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## Interview with Bob Holston

RCA Heritage Program

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**[START OF TRANSCRIPT]**

**[0:00:06] Bob Holston:** I started at RCA in March of 1958. I had spent the previous year testing large liquid propelled rocket engines out in the Santa Susana Mountains in California, and I moved back to New Jersey and started at RCA. March of '58 and I spent about 35 years there; all in Camden. Worked with the digital airborne, digital equipment design group and I was basically a mechanical engineer. Although I did go to graduate school at night and got two additional degrees, masters degrees; one in electrical engineering and one in aeronautical engineering. I retired in '94 and continued to do all the things I like to do. Remodeling around the house, building train displays and taking great trips with my wife...

**[0:01:05] Speaker 1:** Great...

**[0:01:06] Bob Holston:** ... to various places in the world.

**[0:01:07] Speaker 1:** What was the first project you worked on at RCA?

**[0:01:10] Bob Holston:** It was a digital communications system for the 100 series fighter planes. I would provide direction to a target from the ground controller and I did the mechanical design. Back then we used small little packets of circuits which would hold two transistors and now you can put thousands of those on a chip, of course...

**[0:01:43] Speaker 1:** Right.

**[0:01:43] Bob Holston:** And, I worked on that. I did some of the system work on that, developing the test messages for the equipment.

**[0:01:53] Speaker 1:** When you got your first assignment did they give you any sort of a mentor or anybody to oversee what you were doing?

**[0:02:01] Bob Horton:** Not really, being a mechanical engineer in a group of electrical engineers is a unique experience. You run into three different kinds of people. You run into electrical engineers that don't know anything about mechanical engineering. You run into some that know a lot about mechanical engineering and you run into some that think they know a lot about mechanical engineering. So once you get to learn to work with these folks, it all works out very well. We accomplished the purpose of the projects.

**[0:02:36] Speaker 1:** Were there any particular instances you remember about these engineers dealing with the new guy on the block?

- [0:02:43] Bob Horton:** Everybody was always very cooperative. Being at RCA was like a family. There was always somebody you could go to, ask them about something or “Hey, I heard so and so worked on something like that”, they’ll give him a call and that’s the way that information got passed around informally, for information that you might need to develop the product that you were working on. Everybody was very cooperative and friendly.
- [0:03:13] Speaker 1:** Ok. So, after that project, where did you go?
- [0:03:15] Bob Horton:** I went with the ATL people on classified projects for several years and that all turned out good. That’s all we can talk about on that.
- [0:03:33] Speaker 1:** That’s all you can say about it, right.
- [0:03:33] Bob Horton:** The most exciting part was the stuff we did for the space program. They got a little group together that developed the communications systems for the lunar rover. We had an electronics package, we had to provide for that, the antenna, the camera and we could do voice, data and video from the buggy back down to the earth. That worked out well, of course. Princeton built a camera for us and Moorestown did the final detail design on the antenna, although we came up with the concepts, and then in Camden we developed the basic mechanical package which contained all the electronics and the thermal control systems on that. But, it was really great to work on the project and then go home someday and turn on your television and say: “Hey, there’s something that I just designed or I designed that two months ago. Very rewarding experience and, plus, we could talk about it.
- [0:04:38] Speaker 1:** I imagine the environmental requirements were a lot more stringent than the other projects.
- [0:04:43] Bob Horton:** Well, standard space requirements, you know, you’re working in a vacuum, and NASA was very cautious about what they required us to be able to perform in. We used to design equipment to harsh environments and some of the things had to be extended and it worked well. We even took one of our test chambers down in the environmental test lab in Camden and filled the whole floor with some custom made sand that NASA had specified for us. And then, we could put our equipment in there and start pouring bits of the sand over the intricate mechanisms of the antenna and everything else to make sure that stuff could work on the dusty moon surface. They were very thorough in what they wanted and we certainly followed through on it.

**[0:05:45] Speaker 1:** Okay. When you were working in what I imagine, in a pretty close-knit team at that point.

**[0:05:48] Bob Horton:** Yes. We had our engineering leader was Mr. Jack Conley, and I had the mechanical engineer working with me. And then we had the guys from ATL help us with the thermal design, because they had some computer programs that could do some of that kind of analysis and it worked well. Of course, everybody got active participation. The program manager wanted all the engineers that were doing anything to stand up and present their story directly to the customer. So that really motivated people to do their job and to do it well; we appreciated that.

**[0:06:34] Speaker 1:** Did you ever have to go down to any of the places where they were doing this.

**[0:06:40] Bob Horton:** Yes, we went on a regular basis down to Houston for regular reviews, and did presentations, explained the status of the job, and so we had lots of viewgraphs. I had a good artist at RCA that did a lot of good illustrations of different movements and things like that by the astronauts to handle the equipment. That was Jim Burns. That turned out well because that helped communicate what the equipment was. And, of course, we had a mayor review down in Florida with the actual crew to make sure that they could handle everything, mount it, dismount it, operate doors and antennas and things like that. We worked directly with them. The two astronauts in that were Jim Irwin and David Scott. David Scott was the command pilot for the Apollo XV.

**[0:07:44] Speaker 1:** What was that like?

**[0:07:45] Bob Horton:** Well, NASA is very thorough. They had a very good quality control system. You'd take any piece of equipment into a facility or building, whether you were delivering it or not made no difference. It went in there, it got registered, it got put on a table and the quality people inspected it and gave you a report. Whether you were just bringing it down for in process show or not, it didn't make any difference. Anything that walked in that facility got inspected. I think that works out in the long run, because it benefited everybody and the success of the program.

**[0:08:26] Speaker1:** What was the perception of RCA by these external people?

**[0:08:32] Bob Horton:** Always got very good feelings from the NASA people. They had a lot of respect for our program manager. Sam Holt was the business area manager for that part of the business and he had a lot of

previous experience with NASA. It was a good, solid relationship. There was never any kind of conflicts or problems.

**[0:09:09] Speaker 1:**

Were you involved at all with the Apollo XIII issue?

**[0:09:12] Bob Horton:**

Yes, I can tell you an interesting story about that. Actually, not the equipment itself or the event, but it so happened that when Apollo XIII was in the accident mode and they were trying to return to the Earth, we were having a meeting with our NASA people with regard to what we were going to do on Apollo XV for the lunar rover. I remember our meeting was interrupted and the NASA engineer said come on down the hall and into the recording room and you can listen to Houston talking to the two astronauts that were on their way back to the Earth, right? And everybody's praying that they make it, which they did, of course. That was very exciting and it sends the chills up your back when you listen to these guys talking at this very sensitive time in the history of the flight. Of course, the other thing was, our boss was very demanding and we had to work late that night and we missed the big celebration party at the hotel for the safe landing of the astronauts. By the time we got back to the hotel, all this broken glasses and paper cups lying around, and it was very quiet. We missed the best party of the year, I think. But, we did our job.

**[0:10:45] Speaker 1:**

The reputation that we have uncovered so far is that the RCA people, they worked really hard and they also played pretty hard. Do you have anything to say about that?

**[0:10:58] Bob Horton:**

Not really. We were always busy working, because we had a very short schedule. In fact, I think that maybe initially NASA wasn't quite sure they'd be able to get that system together to be able to fly it on Apollo XV; maybe just later. Because they only had two more... three flights, XV, XVI and XVII left. But we got it done to their schedule and it worked fine. We were very proud of that fact and I was fortunate that my supervisor put me in for an award, The Engineer of the Month Award, I received that. So, I was very happy about that.

**[0:11:42] Speaker 1:**

So what were your co-workers like?

**[0:11:43] Bob Horton:**

Co-workers were fine, just ordinary, good-natured folks doing their job. One guy, the number one program manager said one time, "You know, engineers are too honest." Well, they are honest and that's what makes them good engineers and there were never any problems associated with that.

**[0:12:12] Speaker 1:**

How did you feel about your career, about whether RCA appreciated you; your progression?

**[0:12:23] Bob Horton:** Well, we had reviews and when I got into, later on, into the program where we were developing the satellite terminals, the ground stations for the army, I didn't like some of the mechanical things that they were doing, and I got to be a complainer, and my boss Bob Lawton, I think he was tired of hearing that and said, okay, you be the mechanical leader; because they really didn't have a mechanical leader. So I said, okay, I'll do that job. So, I appreciated that and I was supported by the management of what we were trying to do and accomplished things.

**[0:13:13] Speaker 1:** Okay. There has also been some reference to people's opinions that RCA actually changed South Jersey. Do you have any opinions on that?

**[0:13:31] Bob Horton:** Not really. I know when I initially started there in Camden, there were something like 6,000 employees, because they were still doing some commercial television manufacturing and the studio equipment development at that time in 10 and 13 building. It was about over 6,000 employees. That's a lot of people coming in and avail themselves to the service of the city as required, yes.

**[0:14:02] Speaker 1:** What about the neighborhood, where there other RCA people living...

**[0:14:07] Bob Horton:** Where I lived throughout South Jersey you could always find a couple of other RCA people in the neighborhood, absolutely. Definitely.

**[0:14:20] Speaker 1:** So, as far as the environment of the workplace, was it a drudge; was it something that you got up in the morning and looked forward to?

**[0:14:32] Bob Horton:** I always felt happy to go to work in the morning and I had a great carpool situation for about 15 years. I rode to work with John Pope and he and I both liked to get in early and we both left at a reasonable time after five o'clock. He enjoyed his work tremendously because he had to coordinate between manufacturing and engineering and get everybody to like him and to like each other. I got to go to work every morning with a diplomat and he would discuss his jobs and all that and he was filled with enthusiasm. A lot of that rubbed off on me. He had this big smile, when he got to the door and parked the car, he said, "let's go and get them Bob!" And that's what we did. It was a pleasure working with John.

**[0:15:35] Speaker 1:** You mentioned that that you got some other degrees. Was RCA influential on that?

**[0:15:46] Bob Horton:** I was just interested in broadening my capability and so I took advantage of the program. They paid for the tuition, you went at night and that was that. I had a better understanding of what the electrical people were doing as a result of some of the educational experiences.

**[0:16:12] Speaker 1:** Okay, good. So, what was the best about working for RCA?

**[0:16:16] Bob Horton:** The best thing of working for RCA was the fact that I met my beautiful wife of 54 years at RCA. I was a widower with two small children and it turned out that she was a good friend of a fellow that was one of my fraternity brothers when I was in college; unbeknownst to me. She was sitting there, in the next room and she's the greatest thing from RCA.

**[0:16:51] Speaker 1:** She was working there also?

**[0:16:52] Bob Horton:** Yes, she worked in visitor security; she worked with personnel, and things like that.

**[0:17:04] Speaker 1:** We hear a lot of reference about the RCA family. What does that mean to you?

**[0:17:11] Bob Horton:** Well, it's the way people work with each other. It's not a demographic per se, it's how they cooperate with each other, how they treat each other, how they share information with each other as required. You always felt that you could find somebody that it they had something similar, that would talk to you and if it got to be too big a deal they would ask to charge your shop order for that time. It was a very cooperative environment.

**[0:17:45] Speaker 1** If I had to ask you about the worst thing about working for RCA, what would that be?

**[0:17:52] Bob Horton:** I guess getting caught in the floods on Admiral Wilson Boulevard in the spring when the heavy rains came. You were always worried whether your engine exhaust is going to get under the water when you're trying to get out onto Admiral Wilson to get home. And the parking lot was there but it was kind of messy. But that's not the RCA itself, that's the neighborhood.

**[0:18:27] Speaker 1:** How would you sum up your career at RCA?

**[0:18:30] Bob Horton:** I felt fulfilled and I'll point out why, I was a great science fiction reader back in the 40's. My father was, too. And he encouraged me in scientific things and he also was interested in science fiction and he wrote a lot of science fiction. And I look back with the work I did on the moon project for the lunar rover; that was science fiction

back in the 40's. It's amazing I can look over at my career and say I went from science fiction to science reality. That gives you a very warm feeling, a sense of accomplishment.

**[0:19:15] Speaker 1**

Are there any other stories or anything you can recall about either your work or the people or incidents that happened?

**[0:19:22] Bob Horton:**

Well, there were always the standard jokes; the elevators were always breaking down because the buildings were old, they were built in 1921, the ten and thirteen building. And so, it was always a good conversation piece. Like, if you'd get in the elevator in the morning and everybody would smile and say, well, I wonder if we're going to get up there today. But we had a good crew of elevator repairmen, which kept those things going. That sort of thing was prominent.

**[END OF TRANSCRIPT]**