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Interviewer: All right, this is *Florencia Pierri* interviewing *John Bowker* for the Sarnoff Collection. And it is Friday, November 6th [2020]. I am in my home in Princeton, New Jersey, and John is in his home in Florida. We're doing this interview via Zoom. So, can we get started by talking about how your interest in engineering started?

Interviewee: Sure. It started when I was 12 years old. It turns out that my eighth-grade elementary school [year] I spent pretty much in bed the whole time.

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A doctor had come in and he said, "John, I don't like the sound of your heart," and so, it scared my mother and my father, of course. And by the way, as you and I speak, I have just entered my 90th year, so the doctor.. [Laughs] Anyway – so everything worked out fine. But I had to stay at home. And my father, bless his heart, decided there was nothing Johnny could, me, that I could do, except maybe listen to the radio. So, I listened to the radio day and night, and my father would come home and he'd say, "So, John, what's new today?" and I'd say, "Oh, I'll tell you. Tonight, I heard Cincinnati on the radio," and he'd say, "Oh – " See, I was growing up in Vermont.

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And he said, "Really? What station?" and I said, "I don't know." So, it started there, and by the end of the first year, I had logged, as we say, over 1,000 AM broadcast stations, from my bedroom in Vermont, which began a hobby, and, by the way, a whole other club, called the National Radio Club. And that went on up until, oh, about five, six years ago, when other things changed and we had to give that up, too. Anyway, so, that was when my engineering started, for this reason: Middlebury, my hometown, did not have a radio station, so, I decided, "We gotta fix that," so I built one out of my own bare hands.¹ And we put it on the air, and

¹ Ed. note: This was WMCRS, whose first broadcast was May 1, 1949. Bowker added more information about the inaugural broadcast on WMCRS's website: "I will be thinking about you all next Wednesday at 1:00 PM. That will be the 70th anniversary of broadcasting in Middlebury. [...] There is a detail that might amuse you. All the transmitting gear was in our chicken house and nearly all the broadcasts originated from there, but the Inaugural Broadcast that afternoon originated in the large room of what is now "Bowker House", upstairs over what was then the garage at the north end of the building. Among the voices we put on the air that May 1st was the Dean of Women. She asked me what the room was normally used for and I truthfully told her it was my bedroom. She went ahead with the broadcast but made it clear there were to be

by the way, to this day, that station is still on the air, which is remarkable.

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It's hosted by the college. But then, I was living in our private home, which is on college property in Middlebury, and so, everything I did reverted, when I left there, years later, it reverted to the college.² And they've kept it going. So, anyway, that was the beginning of my engineering, then I went into college –

Interviewer:

And I was wondering, before we move to that if we could talk about an article that I found in *RCA Engineer*. It was about your – I think it was when you were 12 years old, and you were on vacation in Vermont, and you actually built an early radio station, and had a bit of a clash – sorry, no, this was before – you built an early radio station, and then brought it back to Middlebury, before your college years, and got into trouble with the FCC inspectors.

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I was wondering if you remember that. I found it in an article in *RCA Engineer* from 1986.³

Interviewee:

The article I remember very well, I remember the incidence, one of many, because later on, I got working with the FCC, and going after people like me. So, that made a little difference in my life. But, no, but that radio station was built in Middlebury, and as I say, and it's still there – it's been moved to another building, now, of course, but – so, anyway, that's the way it came out, yeah. Now, when I was, I was gonna say, that continued through my high school years, needless to say.

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And then, when it came time to go to college, I thought, "Well, I will major in physics, and I'll take the electrical engineering part of that." I got to be real good friends with the head of the physics department at the college [Middlebury]. And that continued until I decided I would go to graduate school, and they said, "What field

no more co-eds allowed in that room! We moved everything on-campus part way through the next school year," Retrieved December 18, 2020 from <https://wrnc.middlebury.edu/1949/05/01/2672/>.

² Ed. note: Bowker's father, John Gerald Bowker (1902-1992) was a Professor of Mathematics at Middlebury College from 1926 to 1967. He served as Dean of the Faculty from 1953 to 1967.

³ Ed. note: John Bowker, Philip Stein, and Daniel Stein, "Radio Broadcasting as a Hobby," *RCA Engineer*, Fall 1986 (Vol 31, No. 5): 77-83.

are you interested in?" and I said, "Well, what I'm really interested in is broadcast engineering." "Oh," they said, "Well, then, there's only two schools in the country you can go to. One's in New York, and the other is in California." So, I slept on that about two minutes and said, "I'll go to New York." And indeed, in New York City, I was at a school there to get my master's degree, but I never got my master's degree, because my studies were interrupted. Now, the school I went to was called RCA Institutes.⁴

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And at the time, RCA Institutes was offering a graduate degree, several graduate degrees, exactly along the lines I wanted to be in. But – you tell me when you want me to change from this...

Interviewer: No, this is all great, so please keep going.

Interviewee: I think I may have mentioned to you, in an earlier correspondence before today's video,⁵ that partway through my graduate studies [ed. note: 1953], a man walked into our classroom on West Fourth Street in New York City – that's where the Institutes was located in New York. And the professor looked and he said, "Sir, excuse me, there's a class going on," and he said, "Oh, I'm sorry, I was just looking for John Bowker." Well, that meant several things. One, he pronounced my name correctly – as, by the way, you did, too, thank you for that.

⁴ Ed. note: The precursor to RCA Institute was established in 1906 by the United Wireless Telegraph Company. This school, later renamed the Marconi Institute, was acquired by RCA in 1919, who changed its name to RCA Institute in 1929. RCA sold the school to the faculty in 1974, and the Institute's name changed one again to the Technical Career Institutes College. TCI closed its doors in 2017.

⁵ Ed. note: From the email correspondence between John Bowker and Florencia Pierri, October 23, 2020: "When I was half way through my graduate studies in June 1953 at the RCA Institutes in New York City, a man walked into the lecture room and asked for me by name. The professor quickly looked at me and just as quickly looked away, scolding the visitor for interrupting a class. The stranger apologetically left the room and, a minute or two later, I went out into the hallway to introduce myself once I saw he was alone.

He was there to offer me a job at the David Sarnoff Research Center "down in Princeton" based on some of the things I had been writing while in high school and college (details if needed, but they look pretty amateurish today). The only condition was that I had to start work with them on September 1, 1953. Turns out that RCA was about to make a big splash by having color added to regular programs on Channel 4 in New York City, but they needed some development work to get it started.

I never went back into the classroom that day. (Funny, I ran into my professor a decade later when he visited the DSRC and heard one of my presentations. "GOD," he said, "I thought they'd arrested you!")

I was hired to help Ray Kell and Donald Bond develop a new kinescope for home use to reproduce color tv ... it never made it to market but I had some wonderful years with the folks at the Center, and retired from RCA on March 31, 1986 a few days after Jack Welsh, President of General Electric came into the conference room and offered 240 of us a full retirement if we would put our resignation on his desk by that Friday. I was sitting next to my supervisor and quietly asked if I could ask his secretary to type a short letter for me; he didn't move but said, "wait until 3 o'clock because she won't be my secretary any more."

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And the professor said, "Well, sir, I'm sorry, there's a class going. I have to ask you to leave." The professor, as soon as the fellow said John Bowker, he looked at me, and I'm shrinking down in my chair thinking, "What have I done? What have I done? Why would he want me?" But anyway, the fellow left without saying anymore, and I thought, "You know, that's very strange, and I haven't done anything, and he doesn't know who I am." So I walked out of the classroom and walked sort of past him a little bit, just wondering what was going on. And I did stop and say, "Can I help you, sir? I never saw you, before." And he said, "No, I'm afraid not. I was here looking for an individual," and I said, "Oh, really? Who are you looking for?" "John Bowker." I said, "I see. I can help you find him perhaps."

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"Well," he said, "I hope so, because I'm here to offer him a job." "Oh," I said, "Well, I have news: I'm John Bowker." *[Laughter]* And he did, he offered me a job right there, exactly what I wanted, in broadcast engineering. He told me a few more of the details, which hadn't ever occurred to me, but he said, "Yes, I'm with the RCA Laboratories, which are down in Princeton, New Jersey, he said. And when you go down there, we're going to be starting studies to support color television, which everybody knows about, but our channel in New York City wants to go with all the leading programs that it originates in full color.⁶ And they aren't prepared to do that, so we're gonna hire 32 people at the RCA Laboratories, which is called the David Sarnoff Research Center, now – it was then, too, by the way.

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"And if you would like to join us to study how color television might be brought to the public, we'd love to have you join us. One little condition: you have to join us on September 1st." That was 1953. I said, "I could do that. That's three months, for heaven's sakes, please!" It did make a few problems. One, by the way, I never went back into the classroom, and –

⁶ Ed. note: This was what RCA/NBC called the "Introductory Year," a series of programming beginning with the January 1, 1954 broadcast of the Tournament of Roses in Pasadena, CA. Also, all of the network's major programs would be broadcast in color at least once during this introductory year, alongside a number of special live events that would be covered in color.

Interviewer: So you never got your degree, in the end?

Interviewee: Never got my degree, no, I'm still a bachelor's student. Anyway, but it didn't seem to matter to much, 'cause the stuff I've done was beyond what they were teaching at that moment, by the way. So, I called my girlfriend in Vermont, and I said, "Girlfriend, we were gonna get married next March – how would you like to get married this August?"

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"And we're gonna move to New Jersey." [Laughter] I forget what she said, but it was something like, "What?" So, we agreed, and we were married in August, in Vermont, and immediately left Vermont and moved to New Jersey, where I started my job on September first.

Interviewer: And you said, in our e-mail, that you had written some work that this person from RCA had possibly seen. Could you elaborate a bit on that?

Interviewee: Well, yeah, sure. When I was in high school, I wanted to make sure I got into the right curriculum in college, so I wrote some very learned papers well beyond what I really knew or anything, about that.

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But they all had one thing in common, which didn't occur to me would be very important to the college people, and that was, not only did I say what interested me, but I said why it interested me, and how it might be used in the future. So, that was – oh, and they all had to do with building the broadcast station in Middlebury. How I went to do that, how I got to do it without getting FCC approval, I'll let that just drift away a little bit. But it turns out that, even today, you can put a broadcast station on the air without any FCC license, provided it doesn't exceed certain power limits. And, really, radiation limits, not power limits, radiation limits. So, if I'm not gonna cause any interference to an existing station that is licensed by the FCC, then the FCC says, "Well –

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– "unless they," whoever "they" is, "complain loudly, we don't complain." And nobody complained. In fact, two of the other licensed broadcast stations in Vermont came down and wanted to

set up a microphone so they could carry our programs. See, the programs on my station carried almost four miles – that's not very far. But it did cover the college campus, and it covered, uh, most of the town. So it covered everything I cared about and... Yeah, so, that was the kind of things I had written about and, I guess I could say, accomplished. And that's what the people at RCA had noticed. I don't quite know how they got the word, because there weren't any RCA radio stations in Vermont or anything like that. Anyway, that answers the question as best I can.

Interviewer: Thank you.

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Do you remember the name of the RCA person who recruited you?

Interviewee: Darn you – yeah, I think it was a fellow named Carpenter, Marshall Carpenter, but I can't track that down anywhere.⁷ He certainly influenced me very much, but, yeah, he was the fellow, I'm pretty sure. Yeah, good, thank you for asking. And so, he brought me down, and on September 1st, I walked in, big as life, to the RCA Laboratories, in – and by the way, is that a familiar term, these days? For instance, do you know where the David Sarnoff Research Center was located?

Interviewer: Yes, I've actually toured it, now under SRI's ownership.

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Interviewee: [Laughs] Okay. Yeah, fine, well, I haven't been there, and I'll get to why I left, but I haven't been there since 1986 – 1986, that's a long time ago now. But if you want, I'll just continue, and you interrupt me when you get bored.

Interviewer: I am not bored. This is all fascinating. But I'll chime in with questions, as I have them.

Interviewee: Excellent. Thank you. When I was hired, the question was do I have a specialty, "Yes, broadcast engineering," "Well, we don't kind of do that, here. But we're gonna be getting into color television, and we're putting you on what is called the research

⁷ Ed. note: Likely Marshall M. Carpenter, Jr., who in March of 1931 was working in the Research Services division at the David Sarnoff Research Laboratory. In the 1970s, he transferred to RCA Institutes, where he was the Director of Professional Education Services.

training program, the RTP."⁸ And I went on the RTP and reported to a fellow named Donald Bond, Donald S. Bond, a wonderful guy.⁹

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And by the way, any other people I met there, I didn't meet anybody for whom I'd come away with a negative reaction, at all. And Donald Bond had me for I think three months, and he was teaching me how to build power supplies, and that's the thing that you plug into the wall, and over here is a little connector that comes out with, what 12 volts or something else like that, DC. And the question is, how do you build those so they last forever. That was my project with him – it was very fun. At the end of three months, the RTP program moved me to another fellow named Gene Keizer, E.O. Keizer, and I spent many years working with Gene Keizer.¹⁰ He was involved in television, and I thought, "Gee, I don't know much about it." We didn't have television in my home in Vermont, where we could watch TV or anything.

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Finally, a station did come on the air, way across Lake Champlain in Plattsburgh, New York, but by then, I was long gone.¹¹ So, I hadn't grown up with TV, except when I was in New York in graduate school, I had TV there, and probably spent way too much time on the TV compared with going to school. But that was something else – I'm not alone in that, I guess.

Interviewer: No, you're not.

Interviewee: Anyway, things worked out very well with my work with Gene Keizer, and they made me a member of the technical staff. Now, that's about the top thing you can get. Not quite, you can get officers and stuff like that, but that was fine. And a fellow named Al Barco had just come into the Laboratories, as one of the directors, and he took me under his wing.¹² He was not a very

⁸ Ed. note: The Research Training Program began in the late 1940s by Elmer Engstrom. Alongside providing research training, the RTP initiated recruitment for the David Sarnoff Research Center at local universities.

⁹ Ed. note: Donald S. Bond (d. 2001) was a research scientist at RCA.

¹⁰ Ed. note: Eugene O. Keizer (1918-2002) was recruited to join RCA in 1940 while he was an undergraduate in electrical engineering at Iowa State. While at RCA, he worked on radar systems, color television displays, and the RCA videodisc project.

¹¹ Ed. note: This was WIWI, and first began broadcasting in December, 1954.

¹² Ed. note: Allen A. Barco worked in the industry service laboratory at the DSRC before being appointed as the director of the Research Systems Laboratory in 1957.

agreeable person, but a man of all heart, terrific. And I won't go on about his personal characteristics, which I adored—

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Anyway, we got along real fine. He put me to work on a project which became known as the line-screen kinescope – those are words you've never heard, before.¹³ But the kinescope is the...

Interviewee:

Okay. Anyway, the kinescope, just so we're clear, is the picture tube – used to be the picture tube – had a long neck at the back with a vacuum inside and – wonderful. Anyway, there was the line-screen kinescope, and on the screen, the glass faceplate that you looked at when you put this in a TV set, were vertical lines of color: red, green, blue, red, green, blue, red, green, blue – 300 to 400 of them across the screen. And the idea was for the electron beam of this kinescope, which is gonna scan the whole picture, the scanning would go red, green, blue, red, green, blue.

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And I would turn this, if it was your lips, I would turn the scanner on only on the red lips, okay? And, now, why did we do that? Didn't we have a thing called the shadow mask TV set? Oh, yes, we did, the shadow mask, but, of course, half of the energy in a TV set goes behind the screen, and so it's wasted. On the line-screen kinescope, all of the energy comes out to the front, on a white screen, and all of it comes out, because the red-green-blue all make white when you put 'em all together. So, I had very bright pictures compared to the shadow mask, and that worked very well. But that led to a whole change in my career, because people would come into the Labs, RCA Laboratories, would come into the Labs, and say, "What's this we hear about a bright TV picture tube?"

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"Oh, yeah, go down west wing, on the first floor, it's Room 109," or whatever it was, "and there's a TV studio down there. You can go down and look at it." And they'd come down there and look at the sets. So, I'd only been there about six months working on that

¹³ Ed. note: The line-screen kinescope uses a luminescent screen with narrow parallel lines of phosphorescent material that emit the three primary colors. It was patented in 1933, and in the early 1950s, RCA researchers hoped to use this as the basis of an all-electronic color television system. See D.S. Bond, F.H. Nicoll, and D.G. Moore, "Development of a Line-Screen Color Kinescope," *RCA Review*, September 1951: 542-567.

project, and it was going along fine, but – I lost my own train of thought, I'm sorry about that

Interviewer: Oh, that's fine – you were working six months on the line-screen kinescope.

Interviewee: Exactly. Thank you. And people would come in and wanna see this bright picture, and we had people come in from all over, all over the world, to see this set. So, I got to be in charge of demonstrating my own TV set; I'd come in and say things. And that went pretty well.

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A fellow named George Brown, G.H. Brown, who I don't know if that's familiar name to you, but I have a book of him right here, he wrote – he was pretty much in charge of the Labs, other than [Vladimir] Zworykin and Jim Hillier and people like that.¹⁴ But George Brown was in charge of our section of the Laboratories, and he came to me one day and he said, "John, what you seem to enjoy the most is talking to people," and I said, "It certainly is, I have to agree." He said, "Well, how would you like to become the visitor host for the RCA Laboratories, and get rid of all this vertical line-screen stuff?" And I said, "Well, that's not what I trained myself to do, but if you – why don't we try it?" He said, "Exactly. I'm glad to hear you say that." And we tried it for about 12 years [laughter], it turns out, but – so, it pretty well lasted.

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Partway through that, the head of the personnel department said, "Look, we could use you to help recruit technical personnel, since you seem to know everything going on in the Laboratories, now." Oh, there was a day – and I wish I remembered the name of the – but if you've been over there at the Laboratories, on the east-north wing of the Laboratories – so that may not mean much to you – at the end of it is the library.

¹⁴ Ed. Note: George Harold Brown (1908-1987) was an electrical engineer for RCA. He received his BS and Ph.D. in electrical engineering from the University of Wisconsin and joined the RCA Camden manufacturing plant in 1931. In 1942, he was transferred to the new RCA Laboratories in Princeton. He was appointed Director of the Systems Research Laboratory in 1952, RCA's vice president of engineering in 1959, and executive vice president for research in 1961. He retired from RCA in 1972. Vladimir Zworykin (1888-1982) joined RCA's Camden laboratories in 1930 to head the fledgling television department. He rose in RCA's ranks, and was appointed as an associate director of RCA Labs in 1947. Upon his retirement in 1954, he was named honorary vice president of RCA. James Hillier (1915-2007) joined RCA in 1941 to work on electron microscopy and was appointed the vice president of RCA Labs in 1958. He retired from RCA in 1977.

Interviewer: Right, okay.

Interviewee: Okay. To the outside of that, a new room was added, which became a display place for all the stuff that the Labs was doing. And I don't remember the name of that room, I have to admit.¹⁵ But partway through learning my way around so I could help visitors see everything going on in the Laboratories, I happened to stop in one of the small rooms off this big room.

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And I went up, and I remember going up three or four steps, and there was a door there, and I opened the door, and I froze.

Interviewer: Was it David Sarnoff?

Interviewee: It was David Sarnoff, sitting there looking at me. And I said, "[Stammers] Excuse me, sir," I mean, what am I going to do? [Laughter] He said, "Come in, come in." So I had a five-minute interview with David Sarnoff himself.

Interviewer: Do you remember about what year this was?

Interviewee: About... yeah, about 1965, 1967, 1968, somewhere in that region – had to be before 1971 – the last thing I ever did with David Sarnoff was to read his obituary on the ABC Radio Network. NBC was down with their television network; I had nothing to do with that, at that point.

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And ABC came in and said, "You know, could – " ABC, by the way, came from NBC – that may not be a well-known fact, but there it is. So, I read his obituary on ABC Radio, and I got notices from all my friends all around the country saying, "Was that you?" Okay, so – oh, one of the other things – I lose my family's interest – on the vertical line-screen kinescope, there was a question, like, "How accurate are the colors that you're making?" Because I could make something go from purple to yellow very simply, just with knobs. So I said, "Okay, no, I have it set so I think it's right." "Well, I'm not so sure. See that over there, that bottle of grey bay, that doesn't look – " "Okay," I say, "fine, tell you what – " I

¹⁵ Ed. Note: This was likely the David Sarnoff Library, which contained material relating to the history of RCA and David Sarnoff's role in the company. The material from that collection was transferred to The College of New Jersey, and formed the basis for The Sarnoff Collection at The College of New Jersey.

brought my five-year-old daughter, and I said, "Wendy, I want you to just tell me what's on the screen."

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And she said, "Well, that's the sky," and I said, "Okay, what color is the sky?" "It's blue." "Thank you. What else do you see?" and she went right down and listed – we wanted her to say six different colors, not the word "magenta," but "purple" would've been close enough. And darned if she didn't come through beautifully and named all the colors just the way she should, without any hint. *[laughs]* It worked very well. So we always thank Wendy for that. Let's see, I became a technical recruiter – I'm just looking at some notes I made before our talk, here – oh the technical recruiting stuff – yeah, go ahead.

Interviewer:

Actually, before you go to that, could we go back to the line-screen kinescope? Was the issue about the bright color, was that because of the shadow mask's somewhat poor color, especially in the early years?

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Is that why RCA was interested in that?

Interviewee:

I never heard anybody say that the shadow mask had poor color. It was dim, so if you let me change your word to dim, so it doesn't sound like the colors were wrong or something. So, anyway, they were dim, and if you were sitting in your living room and the sun was coming in, you couldn't see the color picture. Black-and-white, of course, was fine, and so, we wanted to have a bright color picture. So, that was the real reason that they were spending a lot of money not only on my project but on other displays that didn't lose half the energy because of this shadow mask that was blocking everything. So, anyway, that was that.

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Does that answer kind of what you were asking?

Interviewer:

Yes, yeah, sorry, I didn't mean to say "poor," you're right, it was dim color. And also, while I was researching your time at RCA, I came across a project that – it seemed to me that it would connect a kinescope to a teletype, so you could reproduce whatever it was on your TV as a printed thing? Did I get that more or less right?

Interviewee: Yes. I had nothing to do with that, but my good buddy, Eugene O. Keizer, Gene Keizer, was in charge of that project. And I've lost touch with Gene, I don't know if he's still with us or not, but anyway, that would be the place I would turn for that.

Interviewer: Okay, thank you.

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Interviewee: Some of his notes might be available, even if he isn't, so, that would be a good thing to do.

Interviewer: Okay, thank you.

Interviewee: Now, let's see, somewhere in here – oh, I know, when I was recruiting technical personnel, I decided the best way to do that was to go to these colleges and universities all over the country, and meet with the placement directors and the students and the heads of departments. And for three or four years, I went all over the United States going to colleges; I got as far as San Diego – and keep in mind, everything is based in Princeton, New Jersey, okay? So, but I got real good friends with the people at Ohio State University, and Michigan, and Illinois – a lot of them I just went to and would revisit occasionally. And we did very well. We recruited some wonderful people. Not because of me, but I helped.

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So, people would say, "Well, are you with the Bell Labs?" and I'd say, "No. No, I wouldn't be at the Bell Labs. Are they still in business?" [Laughter] No, but, you know, Bell Labs wasn't doing work in color television or any of the other things. They were a major competitor in anything to do with solid state, and we were getting more and more into solid state devices, so, it became tough. But we had people, and we said, "Now, you understand, we're in Princeton, New Jersey – you know where that is?" "Oh, it's just an hour's drive from the shore, and all that sort of thing." "Oh – " makes it sound real nice – we did everything we could. Incidentally, about three weeks ago, as we sit here talking, a fellow came to me and said, "What'd you do?" we had lunch or dinner together, "What'd you do?" and I said, "Ah, I did a lot of things."

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I said, "Who were you with?" he said, "I was with the Bell Telephone Laboratories," and I said, "Oh, you and I are gonna

have to spend a lot of time together, because I no longer care, but – " And he said, "Oh, you were with the RCA Labs – they were a major thorn in our side." I said, "Good, I'm glad to hear that." [Laughter] Okay, so – oh, somewhere along the line, I ran into a fellow named Howard Rosenthal, Howie Rosenthal,¹⁶ and – he said, "John, you have an interest in all the frequencies that we use, don't you?" and I said, "Yes." He said, "I understand you're writing a book – " and by the way, you know, for what it's worth, yes, I wrote a book, it's called *Frequency Allocations*, and it was published by RCA, in 1984 or 1985 or 1986, somewhere right in there.¹⁷

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Anyway, it lists all the possible radio frequencies in the world, how they're assigned, and everything in my book—the first half of the book is all US allocations. And then, the last half is called "International Footnotes." And half of the problem with the book was, "What are you gonna name those last pages?" "Well, how about 'Errata'?" I said, "No, no, no, there's nothing wrong with the first part of the book." [Laughs] They said, "Well, but the international notes all read differently," I said, "Well, okay, we'll call it 'International Footnotes.'" So, that was that. But he said, "I'll tell you what, we wanna set up an organization – " actually, it was already set up, but the leader was not well. And so, they were slowly moving the leader out, and they needed somebody to come in.

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It was called the RCA Frequency Bureau. And we were responsible for nay radio transmission by any part of RCA. Which included NBC, by the way, which made it very interesting from that standpoint. And so, I became director of the RCA Frequency Bureau, and that was in 1978-79, right in that area. And I had an office in New York and an office in Washington, and my lovely wife – now, she had a much more interesting career than I did. Sometime, you'll have to talk with her [laughs], 'cause she...

Interviewer: Oh, yeah, I saw that she was a systems analyst, right, for RCA Astro?

Interviewee: That's right, she was a specialist in flight software.

¹⁶ Ed. note: Howard W. Rosenthal (b. 1924) was Staff Vice President, Engineering, RCA Laboratories. He retired in January 1985.

¹⁷ Ed. note: *Frequency Allocations: 9kHz - 300GHz* (RCA Frequency Bureau, 1984).

[0:32:00]

Anyway, sometime, you can talk with her. She's not here, today; she's getting a computer of mine fixed. Anyway, once again, I don't wanna lose my place.

Interviewer: Sorry about that. You were just talking about the – you were appointed the manager of the RCA Frequency Bureau.

Interviewee: Director – please. I was a manager before that *[laughs]*.

Interviewer: Director – my apologies.

Interviewee: Well, I accept them, with regret. Okay, good. And I was there and I would go back and forth, and my wife would drive me over to the railroad station in Princeton Junction, which is where the labs is really located. And she'd say, "Which way are you going, today?" because you had to go through an underpass and up over the other side of the tracks, if I was going to Washington. And two days a week, I went to Washington, three days, to New York.

[0:33:00]

And again, the two days I was in Washington, I spent almost all my time at the Federal Communications Commission, although we had an office, there, and I had a manager working, there, for me. And that was fascinating years, of getting things straightened out that really never should've gotten confused in the first place, but they were. Anyway, and then, in New York, we were on 60th – *[sighs]* we were downtown in New York, and – the story kind of ends, one day, Howie Rosenthal, my boss, wonderful guy, he said, "John, I'm gonna be retiring in about another two weeks," and I thought he was gonna say, "I want you to take my job." No such luck. He said, "But there's a fellow I want you to—who'll be giving you directions, Kerns Powers, by name."¹⁸ And I said, "Oh, I know Kerns. He's a great guy. Oh, yeah, no, no, great guy." And Howie left.

[0:34:00]

Within a short period of time, my phone rang, "Yeah?" It was Kerns Powers, "Oh, hi, Kerns, yeah." "John, I want you down here in my office, on Tuesday, March 25th." That was 1986. I said, "Oh, I'll be there, anything you say, sure, I'll be there. Any time, in particular?" "Yeah," he said, "I'm gonna have a meeting at 10:00 in

¹⁸ Ed. note: Kerns Harrington Powers (1925-2010) joined RCA in 1951 and retired in 1986.

the morning," he said, "In fact, it won't be in my office, it'll be down in the auditorium." I said, "Okay, I'll be in the auditorium, 10:00, March 25th. Thanks very much, Kerns." So I went down and I sat next to him, and we had a guest speaker, Jack Welsh – don't know if that name rings a bell.¹⁹

Interviewer: It does, yes.

Interviewee: Jack Welsh, he came in and taught, a lot of us, me included, a lot of wonderful things, about how to handle yourselves.

[0:35:00]

He came into the auditorium all by himself, and he looked around, and looked around the room, and looked to the left, and looked down to the right, and looked to the back, waved a little bit to a couple of people, and he said, "You know, I know everybody in the room, all 248 of you, and not one of you knows me, I think I can say that. But I'm here to tell you that my company has just bought your company, and I know that word leaked out, but that's – I'm confirming it." He was head of General Electric, and he said, "Just to let you know that that doesn't mean anything as far as your work here is concerned. If you wanna stay at RCA Labs, and we're gonna rename it, I guess, but anyway, you can stay here, if you want. And just how the work projects will change, I can't tell you for sure.

[0:36:00]

"But we aren't coming in to say, 'Okay, you're all fired. You're not – ' none of that. However, you may not be comfortable with that, and I can understand it, and if you – today is Tuesday – if you will put a resignation letter on my desk upstairs, by Friday, you will be retired from RCA." You could hear *[mumbles]*, "I know, I know... Remember, I'm in charge of GE. I now own everything. And you are all old enough to retire, I don't care what your birth certificate says. I know every one of you, you're all old enough to retire on GE's terms. So, if that interests you, of course, that'll be the end of your employment, here, too, if you do that on Friday.

[0:37:00]

"Oh, and one other thing – " oh, what he did, he kept looking off to the wings of the auditorium, he said, "Oh, yeah, yeah, right." And

¹⁹ Ed. note: John Francis Welsh (1935-2020) was the chairman and CEO of General Electric from 1981-2001.

at the end I said, "I wonder who's in the wings – " Nobody. That was the way he went from one subject to another, he just made believe there was somebody coaching him from off to the side. I've used that many times since then, myself. He said, "Oh, we're gonna give you a year's pay, and if any of you used up vacation time this year, forget it, 'cause our records are totally incomplete. So, that's all I have to say. You know, I'd say are there any questions, but I'm gonna be up in Dr. Webster, Bill Webster's office, and I'm expecting some of you may wanna retire, and, therefore, that's fine.²⁰ All you have to do is resign." And at that point, I turned to Kerns Powers, beside me, I said, "Hey, Kerns, Kerns, can I use your typewriter?"

[0:38:00]

See, my office is in New York and Washington – I had no typewriter in Princeton. And Kern didn't move. He looked straight ahead, no expression change, he said, "John, wait ten minutes, and it won't be my typewriter anymore." *[Laughs]* One of life's little moments you never forget. So, I went home that night, that Tuesday, I came home and I said, "Hey, dear, how are things at work?" she probably said, "Ah, yeah, you know. Good and bad. Oh, by the way, I resigned, today," *[laughs]* and she said, "You what?"

Interviewer: Did she know the news, yet, that General Electric had bought RCA?

Interviewee: Yeah, she had learned it – well, we had all heard it, as early as November, the previous year.

[0:39:00]

Because it leaked out, very unfortunate circumstance, and you can look that up if you'd like. But it leaked out at a meeting of managers of GE and RCA and I think – excuse me, I'm getting a telephone call.

[Side conversation]

[0:40:00]

So, again, I don't wanna leave you in the middle of a sentence or a paragraph, but I think we were pretty well finished on that part of my story. Oh, Linda knew all about it. And at that point, she was

²⁰ Ed. note: William M. Webster (1925-) was the Vice President of RCA Laboratories from 1968-1986.

working for RCA, as you now know, and her division, the space division, continued doing what they had been doing. They were still building what were called TIROS satellites, and I was – I loved having Linda, because on – I guess maybe from that point, all of the TIROS satellites couldn't be launched without Linda's approval. *[Laughs]*

Interviewer: Wow.

Interviewee: "Wow" is right. So, we got invited down to Cape Canaveral, and it was kind of nice to sit right in the front row and all that sort of thing.

[0:41:00]

So, there were good parts and bad. And what I did, I retired from RCA, on March 31st, 1986 – I haven't had a paycheck since then, by the way, but it turns out we're doing fine. But I did start my own company, and that went pretty well, for a little while, just working with the Federal Communications Commission, I was able to do that, work with local stations and all-over-the-country stations, people I had met. That's my story.

Interviewer: That's a fantastic story, and so rich, especially in history of early broadcasting, especially your early work with the Middlebury radio station. I did have a few more questions. One of them is pretty small and just a bit insignificant.

[0:42:00]

But while you were at the RCA Frequency Bureau and working with the FCC, did you ever let anybody know about your previous run-ins operating a station without a license, with the FCC?

Interviewee: Oh, very much so, because one of the divisions of the FCC I was working at, working with, I should say, I was not *at*—were looking into these kinds of things. And, by the way, I should tell you that there was nothing illegal about what *[crosstalk]*.

Interviewer: Yeah, yeah.

Interviewee: However, it was also very easy to say, "This station is not causing any interference. How can you do that?" "Oh, we use a 6L6 radio tube in the output." "Oh – have you tried putting in an 807?"

[0:43:00]

"Well, but that would break the law." "Oh – it would?" "I think so – let's try it." *[Laughter]* And so, we all did that, several times, but it's okay, no, we – you know, by the time I got serious with RCA and the Frequency Bureau, I was through fooling around with the rules Anyway...

Interviewer: My next question was if you could talk a little bit about the David Sarnoff Radio Club.

Interviewee: Oh, the Amateur Radio Club. I was one of those who helped get it started – I guess you knew that, yes. And –

Interviewer: Yeah.

Interviewee: I tell you what, I am now a member of the Radio Club here where I live in Florida.

[0:44:00]

And we have 84 members, here, because I live in a retirement community, and if somebody says, "You know, I'm retired, now. I got nothing to do," we'd say, "Well, come on over and let us show you what we do." And it's very interesting to – people come in and they say, "Well, wait a minute, how do you do that? I'd like to do that." So, we can talk to people all over the world, and we do, we have schedules of people all over the world. Now, the David Sarnoff Research Lab's Radio Club, I would really have to – trying to think – my wife became a ham, but she was not there – well, yes, she was – I wish she were here, she'd make up something for you, I'm sure. I'm sorry, I don't have –

Interviewer: Oh, that's completely fine. I was just wondering if you remembered some things about it, but if not, that's cool. It was just for my own –

[0:45:00]

Interviewee: Okay, I remember where we used to have our equipment, in two places at the Sarnoff Labs, and everything I did was at the Sarnoff Labs, and in the main big building, not Building 3 or any of the other buildings, there. At the foot of the stairs, going into a cafeteria downstairs, in the middle of the building, there was a room off to the right that later became a salesroom, a display room for selling RCA products. We had that room for a couple, three years, at the beginning, 'cause it had pipes sticking out and the

floor wasn't finished, you know, and we said, "We don't care." So, we had that room, but then they took it over and made it into a salesroom, and we moved everything to the fourth floor, and that's a place you've never been.

Interviewer: Yes, I've never been to the fourth floor.
[0:46:00]

Interviewee: No, you wouldn't be invited to – it's only by stairs, and it was an old rustic – and it's up barely isolated from the sky, but that's where we had some equipment up there. But exactly – I'm trying to think of the people we were working with, the names of people, up there, and I'm drawing a blank, and that bothers me. 'Cause I by no means was in charge of the place – I'm sorry, I can't answer your question well.

Interviewer: Oh, no, no worries. If you're still interested, I do have an old *RCA Engineer* article about the history of it, if you are interested. I can just send it.

Interviewer: Oh, and, one last question that I had. I wanted to talk to you a little bit about, if you wanted to talk about it, your work building the radio station WWPH, for the high school.²¹ And I think your son was also involved, or one of your sons was also involved in this.

Interviewee: Yep, our youngest, our youngest child [Daniel Bowker] was involved in that. Okay, now, that I have to revamp my thinking – oh, yeah, that's all – that's back in New Jersey, isn't it? [Laughs] Where you're at. Okay, good.

[0:48:00]

Yes – again, I could take a half-hour and reconstruct, really, what got that started, but – I have some pictures of some of the students in the school, and one of the faculty members, a young lady by the name of—And I don't know, in the middle of a conversation, at some point, I said, "You should have a radio station, here," and she said, "Oh, could we do that?" I said, "Sure, you could do it, easy as pie," "Oh, well, let's do it." And darned if we didn't. Now, I don't know – the antenna that we finally put up for that is on the main building on Clarksville Road, that building at the school. Because now, the –

[0:49:00]

²¹ Ed. note: WWPH is a student-run non-commercial radio station in Princeton, NJ. It began broadcasting on November 19, 1975.

I don't know how the high school is organized, but is it south and north, is that--²²

Interviewer: Yeah, I'm actually not sure, although I do know the radio station is still functional. It's run by the township, at the moment.

Interviewee: By the township? Wow, by the township? It's still noncommercial, I trust.

Interviewer: Yeah, it's still noncommercial, but I think that they are in charge of – let me doublecheck – it has its own Wikipedia page, as it turns out. Yeah, oh, sorry, it's licensed to the township, owned by the school district, and it's still running – yeah, sorry.

Interviewee: Okay, fine, that –

Interviewer: I should be more careful with my language, with a former FCC liaison.

[0:50:00]

Interviewee: Yes, you should. I'll have you arrested. No, seriously, I have a couple of pages of pictures and notes, if that would be of any interest, from its beginnings. Pam Twigs, that was the gal's name. She's long since left the school district, I'm sure. She was the professor or teacher or whatever, in charge of—that meant we could go into the school and do things, that was our entry person. If you'll be interested or you think somebody else would, I'll be glad to send you up some pictures of the early station.

Interviewer: Yeah, that would be really great. It's a fun part of Mercer County history.

Interviewee: Okay, good, good, yes.

Interviewer: Okay. I think that those were all of my questions. I don't know if there's anything else that you wanted to talk about, about your time with RCA, or afterwards?

[0:51:00]

Interviewee: Mm – not that would be pertinent or-- Yeah, when I'm talking with you and I mention these people that I worked with, they're all fine

²² Ed. note: The transmitter was located at the West Windsor-Plainsboro High School's south campus, where it remains today.

people, they're all RCA, there's no legal thing, I didn't check with them before I mentioned them to you. But others in town – by the way, I became a faculty member after I left RCA.²³

Interviewer: Oh, I didn't know that.

Interviewee: Oh, well, no, I didn't mention that. And it'll come to me in a few minutes, the name of the college – it's in West Windsor – yeah, but it's a county college – oh, dear, dear, dear – anyway, if I come up with something on that, I'll include that in the stuff I'll tell you about. But we wanted to do another radio station over there, and indeed, we did start another radio station, at the –

[0:52:00]

– licensed to the county. *[Laughs]* Funny how my 90 years do show up every now and then, I'm sorry to say. *[Laughter]* *[Glitch interferes with audio]* So, I'll look through, and if there's anything that rings of Mercer County or Princeton Junction or whatever – yeah. Good.

Interviewer: Well, thank you so very much for talking with me. This was a really fantastic conversation and I learned a lot from talking to you and it was great fun.

Interviewee: Well, there you go. Good.

[0:54:00]

Other things I didn't mention at all, which I don't think belong in here at all, for nine years, every Sunday afternoon, I did a big band radio program on one of the FM stations in Trenton. And that was kind of nice, 'cause we had listeners from all over Pennsylvania and New Jersey, both – that was fun. So, that got the broadcasting out of my craw.

Interviewer: *[Laughs]* Yeah.

Interviewee: Good, Florencia, thank you – delight talking with you.
[End of Audio]

²³ Ed. note: Bowker taught classes in communication at the Mercer County Community College.