did not work for space, but John felt that Moon orbit was the way to go and not Earth orbit, which was [Wernher] von Braun, which would take 10 years longer. He personally went to Congress, had a committee meeting. We sat outside one, didn't know what we were doing. We had packed to go skiing, but had stopped there. Then he had to convince a committee, and NASA did not like John. He got a lot of bad backlash because it was not their people. A lot of our friends went to Houston, but there again, they were space, and they were not NACA. John was still NACA.

When all of this culminated, John left NACA and went to Princeton [University, New Jersey] for about four years, because—Cole [Coleman] Donaldson, Cole Dupont Donaldson—had started an engineering firm up there. He wanted John as his vice-president, so they went there, which broke my heart. We visited back and forth, and he came back down here for retirement purposes, because you would retire at the salary you stopped on. That was really why they came back.

WRIGHT: That's kind of an interesting time. When you were describing it, I'm visualizing that room, because there was so much going on in the room. Was there a time that, when you were working those equations, did you need help? If so, who did you go to to get help, or this was entirely your responsibility?

JOHNSON: No, that was entirely yours. When the engineer that you worked for gave it to you, that was yours.

WRIGHT: That was a lot of work.

JOHNSON: You knew those equations. I felt sorry for one older woman that was in there, because she would ask me things. She was real nice, but she—I had forgotten about her—but she didn't have the equations at her fingertips the way, when you first come out of college, you were really fresh. I had a good college education too, plus I'd had three years of physics, even physics problems. Those physics problems did help me too, with that background.

WRIGHT: When you went to work there, did you have plans to stay for awhile, until you met Hal?

JOHNSON: I came because it was a job, and I didn't want to go to Dahlgren. I'd heard about that; a friend of mine went to Dahlgren. I guess there were about 15 or 20 math majors. There were only two others I was friends of; one went to Dahlgren and the other was Mary Houbolt. It was a

strange mixture of us. Some of them came up here too, and we were never friends, even up here. I could speak to them, but they weren't the same type. It was a really wonderful background to come in on, because they had prepared you for facing almost anything that could be thrown at you. Let's see, what are some more questions on here?

WRIGHT: Do you have some more, Sandra ?

SANDRA JOHNSON: It's interesting, because it was an interesting time when you started working there. As you said, it was after the war, but it was also a time when a lot of women, when they went into the workforce, if they got married, or if they had children, they weren't allowed to work anymore.

JOHNSON: That's what I wanted to tell you.

SANDRA JOHNSON: Okay, I'm glad I thought of it.

JOHNSON: I took a professional rating exam, and I'd been probably working a year and a half. You had to take it at certain times when it was offered. It took awhile to get the grade back. They called me over to personnel again. I had passed it, but they asked me to not take the appointment because it would take the place of a man. That was in 1948. It was '47 or '48. By that time, I was making more than I would've gotten if I had taken my professional rating. Hal and I were married by that time; we were either married or engaged, or I knew we were going to get married. I just really was very surprised at that happening, though.

The children said, “Don’t forget to tell them that!” Our granddaughter, who’s a lawyer, and she and her husband live in Salt Lake [City, Utah]. She’s with a Denver [Colorado] firm but they opened another firm over there. I told her that the other day, and she said, “I don’t believe that! What year was that?” That’s when they were doing that kind of thing.

WRIGHT: Yes, they needed jobs for men.

JOHNSON: It would take a job from a man, and a man was head of the household. Hal and I were married, by the way, for 64 years.

WRIGHT: That’s amazing.

JOHNSON: It was, because he was—in three more months it would’ve been 64 years when he died. In three more months, he would’ve been 90. The years passed, and we had good years. There’s some tough times you go through sometimes, but there again we had a good life. And this was a wonderful area to raise children in, because it was so safe, and it was so protected. They could ride their bike up to the country club. There was swimming, and the Riverside school was here and it was one of the best. Then after sixth grade we sent them to private school, because they told us there that we didn’t have a choice with our daughter. She was so smart; she really needed to go there. She was accepted immediately by Middlebury [College, Vermont], and then also by Virginia College too. She met her husband at Middlebury, so that was her destiny.

SANDRA JOHNSON: Did you work after you left NACA?

JOHNSON: No, no. I was so busy with trying to keep the house together while he was building around us. All these cabinets, everything—the beams, all. He did, and he was about 6'1", but he was wiry, and he was strong. He would lift things like that, but his mathematical sense was absolutely unbelievable. It got to be, in later years, that he would say to me, "You were a math major?" It was just funny, because when you get out, it doesn't take long for it to leave you.

SANDRA JOHNSON: You mentioned it's a language, and it's like learning a language, and you're away from it, you forget it.

JOHNSON: Yes, you do. Are there other things? Let's see, Pearl Harbor had happened when I was in high school. I remember that, so all this had happened. What are some of the things here? I'm sorry; I've been so jumping around.

WRIGHT: No, you gave great information.

JOHNSON: There are so many things intertwined with each other that it was hard to separate them out.

It was a good place to come to work, and my father was just thrilled.

WRIGHT: Did you get to see them much once you came up here? Did you get to go home?

JOHNSON: No, because you didn't travel as much. There again, I could—after Hal and I were married, he'd take us down and we'd maybe stay for a couple of weeks. Then they would come up here sometimes. You didn't travel and talk on the phone then like you do now.

WRIGHT: No, being so connected.

JOHNSON: During the war, I would have to ride the bus home from Greensboro. Had to go to Concord because of gas rationing. I was lucky to run into Hal, because that was a strange thing—I'd never had anything like that happen. It happened right away; I clicked with him too. But when I tell the story, he'd say, "See? I didn't have a chance?"

WRIGHT: You mathematically figured it out.

JOHNSON: Yes, I already had it all figured out, had him roped in.

WRIGHT: I was thinking when the sound barrier finally was broken; you must've felt some pride knowing you had something to do with that. Even way back when.

JOHNSON: I did. Of course, Gloria's husband was the top test pilot [Robert A. Champine]. We didn't like test pilots, and you know what? When the astronauts came and we had them here, we thought they were all crazy. I had astronauts in my living room and never got a signature or anything. We didn't have any idea that they were going to the Moon. The children say—

David's the young one, the youngest one—and he said, “You mean I sat on John Glenn's lap and you didn't get a picture?”

WRIGHT: A picture or anything?

JOHNSON: See, we were friends of the couple that were kind of in charge of them. They would have parties. Then all of a sudden, everybody was whisked off because of the President at that time, whisked off to Texas. Good friends left, and in fact some of our best friends ended up down there. It was David's godparents, and it's hard to keep up. And by that time, Hal was not with NACA so we didn't go to the parties and things. In fact, now when they have the reunions we didn't go.

WRIGHT: I was curious about your interest in sailing. Did your husband sail much or do much with Bob [Robert R.] Gilruth?

JOHNSON: Yes, in fact, in the summer time, his family would go to Bar Harbor [Maine] and spend the summer. They had rented a farmhouse up there, had a hundred-year lease on a farmhouse. He should've written a book, on the activities and escapades those children had. There were four children, and he was a twin. Then Mr. Johnson would take them up, and he'd stay for a week or two. Then he'd go back to New Brunswick, and then he'd come up at the end of the summer. They would go with the maid, and the cats, the trays, and everything, and just had the most wonderful time on Bar Harbor. I said, “What did your mother do while you were

all jumping off cliffs and into the water and all that?” I said, “Doing needlepoint?” They were a nice family. I was sorry I didn’t get to know her, because she was really a talented person.

During the war, and this is what I hear, they had a continual party going. When one shift would get off, they would go to the party. Then it would just keep going, so they had 24 hours around. I understand that was—one girl I knew—Anne Timberlake—she had danced on the table. Just things that you would hear after the fact. They really kept things going in a very active way.

WRIGHT: When you were there working—because you mentioned about the loyalty pledges and the communistic aura—do you feel like the work that you were doing was very secret? Could you talk about things when you left out of there, or did you have to keep your work quiet?

JOHNSON: To tell you the truth, I didn’t know enough about it that I would’ve been a danger. It was that I was doing the math part of it, and they understood why they are giving you all those equations and why you were getting them down. I didn’t have any idea when I got them down to the final thing, what it was. That’s why I took aeronautics, trying to learn something. No, it was not discussed, and Ken Margolis would have if there had been a reason. They’d come and give you the sheets.

But we were mathematicians, is what we were. We felt like we were a cut above those that did nothing but work the machines. That sounds kind of—but that’s what we felt. They didn’t understand that we just used pencil and paper, and that was all that I did. There was an adding machine there, that you could add things up, but not one of the computer machines. In fact, we were really before the computing machine came, the big ones came in. As they say

now, it took the place of it. It's really funny that when I'd see Barbara Weigel later, I'd say, "See, Barbara, you're responsible for all this." She's the one who started me by giving me the ride with John Houbolt and getting me over on the West side.

WRIGHT: That's right; the special assignment became very special, didn't it?

JOHNSON: Yes. I would run into her, she was quite a nice Christian, too. I would run into her at different meetings and things. Gloria was telling me that she was trying to find out where she was. I got the telephone book and tried to see too, and it said Charles Street. She said, "No, she's not there." Evidently she had fallen or something and was in a retirement home. I don't know where Barbara is, but she would be older than I, and I'll be 89 in June. Mary's a year younger than I am, because she started school a year early.

SANDRA JOHNSON: You had mentioned the parties—the 24-hour parties during the war. Once you got there, were there a lot of NACA-sponsored activities, or clubs, or anything like that?

JOHNSON: We would have things like at Halloween, or a dance. Somebody that Hal used to date, I know we went to a dance, and she threw her shoes up in the net in the activity building and wanted Hal to get her shoes. That didn't set well with me. I know we went to dances out there, and then I remember going to a Halloween party, because I remember being dressed up. There were a lot of nice people that were fun, that we enjoyed.

We had a sailing group that we enjoyed, a really great group. The ones that sailed Hampton One Designs and Norfolk, and Hampton. That was a great sailboat. In fact, the man

that had designed it lived here, Mr. Serio [phonetic]. It was a beautiful boat that Hal built, and that was really his love. We ended up with that, and when the children got older we got the Mobjack [sailboat], which you automatically took a crew of two, besides the skipper. That would enable him to take the children with him, and then you could take three. Then when we stopped racing, then got a 28 foot, just a cruising-type boat that we enjoyed.

I look back, and I don't know how in the world we did all that we did, because we were social too. He built all this, and we raised children. I look back, and I said, I don't know how it happened, but we did." I can remember the first Christmas that we moved up here. I was in the living room on a card table writing Christmas cards. He was in the dining room with a buzz saw and sawdust was going around. I was sitting in the living room crying, and writing the cards, and crying.

My mother had said to me, "Sue, don't you ever let Hal move you into an unfinished house."

I said, "Mom, I don't have any idea of Hal moving me." We didn't even have the lot at that time, when she died. We might've had the lot. I said, "I have no idea of moving into an unfinished house." There were those prophetic words.

But this was a good place to come, and a good neighborhood. When he started at Fort Eustis, there was one stop light. Now there about 25, I think. I've forgotten counting of how many there are between here and Fort Eustis.

WRIGHT: Yes, it's changed. Give us your thoughts when you first went out to Langley, because the wind tunnels were there. It had to be such a unique place, something you'd never even seen around.

JOHNSON: It really was, and they had the—in 7 X 10 they had the wind tunnel girls that would read the figures that come as a result of the airplanes, what was happening with them, and the models in the wind tunnels. When that thing started up, it's a roar. You really can hear it, but those wind tunnels are gone now, from what I understand they're tearing them down. It was an interesting time.

Then at lunchtime—and I know this was before and after we were married, too—the engineers would build these little racing—you know carve out of balsa—these little racing cars, and so they'd have contests in the hall. They'd have the cartridge that would shoot off. They'd have contests in the hall, shooting all of this, because it was one big long hall all the way up at lunchtime. I can remember being at our apartment, and they'd be over there carving. You'd want to go to bed, and they're carving models. They were always challenging something.

WRIGHT: Right, minds were always thinking, weren't they?

JOHNSON: At Club 55, there was Yale, Harvard, Princeton, Rutgers, University of Illinois, and I've forgotten the other one. One that I couldn't stand who was from Princeton, he was really rude to Mary and me. He didn't like us either, and he'd go to Hal like—he had a big walrus face, I don't know. He ended up head of McDonnell-Douglas [Corporation]. He liked Hal, and so when he'd go up to make a speech, then Charlie [Charles M.] Forsyth would come get a chair in the front row, right in the middle, and sit there. These guys were smart; they were placed all around in very important jobs.

WRIGHT: Brilliant minds, yes.

JOHNSON: They were two to a room, and then that would be six. Then there were six in the three bedrooms, and then John had the single room because he kind of ran the place. And they had a maid, cook, and laundress. Hal asked my father if he could marry me. I heard my daddy laughing, and he'd been chasing Daddy around all day. My mother said, "Look, you stay put. You know what that young man's trying to do." Then I hear my father just dying laughing. He was a good-looking man and he had a good sense of humor.

I said later, "What were you laughing so about?"

He said, "Well, I told him I don't know why he wanted to marry you. You didn't know how to cook, you didn't know how to sew, you didn't know how to do anything."

WRIGHT: He was going to go down in his standards. It sounds like he made a good decision.

JOHNSON: North met south, north married south. That was a smart group; that was a nice group. Just one house; in fact, they were the first house facing Cherokee Road and there was just one house between them and the water. That house faced Chesapeake Boulevard. It was a good location, too. I got my ring overlooking Hampton Roads. It was an exciting time, and it was a fun time. How in the world we worked it all in, I don't know. Mary Paulson—who you have her name—

WRIGHT: I believe so.

JOHNSON: She's over at Chesapeake. In fact, I gave it to Gloria. She was in the editorial office; she just turned 90, and I just saw her Sunday at church because her son and daughter-in-law went over and got her. She's very crippled, but she swims each day. Mary lived—all of us lived on Regents Street, it seemed. Then when we got married, we all lived on Elizabeth Road. We all had apartments over there, and it was just really funny how we stayed connected, even after we were married. I see her son, and he'll come over, and I go to St. Stephen's [Episcopal Church] and he'll come over during the passing the peace and give me a great big hug. John now is a grandfather, and I remember him when he was in the little stroller with the little bare feet, and they were cute children. It's just so funny to think back, of the years that have passed.

Everybody—and Eloise, you have her name. She was a secretary, and she came one or two years before I did. She's so nice, and she's good looking too. She had a roommate—she was as good-looking a brunette as she was a blonde. I have a picture of the three of us in our furs up here, at the bridge with the lions. One of the single guys had taken us driving one Sunday, and I have that picture. We are still friends. It's nice to have the ones that have stayed, that you really liked. Mary moved in—when we gave up our apartment, three months before, she had a chance to move in with four girls. There were four girls in our apartment. They had bunk beds and they were all cute girls, and good dressers and all too. How in the world they managed, I don't know, but they did. We all kept up with each other, and it was nice.

WRIGHT: It sounds like a great memory, and a great time.

JOHNSON: It was a busy time, but I'm sorry—I had it worked out more in my mind, but when you start telling it—

WRIGHT: No, I think it's there. Then when you get the transcript, if there are things that you think of, you can pencil it in and we can always add.

JOHNSON: I know one time I saw Ken Margolis out in the yard, so I stopped. I was so glad to see him. I said, "I want to tell you Ken," I said, "My daughter married a Jewish husband. He's a doctor," and I said, "I just love him. He is wonderful."

He said, "My son married a Gentile girl, and I can't stand her."

WRIGHT: It's funny how life all works out, doesn't it?

JOHNSON: Yes, it is, but that whole section of stability analysis was Jewish. They were smart guys. Leonard Sternfield was just the sweetest guy, and nice-looking guy. He had a child who ended up a very outstanding pianist, I understand. He would start shaving on Friday early, because he always left before sundown. He kept up with the time. He would have that already prepared and ready to leave, and that was something that you'd admire him for, because he was just a really genuinely nice person. These other two were just crude.

WRIGHT: It's amazing how many things you learn about people by just working with them, and being with them every day.

JOHNSON: They were smart, but there again, they weren't like Ken and Leonard.

WRIGHT: We can stop for now, and then if you'd like, as we go back through the transcript, or we visit a little bit more, if you think of something else then we can add that.

[End of interview]