John Leslie, Interviewed by Ross Snyder

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RS: John, where were you born? Where did you grow up? How about those first years?

JL: I was born in Springfield, Missouri, 1921 June 22nd,. I know nothing about Springfield other than what I have learned in recent years because my parents moved to Tacoma, WA and then San Francisco. The earliest I remember is when I was three years old, in San Francisco. I remember Gold Gate Park was just across the street from where we lived. Later we moved down the Peninsula to San Mateo.

At the age of five, I was introduced to electronics, if you'd call it that. My dad built a crystal set for me. That would be in 1926, and I could hear Amos and Andy on that crystal set. That thrilled me to the point that I can say that was the starting point for my love of electronics.

By the time I was nine years old, I had accumulated about a dozen radios. Remember the ones with the three, tuned rf stages, each one with a separate control? To find a station you would have to tune the three, and often you would hear a squealing sound as you were tuning. I also had a loud speaker for each radio. One of them was the old RCA horn type. All of these radios were battery operated, so I also had six volt car batteries and a charger in my bedroom.

RS: That sounds like very tolerant parents, John.

JL: They sure were. I also had "B" eliminators – do you remember those days? Those old radios also required a forty-five volt supply along with the six volt supply, so I also had a few of what were called "B" eliminators. That was how I got started in electronics, and I've been hooked ever since.

RS: What was your education?

JL: I went through the normal school programs, but I want to comment on an activity I had in high school before going on to the college. A person who was very active in audio and active in my life, was Bob Hugh Smith. And you knew Bob?

RS: Yes.

JL: Bob and I were at Berkeley High school. We were a two-man electrical crew, and we wore gold-color, khaki coats, and each had printed on its back "Berkeley High Electrical Crew." For three years, anything having to do with sound, lighting, projectors, cameras or anything electronic, Bob and I were front and center. We certainly enjoyed our life on the electrical crew. From there, when I graduated from high school, I went to the University of California in Berkeley to study electrical engineering.

RS: At just about that point in your life, not only Bob Hugh Smith, but also Walter Selsted became a friend.

JL: Yes, that's true.

RS: Berkeley played a role in the lives of many of the distinguished engineers who later formed Ampex.

JL: That's also true.

RS: Tell me a bit about Frank Lennert. Where was he educated?

JL: At UC Berkeley.

RS: I thought so.

JL: Yes, UC Berkeley, also in electrical engineering.

RS: Was Walt Selsted also educated at UC Berkeley?

JL: Yes, also in electrical engineering.

RS: Where did you meet Walt?

JL: I first met Walt through Bob Smith. All three of us were fourteen years old. I had a built a radio for my folk's living room. It was a big set in a console cabinet, and a pretty nice set. Bob was impressed with it, and told his friend Walt Selsted, that he should see it. Walt had mentioned to Bob that he was thinking about building a radio for his folks. Bob and Walt came to my house to see it.

RS: How did Harold Lindsay enter this group of distinguished Americans?

JL: That was in 1946.

RS: Oh, that wasn't until later.

JL: Right. I didn't meet Harold until I was out of the navy.

RS: What about that navy experience?

JL: I enlisted into the navy in 1942. I preferred enlisting rather than being drafted. The interesting thing about that, in retrospect, is I didn't want to go into electronics in the military. I was afraid that it would wreck my hobby. But I also liked to build things with my hands. I liked to work on automobiles. I helped my folks build a house. I just enjoy that kind of work. The day I went into the navy, I was asked "what would you like to do?" I said I would like to go into the construction battalion, the CB's. Nothing more was said. Soon they gave me some papers and said "Please answer the questions on these papers?" It was no big deal, I answer them and returned the papers to them. The thing that I didn't know at the time was that I had just taken the "Eddie" Test. All of the questions involved electronics, and that was why I found the test so easy.

RS: Ah, somebody had good sense.

JL: A little later, busses started to arrive to pick up the enlistees. There were about five hundred of us enlisting in San Francisco that day. It was a steady stream of busses arriving, loading, and driving out. We had no idea where they were going. It was dark and all had been picked up except for six of us. We became very concerned about why we were being left behind. Soon we learned the answer: An eight passenger van pulled in and picked up all six of us. We had no idea where we were going or what was going to happen, and the next stop was Treasure Island, and three days later I was teaching.

RS: The military has strange ways to do things. But it seems as if they chose the right one.

JL: I am sure glad they did, because I had an absolutely marvelous experience teaching.

RS: How many classes did you teach?

JL: This was a school for training radio technicians for the Navy. Officially, each graduate was called an RT. The course covered basic electronics, receivers, transmitters, sonar, radar, and loran. Each RT had to be able to maintain and service equipment in all of these technologies. Some ships in the Navy have only one RT on board. I taught a series of classes. A new company started every week, and each class would go through thirteen months of training.

It's amazing how many people that I meet have gone through that course, and I was their teacher. The first class I taught was company five, the last was company one-hundred-thirty-five.

RS: You taught a lot of radio technicians.

JL: Yes I did. I spent most of my time in the Navy teaching. I was one of the few people to have been in the Navy, and never went through boot camp.

RS: You got to Ampex before you had completed college, did you not?

JL: Well indirectly yes, but I have to give you a little background: Walt Selsted had worked with Harold Lindsay at the UC Berkeley Radiation Laboratory, and they knew each other very well. Harold Lindsay lived next door to Alex Poniatoff and was a consultant to Alex in helping him restart Ampex in a new line of products now that the War was over. Durng the War, Ampex manufactured small motors for applications that were related to the War, and that business had dried up. Alex had set up a small group of people to help him decide what Ampex should manufacture in its future. Harold had suggested to Alex that Walt would be an excellent addition to his group, and Walt became a member. May 1946, Frank Lennert, Walt Selsted and I went to Jack Mullin's presentation of a German Magnetophon in San Francisco, and Harold Lindsay was there also. Alex Poniatoff and Myron Stolaroff missed the San Francisco presentation, but went to Los Angeles to Jack Mullin's presentation there. Shortly after that, Walt and I visited Ampex and met with Alex, Myron, and Harold, and we discussed our impressions of the Magnetophon. That is how I met Alex and Myron, and got to spend more time with Harold.

RS: Jack Mullin's presentations are history.

JL: I still haven't answered your question about working for Ampex before I finished college. You know Jack's showing of the Magnetophon was the starting point of Ampex developing the model 200A. I was at Cal Berkeley completing my undergraduate work for my bachelor's degree in "EE". One of my classmates was Rudy Pederson. He set up a little electronics company in his house in Lafayette, and we made all of the audio electronics for the original model 200A.

RS: With your own two hands?

JL: That's right. We were assembling and testing electronics units. The electronics were designed by Myron Stolaroff. Frank Lennert would deliver all the parts to us, including the sheet metal parts, resistors, capacitors, transformers, etc. We would assemble everything, and then test the completed assemblies, so they would be ready to be plugged into the Model 200A cabinet as part of the recorder's final assembly. Rudy Pederson and I would load the finished units we assembled and tested, into our car, and take them to the Ampex plant on Howard Avenue in San Carlos. During those days, I got to really know Alex Poniatoff, Myron Stolaroff, and Harold Lindsay. The company was a mighty small group in those days – only about eight people. So I was indirectly working for Ampex before I completed college.

RS: And how many 200A's were produced?

JL: Do you know, I don't recall. I would judge a hundred? Do you have any idea?

RS: I am told it was a hundred and three.

JL: Thank you.

RS: The 200A revolutionized radio broadcasting, and I think it's fair to say it also revolutionized the making of phonograph records.

JL: That's the truth.

RS: How come these remarkable people were joined together in a remarkable brotherhood? I used to insist it was Camelot?

JL: The chemistry between these people was something very special. They were a very unique group of people.

Harold Lindsay was an outstanding mechanical engineer and an absolute perfectionist. I can't imagine anyone being more of a perfectionist.

You had Myron, who handled the initial electronics, but then he went more into application engineering. Myron was responsible for getting contracts for us to work on in those early days. To a great extent, Ampex grew because of the contracts Myron brought in, and they often were funded for some military application.

Alex Poniatoff was the motivator behind all of this. He had an electrical engineering background in power engineering. He had foresight. I never knew how old Alex was, other than I thought he was 20 to 25 years older than I was. Alex had the ability and the willingness to risk going forward with something that he was not directly familiar with. He would listen to people – he was a great listener – and he would encourage us to come out with new ways of doing things. Create things – he had set the stage for us to do just that.

Then we had Frank Lennert who join in 1948, Walt Selsted in 1949, and John Leslie in 1950.

RS: I often think about how high the IQ's of all those people were, including Alex, who I think was a genius.

JL: Alex was a real leader. If an operation is going to be a success, you have to have a leader who sets the stage to encourage everyone to work together. It's an aura, it's something that is very hard to describe – Alex had it.

RS: Walter Selsted said that he was the most understanding boss he ever had. I thought that he had an extraordinary ability to get people to do not just their best, but to exceed their best.

JL: And he encouraged that. I worked very closely with Alex for many years. I never felt I was being pressed. It was always "John, how can I help you?" That was his attitude. If I worked all night, which happened time and time again, he was very quick to thank me. He was terrific.

RS: Speaking of people who joined the company very early, you have remarked that you found a jewel in a young guy named Ray Dolby. Tell us about those early days and him.

JL: I was working at that time on a ruggedized recorder for the Army, where they were going to use it (I digress a little bit) in testing tanks and heavy vehicles. They would drive a vehicle over a course they called the Munson proving grounds. I road over it many times. You would drive along at say, 35 miles an hour and run up over a log. Or you would be going 35 miles an hour and all of a sudden dip into a creek and out again. They also had series of tests along a road where the surface was shaped vertically into a series of sine waves. A vehicle could be driven over a sine wave section, increase the speed of the vehicle until you hit the resonance point of that vehicle, and it would go into a severe shaking mode. It was difficult to be sitting in the vehicle when it shakes. The Army was having difficulty with the vehicles breaking down, and they wanted to be able measure where it was breaking and what the stress measurements were. They would have numerous sensors mounted at different locations on the vehicle to detect what was happening as the vehicle was being driven over the proving grounds. They wanted a recorder on board that would allow them to record those measurements. I was developing an eight channel recorder that had seven channels for the sensor readings, and one channel for voice comments on what they observed. I was working on that project and needed some more help. Alex Poniatoff, knew a high school student, and brought him in and said to Walt and me "This is a fellow that you might want to talk to, and maybe hire." So Walt and I both interviewed him, we hired him – Ray Dolby. He was a 17 year old power house. Years later, we began the video project and we teamed him up with Charlie Ginsberg, and Ray was a major contributor in developing the video recorder. He was really a jewel.

RS: He received a degree from Stanford, I believe.

JL: Yes, a BS in EE from Stanford, and later, a PhD from Cambridge in the United Kingdom.

RS: John, you became assistant Chief Engineer at that time. What were the first products produced under your direction?

JL: Oh my. I became assistant Chief Engineer in 1952. That is the year we moved from Howard Avenue in San Carlos to 934 Charter Street in Redwood City. Walt was Chief Engineer and I became his assistant. We both felt we were one-armed paper hangers the way we were having to work. The 300 was already in production (the 300 superseded the 200A), we were just putting the 400 into production, and we were also putting the 450 (on which you were product manager) into production. We had a number of military projects going on at the same time. One of them was a big 12-channel recorder for use on ships. Bill Kyle was doing a very compact recorder for the Navy. We also were developing our first real portable, the Model 600.

RS: About that time somebody walked in who wanted to get us into the motion picture sound business. Do you want to tell about that?

JL: I wish I could avoid that.

RS: You can't. You played a much too important role in it.

JL: OK! In early 1953, Mike Todd of Hollywood fame visited Ampex and asked if Ampex would help him. A few years earlier, Mike had developed the Cinerama system which had been highly successful, but now he was driven to come up with a still better system. He had now developed Todd-AO, a new wide screen system that he expected to be best ever. He was satisfied with the film portion but needed Ampex to help on the sound portion. Ampex accepted the challenge! Ross, after some tests by engineering, you convinced Mike that his sound system should be a 6 track system, with 5 magnetic tracks for the wide screen and 1 magnetic track for surround sound. We had to develop special pre-amplifiers, special power amplifiers, and a new loudspeaker system to satisfy the critical needs for Todd-AO. In the midst of this project, another visitor came to Ampex. That was George Skouras, CEO of United Artists. He too wanted a new sound system to be part of 20th Century Fox's new wide screen CinemaScope process. This new process used 4 tracks, 3 for the screen and 1 for surround sound. George Skouras also wanted Ampex to install this new sound equipment in 45 theaters.

JL: Ross, you take it from here.

RS: My title at that time was "Motion Pictures Sound System Coordinator", or some other very long title. I reported for a short time directly to our president, George Long. I was trying to tie together all of the things you have just mentioned, and also arrange to get them delivered to the proper places. There was one wonderful series of events. I was sent to New York in late 1953 to supervise the installation of the equipment for 20th Century's new wide screen CinemaScope system in forty-five United Artist Theaters, and with all to open simultaneously on Christmas eve 1953. Thanks to you, Walt Selsted, Frank Lennert, and many others, we got the job done.

JL: Earlier you mention the spirit of the early Ampex team. The theater projects were a major test of that spirit. We had a real team effort. Frank pulled the strings in manufacturing, we in engineering, and you handling the application engineering aspect of it. The team had one objective and that was to get the job done. We were all on the same team. It was a beautiful example of the Ampex spirit.

RS: At just that time the television project was going forward.

JL: Yes. That really didn't get off the ground until about 1954. Ampex had grown rapidly in its number of employees, and in the number of things we were doing. So in 1954 we made quite a reorganizational change. We set up two major divisions: The Audio division which included both professional audio products and the video project. Phil Gundy was head of the division. I reported to Phil Gundy. I was now chief engineer of the Audio division. Walt Selsted became head of a new research department. The second division was the instrumentation division headed by Bob Sackman. Now Phil and I could concentrate on audio and video, and let another group concentrate on

instrumentation. Our first task was to bring the video team front and center. We were sure that Charlie Ginsberg and Ray Dolby were on the verge of a major breakthrough, and we didn't want anything to slow down their progress. We were so confident of success, that you were named Product Manager of Video Products. We moved Charlie and video team to the building next door, which was 820 Charter St. as I recall. Charlie and his group had keys to that door. The only others who had keys were you, Walt, Phil and me. Alex Poniatoff didn't have a key. He understood, that we wanted to limit the keys to only those who have a good reason to be there.

RS: And that was the beginning of the television project.

JL: That really was.

RS: I have a diversion at this point. Among the most copied and best regarded audio professional tape recorders ever made was the Ampex 350. The 400 which preceded it did well but not as well as many had hoped, what happened?

JL: I will take the 400 first. That's the thing that triggered the 350. Now the 300 had been very successful, but it was quite expensive and quite large. We needed a recorder that was both less expensive and easier to move about, and that was the 400. We developed it, and it would have been an excellent product if we had been able to tool it up for larger scale manufacturing than Ampex was doing at that time. A lot of stampings were involved and we would make them in small batches, but you would never get two batches the same. In theory it was right – engineering could make them work beautifully every time. But in manufacturing, doing one after another was difficult, there was too much variation. It was a manufacturing nightmare for the volume in which we were producing the Model 400.

Frank Lennert, felt he had to do something about this manufacturing problem. One weekend, that's all it took! Frank went into the plant, yanked the reel motor assemblies out of a 300, and let the 10.5" reels go out beyond the edge of a top plate– no big deal. He took the capstan drive out of a 400 (which was the first time we used a capstan right on the end of the motor): the motor shaft was turned very precisely to be the capstan. He mounted all the parts on the top plate, used the electronics for the 400, and Monday morning showed it to Alex Poniatoff, Walt Selsted and me. It was great! This new product became known as the Model 350. Over 6,000 were sold, and it became the workhorse of the recording industry. It became imitated by many other companies over the years. It was a great Ampex success story.

RS: And it had rather few moving parts.

JL: Very few.

RS: Three of which were motors. It was a remarkable contribution. We own Frank a lot.

JL: True.

RS: How were you affected by that series of crises beginning in 1960?

JL: In 1958 I left Redwood City and went to Opelika.

RS: We'll talk about that in a minute.

JL: In 1960, Ampex was very highly controlled by the financial community. The stock had gone up very rapidly – it was the darling of Wall Street for a lot of years. All of us who had stock did very well. The company was really driven to make that stock move higher, keep it going, keep the sales up, and do anything necessary to keep up the momentum. In 1960 I was giving a paper to a organization in Montgomery, Alabama. That was the year the Fortune magazine had a feature article about the five little Ampex companies, and my tape company was one of them. I finished giving the paper, and during the question and answer period a fellow asked "What can you tell us about GE's announcement of thermoplastic recording?" That was the first time I had heard that they were doing anything in that field. This was very much a surprise to me – and I hope I didn't appear too embarrassed by not knowing anything about it.

The stock of Ampex plunged very rapidly after that announcement because it was an emotional challenge to the future of magnetic tape. Ampex stock started a downhill run. The Ampex Board of Directors decided they would have to change management to get the stock back up and moving again. They brought in a management consulting group to talk to the key people. They came to Opelika and talked with me. They ended up by hiring a new President, Bill Roberts. George Long was out! Alex Poniatoff was sort of put on the shelf as chairmen of the board, but he really didn't have a lot of say in running the company at that point. That didn't affect me down in Opelika, but when I transferred back to Redwood City in 1961 – we'll get into that a little later I assume. I talked with Bill Roberts, and one meeting with him was all that I needed. I felt the morale of Ampex in Redwood City had dropped tremendously from what I knew it was when I left in 1958. There was a very different attitude inside the company, and I didn't see any way that Bill Roberts would help the situation. I decided that this was time for me to leave Ampex. I decided to pick the time to make the announcement.

RS: You were of course aware that the same feelings were in Lennert's house and many others?

JL: Yes I was.

RS: Almost all of the original people reached that same conclusion. I want to go back to what happen to you in 1958. How come you went to Opelika? What did you make there? What kind of a life did you have? You, a Yankee in Opelika Alabama – tell us about it.

JL: First, I will give a bit of background. In 1955, our professional audio products had reached the point of development where they were extremely consistent – unit to unit, head to head, and so forth. If you used the same tape and the tape didn't change, all of this equipment would be comfortably within specs.

RS: And all interchangeable?

JL: Of course interchangeable. At that time, we would ship a product from Redwood City to, say, Chicago. And the customer would say "you said that the frequency response is such and such, and we don't get the same response." We would ask "what tape are you using?" (In those days, 3M 111, was the standard).

"Yes, Minnesota Mining and Manufacturing 111, and we have a dedicated reel of tape that we always use." And there lies the problem. You could check frequency response on a recorder at the Ampex in Redwood City using a new roll of 3M 111. Check response on the same recorder using the same roll of tape, and repeat it maybe 10 times, and you would not get the same response. The recorder did not change, it was the tape that changed. We were wanting our tape recorders to meet their published specifications, and when they didn't it invariably was a tape problem. I became very disturbed by the recorder/tape system not performing to the expectation of the customer. I decided to try and convince at least one of the tape manufactures to produce a much improved tape for the professional market. I talked with 3M and they said, "Look we have the best product in the world and we're not about to change it." That was their bottom line.

There were three other companies making tape at that time. There was Reeves Soundcraft, Audio Devices and a little company called Orr Radio (that made "Irish" tape in Opelika, Alabama). I contacted all four companies and told them that I was going to make a thorough test of their tape to see if it met our professional requirements. It was no secret I was going to look at all four companies. I wanted to see what their products did – especially how consistent they were. I wanted to know exactly what product was going to work best with our tape recorders. All four companies sent me an adequate quantity of their "best" magnetic tape.

The bottom line was that Minnesota Mining was the best in overall performance but a single reel was not consistent over multiple use. Orr Radio was the most consistent on multiple use but was not consistent reel to reel.

Not one of those companies wanted to do anything to improve their product. Each was satisfied with their consumer market to produce recording tape to be used on cheap tape recorders, and felt their product was adequate. But it wasn't good enough for us. If Ampex wanted a better tape they had two choices: build their own tape manufacturing

operation from scratch, or buy one of the existing companies and alter it in a way to produce tapes that meet Ampex requirements.

In late 1957, Ampex decided to buy 25 % interest in the Orr Radio magnetic tape company with the proviso that Ampex would put in their own general manager to manage the company. I was not aware that it was going to happen, but I was asked to move to Opelika, Alabama, and become general manager of Orr Radio. It was a company that had 400 employees and operated 3 shifts per day. My wife and I moved to Opelika in early 1958.

JL: Now Ross, back to your original question. When I arrived – you were certainty right: it was quite different, because I had never been in that part of the country before. .

RS: Managing a work force in a small town in Alabama certainly must have been a large change from managing a group of Berkeley graduates in Redwood City, California. Talk about the management end of your performance there.

JL: The biggest change for me was having to live and work in a high humidity area. I had to learn quickly that I had to work at a slower pace to cope with it. I found that the temperature would be 95 degrees and I would pray for rain, because it would cool things off until the rain stopped. Then I would really suffer from the humidity. It just zaps the energy out of me when I am in that kind environment.

There's a lot of reasons why things didn't move as quickly there as they did in Redwood City, but the big problem I found was the company's philosophy for making products: there was an attitude of "We're doing it this way, we have always done it this way, and it's good enough." And I couldn't help but think that it is sort of equivalent to the automotive industry. It took the Japanese to come in with their Lexus, Toyota, and Honda to show that they could make cars better than Detroit – and Detroit had to change to compete! Opelika was a little bit that way. They had a culture that did not demand they do what was required to make professional tapes. It was good enough, and it was really good enough for the market that they were suppling. There was a big cultural change required to be able to produce professional quality tapes.

The effect of going through that change helped improve all of their products and it also set the stage for working toward much better tapes for the professional tape market. Another problem than I had to correct was that there was an attitude that the white folks would be the bosses, and the black folks would do much of the labor. And the real problem was the black folks would tell the white folks what they (the blacks) thought the white folks wanted to hear. This problem became apparent quickly when I called for a count of all inventory to verify that figures on the books were accurate. I had heard how they usually take inventory: the blacks would do the counting, and their white bosses would accept the figures as accurate – and those were the numbers on the books. I changed the rules a bit. I requested each white "boss" to be physically responsible for a given area, and then he and I would check, at random, the count he had been given. It wasn't long before everyone learned that I was insisting upon the count being accurate. The new inventory count proved that the figures on the books were overstated and we had quite a write off on the books. I found this problem to be apparent in places as critical as the reading of temperature and humidity in the tape coating room. We had to overcome many of these cultural problems.

There was a lot of equipment that had to be redesigned and built. That's where again the Ampex team spirit stepped forward. I called Walt Selsted and asked if he could help. I also called Frank Lennert and asked the same. Walt came down for weeks at a time, and Frank let his right-hand man, Andy Anderson, to be with me for about two months. They were a tremendous help! We also kept the local machine shops busy!

At the end of the first year, Orr Radio tape was comparable to 3M 111 but was much better than 111 on repeated record/play performance. This was a significant step in the right direction, but there was still a lot of work to be done for Orr Radio to be able to produce a tape that met Ampex expectations. The Orr Radio board of directors were so pleased that they elected me executive vice president and general manager of their company. In late 1959, Ampex purchased the remaining 75% of Orr Radio. The company became the Ampex Magnetic Tape Company, and I became vice president of Ampex, and general manager of the Ampex tape company.

RS: We've had more than one digression John, your life is much too interesting to omit anything. I want to go back to television.

JL: Sure.

RS: You were involved I believe with that first 1956 exhibition in Chicago. Would you start talking about that?

JL: I really wasn't – I stayed in Redwood City. What happen at that time was that we had what we called our "prototype," and a second unit we called our "original prototype." We shipped the newer "prototype" to Chicago. You, Walt, Charlie, and Phil Gundy went to Chicago. I stayed with Alex Poniatoff and the group in Redwood City to show off the older of two, the "original prototype." So simultaneously, we let the world know that we were in the video recording business. The real show was in Chicago with Phil Gundy lining up the heads of all of the networks. It was almost like a bidding war, it was just amazing. Phil was a master at explaining what we had and how to show it. And Charlie in his own inimitable fashion, was the scientist involved. They ended up with orders for forty-five video recorders at forty-five thousand dollars each, with a commitment we would have them all delivered and in operation in less than a year.

RS: And what happened?

JL: We were all thrilled about it until we sobered a bit and realized what we had ahead of us. At that point we set up an overlay organization in Redwood City. I managed that overlay group which teamed up members from engineering, manufacturing, checkout, quality assurance, and your group in application engineering. That was to me a highlight of the real team spirit of Ampex. Everyone worked together. We had to complete the engineering, make final drawings, and do the tooling. Then do manufacturing, assembly, and checkout. It was an amazing effort by all the members of the overlay organization.

RS: And enormously successful.

JL: Yes, absolutely.

RS: Even the financial people were delighted.

JL: Everyone was happy. And I must say that all of us worked like crazy. We had to hire a lot of people – that was one of the first things I had to do. We hired engineers from the television industry, ones that were actually working with CBS, NBC, ABC, and San Francisco's KQED.

RS: What! You were stealing employees from your customers?

JL: We had no choice. You had to have people who knew exactly what the recorder had to do.

RS: First successful tape recording of video subjects.

JL: Remember those head assemblies, the rotating-head assemblies? Where the life expectancy was only fifteen hours, that's all? We had regular UPS and FedEx express going back and forth from all of the customers to us. We had a major manufacturing operation of refurbishing heads and getting them right back out again. We have learned so much since those early years.

RS; I would like to move from that diversion into video. John may we return now to the time that you left Ampex, and hear a little more about your decision to do?

JL: In 1961, I came back to Redwood City to manage the Ampex Military Products Company. Bob Pappas took over as manager of the Ampex Magnetic Tape Company. In late 1961, I made a presentation to the board of directors of Ampex. After the meeting I talked to Dr. Terman, who was a board member and also Provost of Stanford University, and said "I would like to talk to you privately," and we did.

I said, “I’m burned out.” I didn’t tell him I was disenchanted with Bill Roberts, because I didn’t know his position on him, but he was certainly was a party to Bill Roberts being hired. The truth was that I really was burned out. I told him that I would like to leave Ampex, go to Stanford, and do graduate work. If I could, I would like to be on the faculty. He said “Can you meet me tomorrow morning at eleven o’clock in my office?” Of course, the answer was yes. He had John Arnold, the head of the mechanical design department, with him. We had lunch together, had a wonderful conversation, and we agreed that I would become a student in mechanical engineer working on a master’s degree and maybe later on a PhD. The following day I handed in my resignation at Ampex. I had a wonderful talk with Alex Poniatoff on exactly why I was leaving, including the Bill Roberts situation. I must say Alex understood completely why I was leaving.

Professor John Arnold, the person I meet in Dr Terman’s office, became my sponsor. I was happy to study mechanical engineering. Much of the work I had done at Ampex was in the mechanical world, and I enjoyed that as much as electronics. I received my MSME degree in 1963, and I also took advantage of the opportunity to upgrade my education in electrical engineering.

I then became a member of the Stanford faculty, taught at the undergraduate level, and continued to work toward my PhD. At that point John Arnold and I agreed what my thesis topic would be, and the research necessary to accomplish it. He went on a sabbatical for a year. I took over the teaching of two of his graduate courses, so I had quite a full load teaching program.

A few months later, Stanford received very bad news: John Arnold had a heart attack and passed away! That was very sad news for his wife, family, and everyone who knew him. It was particularly bad news for me because I lost a good friend, and the sponsor for my PhD. I had finished all of the course work for my PhD, and had my112 page thesis ready for his approval. But now to get a PhD, I would have to have a new sponsor, settle on a new thesis topic, and do years of research to reach the position I was in with my current thesis.

To make a long story short: I settled for the degree of EME, engineer in mechanical engineering; this allowed me to stay with my current thesis, and one that a staff colleague of mine, Professor David Thompson, would support. I knew that without a PhD, my teaching career would be limited, so I decided that I had better leave Stanford, and go back to industry. Stanford wanted me to stay and become manager of a new “Research Department, Mechanical Engineering” that they wanted to establish. I thought about it, but chose to leave.

Now, with a good education and no job, what do I really want to do? My wife, Leone, and I decided that she and I would work for ourselves for a year. We had no children so we had great freedom to do whatever we wished. We already owned property in Portola Valley, so we decided to design and build a new house for ourselves. She quit her job at Hewlett Packard, and we began our new adventure.

RS: John, while you were teaching, what did you teach?

JL: At the undergraduate level I taught machine shop technology and descriptive geometry.

RS: I believe I heard something about teaching creativity.

JL: When John Arnold left for his sabbatical, I took over the teaching of two of his graduate level courses. One of those was Engineering Design and the other was Engineering Creativity. Both courses were aimed at giving students a preview of what they would be experiencing in the real world of industry.

RS: You came to Hewlett Packard at one point in your career?

JL: Yes.

RS: I think Walter Selsted was already there.

JL: Yes, he was, and so were you.

RS: Yes I was.

JL: My late wife, Leone, also worked for Hewlett Packard prior to resigning to go on our house building adventure. After we finished our new house, she returned to HP, and I joined HP.

RS: Speaking of the new house you built, did you get your hands into it?

JL: Very much so. One of my colleagues from Stanford and I surveyed the two plus acres. I designed the house and did the drawings. The house had forty two thousand pounds of tile on the roof, and heavy timber beam construction to support it. In order to get approval to build the house, I had to do a stress analysis of every beam in the house in order to receive approval from the chief engineer of San Mateo County. There were a few things that were the first time ever done in the County. One was to use ABS plastic in the underground piping system. The chief engineer agreed to use my installation as a proving ground for why it should be approved for use in the County in the future. The County's engineering department worked with me in taking pictures and making tests as we installed the piping system. The County then approved ABS plastic for use in the future. I hired two carpenters to work with me. I joined them in doing a lot of the carpentry, including cabinet making. I did all of the plumbing and all of the electrical work. My wife and I did all of the painting. The house received final approval for construction seven months after we received the chief engineer's approval to proceed. We still had a lot of finishing touches to do, but we were living in our new home.

JL: Ross, we have talked about how many of the early Ampex employees became disenchanted with Bill Roberts. You and I both agree that it was a sad day when he became President of Ampex. As a direct result, you resigned in 1960, Frank Lennert in 1960, I in 1962, and Walt Selsted in 1963. Many others left also.