

Bendix Radio Foundation Oral History

Interview with Jim Sebring March 8, 2002

Present at the interview, Jim Sebring and Bill Mackey.

Bill Mackey – Today is Friday, March 8. The following session is going to be a luncheon with Jim Sebring. I hope we can collect some information on the communications programs at Bendix Radio.

Jim Sebring - ...February, took the whole month of February. Just stumbled around and I talked to a guy, spent a day with him, graduated from the University – no, Oregon State University with a double engineering degree, EE and ME in 1933. The guy was 94 years old. He was still sharp as a tack.

M – That’s how old Malcolm Taylor is.

S – Malcolm Taylor graduated in, if I remember right, he was at MIT - no, Harvard with a Master’s in Communications Theory in I think 1934.

M – We have the date, I don’t remember the date. Moeller and Shagena, and I can’t think of the other guy – Charlie Smearman. They went over and they interviewed him about four months ago.

S – He and Smearman worked closely together. On a lot of programs. Advent, Syncom, You were on Advent and Syncom too, weren’t you?

M – I wasn’t on Syncom much, just a little bit. I was on Advent the whole program.

S – I was deep into Syncom. And after Syncom was over, I wrote about a 15-page proposal to upgrade Syncom; it was a jillion-dollar radio to put one voice channel up!

M – One voice channel!

S – And I wrote this proposal and I think I stacked up four 53’s which meant that we could put 20 or 30 teletype channels through, The Army bought it and they were putting about 70% of the traffic out of Saigon through the satellite to Clark Field. It was a jewel.

M – Yeah, well this Jack Gilmore guy I found on the Internet, he was at Clark, on Syncom. You might meet him.

S –I didn’t remember him. I just installed the equipment.

M – Well, was Hancock there?

S – No.

M – From an ARIA photo Gilmore sent me, he remembered Hancock. Well he said the middle guy on the bottom is the guy from Clark. The guy on the bottom I'm pretty sure is Bob Hancock.

S – You're right. I was very close to Bob, and – no, Bob was on Syncom for a while. He was never over at Clark.

M – Gilmore said that he thought that same guy was over in Ethiopia too.

S – I did the install in Ethiopia. Speaking of Ethiopia, you know who called me the other night? Mike Balog.

M – Oh no! What the hell was the occasion for that?

S – Mike worked for me, I bet ten or twelve years and he just got homesick and called. I had still had a lot of sailor in me in those days. Especially when we were overseas. We'd work our butt off for maybe three days, eighteen-hour days. Mike and I would take off.

M - Mike was always the guy that the install but he never had much to do with directing.

S – Mike was a good mechanical technician.

M – He would always submit four meal chits a day.

S – Oh, yeah.

M – He always ate four meals a day. Not three, four.

S – He may have eaten two but he charged for four. Mike was telling me he has a '95 Jaguar. He got a Jaguar. Do you know how old Mike Balog is? 81. ... Mike was was about as dumb as a rock but he was a good mechanical technician.

M – He was strong.

S – The only guy I ever saw that was stronger than him was John Voltz. Big John. On Syncom, we were up in the IBM building, we were outfitting the trailers, and John was underneath bolting them down with those big bolts through the trailer floors. John was as dumb as a rock when it comes to hardware, but the bolts were bigger than my thumb, probably 50% bigger than my thumb in diameter ... because these had to stand the Munson Road Test. Do you remember the Munson Road Test? I was talking to John and I said, "John, you make damned sure you get those lock washers on there and you tighten

them up just about as hard as you can.” John sheared one of those bolts off. He didn’t have like a three-foot handle on the wrench. It was a regular wrench.

M – Oh, my!.

S – Bolt hit him on the shoulder, it was just like hitting a rock. He and Mike, they went at each other, not fighting or anything, just to show each other how strong the were. I haven’t seen John Voltz for a while.

M – We were going down in Montgomery County, out 70 and south on 97, out in the middle of nowhere, But going down there, I remembered that’s where Eric Rosenbaum had his nursery.

S – I was going to tell you, Eric Rosenbaum, he has a nursery there.

M – Some nursery. We went right by the road that goes back there ...

S – Rosenbaum was a smart guy.

M – He was. He just decided “To Hell with it” and started a nursery.

S – The only thing I ever had to bitch about the engineering profession was there shouldn’t have been as much politics involved as there was.

M – Yeah, that’s always the case

S – Well it’s not that bad in life. I don’t know whether you ever knew this, I was over in the Philippines, normally working this Syncom thing, and as we went through this, there was a long series of errors. I think we needed three six-foot cabinets, shipped on Pan Am freight. They were supposed to go to Tokyo, then from Tokyo down to Manila where we were going to pick them up in Manila and do our thing. And I had this scheduled like bang, bang, bang. I was going to do the ones in The Philippines, and go to Honolulu. It must have been the Kingsport was there, they wanted the modifications on that ship. This was to be the Sticky-3 modifications on the Teletype and then I was supposed to come home for Christmas. Annie and the children were at home. I was supposed to be gone. I think three and a half weeks. I got to Manila, went down to the freight office to make arrangements to get the things up to Clark Field, and the guy says they’re not here. I says oh they haven’t gotten here. So I went up to Clark Field, checked in and everything, and every day I called. Ten days later the guy still doesn’t know anything about what happened. So I called – I think it was Val Hunt, I think I was working for Val Hunt at the time, and told him to put a tracer on it, and I put a tracer on this end. No, it must have been Pulford, Pulford I believe. Finally, I got it from the other side, talked to a guy In Tokyo who said the reason you have them is we don’t have any damn airplanes up here to carry that stuff. I said the freight is not that big. He said, well what the hell do you want me to do. I said you’re holding me up ... He said, I’m sorry, blah, blah, blah ... And I said well let me work on it. I went up to the Fifth Air Force headquarters and ...I

forget the General's name, anyway I talked to his aide and he said we have flights going up there and back all the time I said get 'em, get 'em out of the warehouse and get 'em down there. A day later, I got a call from Tokyo, from this sergeant who said, "What the hell are you trying to do to us. You can't get through that way. It was awaiting the payment of duty." Apparently, if you stay in Japan any longer than whatever the transfer time is, all bets are off. You have to pay duty. So I said ... Ok, we finally got that squared away and we sent the plane out, got to Tokyo got it loaded up, we had to stay there for four days-there was a hurricane. Anyway, I get everything done, get it signed off, and it's working. I had left home at the end of September. This is eight days before Christmas, and I get a telegram from Bill Pulford. He's in Honolulu - he'd been working trying to get this modification working on the ship. So Pulford said I need you here. I said, look, I'm only going to be there eight hours 'cause I'm going home. I gave him some advice because I knew and saw what the Hell the problem was. He said, well you're staying there until it's sold off! I said I haven't bought a damned Christmas tree yet. He said you will not leavew!. I said look, you have a choice. You can fire my ass right now or you can fire me after Christmas and I don't care. I came back home, and he never said a word to me about that, even to this damned day. Then the ARIA thing came along. Aria was kind of crazy. Do you remember the early days of ARIA?

M - I remember some parts of it; it was kind of crazy ...

S - The thing that happened is that the program started getting in deep shit trouble, right. So Val Hunt - Val Hunt was the chief engineer.

M - Yeah, that's right, he was the chief. I tried to remember all the players. He was the chief engineer. Who'd he report to, Chuck Greenslit?

S - No, that was later. Val reported to Kenny Molz [...] really had a lot of fun then.

M - Didn't you teach the course down at NASA?

S - Yeah, I did teach a course at NASA on phase locked loops. Actually it was threshold extension demodulators with FM feedback. But that as before ARIA.

M - Oh that was before ARIA. Ok. It's amazing how much my memory is fuzzy.

S - Oh, yeah, but hey, I lived this; you didn't.

M - I did something else.

S - Yeah. Anyway, old Val Hunt started getting things really, really screwed up. I don't know why or how. You know, I'm the damned receiver engineer working eighteen hours a day. And the next thing I looked, and Greenslit was in charge. He and I, we were close, but my real mentor, honest to Christ, was old C. G. McMullen. He was a great man. I liked that guy. He was sharp. You know he didn't even have a degree?

M – Oh really?

S – He did not ever get a degree out of Union College.

M- I did not know that.

S – And do you also know that he had the Legion of Merit for his contributions to moving target indicators at Lincoln Labs during the Second World War?

M – Yeah, I read that somewhere.

S – In any event, I blinked my eyes a couple of times and Art McComas I think, I'm a little foggy on this. I think Art was involved some way in ARIA.

M – I don't remember Art.

S – No, no. That was a different program. That was MLS.

M – I remember we hired a lot of guys from Martin.

S – Yeah. The thing that happened was that Val Hunt got fired and Greenslit and McMullen came in as program managers, and then, in the interim, Val Hunt hired Chuck Siperko for the HF subsystem, that's what it was.

M – Ah, OK.

S – And then something happened to the so-called technical directorate, the engineering guys, and Siperko was put in charge ... yeah, I reported to Siperko for a while ...

M – Oh, really? Was he that high? I didn't realize he was that high up.

S – To make a long story short, old Siperko fell on his sword, and I realized one morning I'm running the damned RF subsystem. Then I blinked a couple more times and I was the program manager. That was late in the game, though. I think that kind of got me rolling in the management end of it, probably the dumbest thing I ever did was to be in the management end of it. I probably made more money than I should have that way. I was never really happy in that role.

M – No, I understand. I was involved the same way. It just wasn't quite the same, like it you have too much politics...

S – Yeah. I never felt the satisfaction in the job that I did in engineering. You know, creating stuff, though, that's a real rush. You and I lived in that environment so everybody we knew was a creative guy.

M – I had two examples where I was more on the management side than the engineering side. There I got some satisfaction, dealing with customers, looking for help, and I was able to give them the right guidance and ...

S – That was from engineering ...

M – True, true. I just happened to be in a different role, Yeah, you're right.

S – You can't do the kind of stuff today, in today's world that we used to be able to do.

M – No, oh, no.

S – I shook hands with a customer when I was out in Davenport, Iowa. I was Director of Manufacturing and this big damned system got in deep shit trouble and I got thrown into the program management. I took that over and got the biggest damned job I ever had. I shook hands on the logistics. They had these things deployed in Europe, but they didn't have any spares. They didn't have any money. But I knew this guy well enough, I said, "Look, I have a big contract over there. I'll get you spares, on a handshake. But, we have another negotiation coming up for the next year's buy. What we'll do, we'll sit down – I'll tell you beforehand I'll let you look at my books, tell you how much this costs and I want you to be able to write me a check. He said OK."

M – You'd never do that again.

S – It was a two and a half million dollar job. Not that big.

M – Back then it was.

S – And whenever we got close during the negotiations, I said, "Spencer, I'm going for a cup of coffee. You want one?" He said yeah. I said, "We're getting close. When we go back in, make it sound like we're both really tough guys. Honestly it wasn't all bad – we didn't jam anybody.

M – No. it's just called negotiations.

S – However it's different in today's world. I don't know how much interface you've had with kids who came out of school in the last seven, eight, nine, ten years. Kids coming out of school with a double-e degree now don't know what a damned DB is.

M – I sort of believe that but maybe their knowledge

S – Not that they can't get by without it, but I mean, it can't help but slow you down ... We thought DB's from the time we were babies. In the engineering world it's so basic, like your ABC's.

M – It's a different world out there.

S – You know there were a hell of a lot of good guys on those programs. Do you remember the mathematician – I can't remember his name – that we had on Advent/Syncom. He headed up the analysis group. Malcolm Taylor worked with him, Charlie Smearman, Charlie probably remembers him, a young fellow from Do you know on that Advent program we found a basic mistake in Faradays rotation publications at that time.

M – Oh, really?

S – I don't remember what it was.

M – I remember the Advent. I got involved with Al Moeller in doing a lot of microwave design.

S – What about the sixty-foot dish?

M – Yeah, but we were doing a lot of microwave components. We were working with a guy from Fort Monmouth. I can't remember his name.

S – I can tell you three guys. There was Hendlicker ; Orvis, Tony Orvis; then there's one other guy. They all had very suggestive names. You know, Orvis, Hendlicker, and there was a last guy, I can't remember what the last guy was ...

M – Which guy was that? He was a microwave guy up at Monmouth.. After Advent he left Monmouth, went out to Stanford and became world-renowned in microwave design kind of stuff. What the Hell was his his name? He was the guy that came out with air microstrip.

S – Is that right?

M – This was back like early- to mid- 60's.

S – I don't remember the guy. Of course I wasn't in the microwave business then.

M – Moeller would know.

S – I did the frequency synthesizer on Advent.

M – Moeller had the power to buy those devices. The guy in Syncom wanted to have them built in air microstrip, because he had developed it. And it was built in an air-suspended microstrip!

S – Is that right?

M – It was sort of like waveguide only you made like a cavity, and you suspended the stripline with Teflon spacers.

S – Stripline with air dielectric.

M – Exactly. Back to the beginning. Levi?

S – Yes, yes, Levi, L-E-V-I.

M – Right. He got his PhD and then went on to Stanford and published lots of microwave stuff.

S – This was when I was an Assistant Project Engineer. You talk about pressure; that's why my hair is so white. We started with a 1 MHz rock. We went up to X-band. We synthesized it. I did the 1 MHz. thing in my former life – I had to put out, I think it was a hundred milliwatts or something. We had a times-ten multiplier in there. So my output was ... Now remember when this was. A hundred milliwatts at 360 MHz., that's approximately what it was. There was a lot of things we didn't understand then. I did my thing, I made the frequencies we needed and I handed it to somebody in the microwave group. The spec that we needed, 360 MHz., there's a lot of power coming out of there. Moeller was involved in this. He'll probably remember some of it. [...] The first time we had a chance to see what the Hell was going on was when we got to the transmitter. And we had – you ready for this – 10 Kw. of white noise coming out of this damned klystron.

M – Was that Advent?

S – Yes

M – I didn't get involved with much beyond a few milliwatts.

S - Anyway, what we didn't understand was that the noise, the sidebands were just like any other modulation ... Anyway, we didn't realize that the noise sidebands were just like any other modulation. You double them, the power in the sidebands goes up. Well, we multiplied it enough that there was nothing but noise in the transmission. And – can you imagine as an Assistant Project Engineer knew damned well it had something to do with your system. And to make a long story short, we put a phase-locked loop right in the middle of it.

M – But didn't Advent have a lot if involvement with the research group or some other group?

S – Systems Division. They did the satellite.

M – Oh, is that it?

S – They did the transponder for the satellite. It got so heavy, we had a 27-million dollar radio, and the only thing it ever talked to was the tower. There was a number of problems. It was designed to be launched by the Titan, I think. By the time GE got the

satellite package - GE up in Philadelphia – they got the satellite finalized, the configuration was too heavy; it couldn't be launched. They finally got a vehicle big enough to launch it, about ten years after the contract. I don't know whether it was ten years or eight or five ...

M – What ever. And then after that followed Syncom, right?

S – Yeah. There was a lot of stuff in common with Syncom. The conception in common. And then I remember ... Do you remember that experiment Harry Betsill, Dick Van Meter and I – Three of us designed ... Took a radio off the production line of Avionics Division when they were up here, modified it, did a lot of experiments air-to-ground and ground-to-air through a satellite. We found a sneak path through the Syncom satellite. That was a lot of good stuff ...

M – We came across in the stuff BRF collected, was a paper Pulford wrote for the Air Force about ten years after that experiment. The Air Force must have asked him to write a paper. He wrote a paper on that whole thing. I haven't read it. I'll have to find it. But as I remember, it was about a twenty-page document where he had written up.

*** End of Tape ***

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