

NBWM
Don Listwin
Video conference

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by David Zierler

DAVID ZIERLER: This is David Zierler, Director of the Caltech Heritage Project. It is Tuesday, March 25th, 2025. It is my great pleasure and honor to be here with Mr. Don Listwin. Don, it's wonderful to be with you. Thank you so much for joining me today.

DON LISTWIN: Thank you and good morning.

ZIERLER: Don, to start, would you please tell me your titles and institutional affiliations, past and current?

LISTWIN: Oh, Lord. Well, titles, you know, I've been a CEO six times in the technology business. In the cancer business, I've been on the Fred Hutch Board. I'm on the Stanford Canary Center Board, and I am an Adjunct Professor of Radiology at Stanford. There are a lot of other titles, I guess, but that's probably the best. In the business side of things, besides the CEO roles, probably the most formative one was being able to be the EVP at Cisco Systems during what I call the right 10 years, 1990 to 2000. At that point, I had a great opportunity to run a big part of that company and learn a lot of things from the CEO, John Chambers.

ZIERLER: Now, why was that the right 10 years, as you called it?

LISTWIN: Well, they had just gone public, and that 10 years, later in March, I think, the 21st —I've got it around here somewhere—it became the most valuable company in the world. So, it passed GE, and it passed Microsoft for a brief moment there. Not like the stratosphere of Nvidia

today at \$3 trillion. It was half a trillion, which we were very proud of. But that 10 years, I held on to all of my options and stock, and I didn't sell until I left to become a public company CEO. That allowed me to create a financial infrastructure to get Canary going.

ZIERLER: Don, I want to ask, sort of at the broadest possible level, what made you think, coming from a finance and technology perspective, that you could create such a massive, historic impact in cancer research? What was the confidence? What was the audaciousness? What was in it in you that made you take this leap in your career?

LISTWIN: Well, I would say, what I'm best at in terms of business is market development and technology development. At Cisco, during those 10 years, one of the biggest things I ended up doing was creating an IBM Internetworking series of technologies, where IBM Internetworking was an oxymoron. [laugh] You weren't supposed to interconnect with IBM on anything. So, that was a whole new market for us, and so that's what I became good at, trying to analyze a new market, see how we could insert either through acquisition or organic growth. I figured that those skills were transferable and, furthermore, the internet, building it was a giant collaborative effort. I always joke and tell my kids, I didn't invent it, but I installed it. We were way ahead of the scientific community in terms of being able to collaborate with each other. The scientific community in the 1990s was one pig, one farm.

ZIERLER: [laugh]

LISTWIN: I think I brought that teamwork mentality and not being afraid of anything, I brought a great naïveté [laugh] into the scientific world, which was good in some regards and

naïve in others in terms of I thought I'm 25 years into this project, I thought I will have succeeded. I certainly have on a number of measurements, but in terms of having the goal that I set out 25 years ago, I haven't reached that goal yet.

ZIERLER: Don, I'm curious, also in the 1990s, this is the beginning of what we now call big science, things like the Human Genome Project, that was the transition away from [laugh], as you called it, the one pig, one farm. Were those sort of technological and sociological developments in science, was that important as you were thinking this pivot in your interests?

LISTWIN: Yeah, certainly, the whole genome getting, quote, discovered, and tools from Illumina and others trying to understand that. The other technology that had a lot of promise, which didn't go as well as people hoped, was proteomics, so the study of proteins. Then really one of the things that differentiated us was from Stanford, Dr. Sam Gambhir joined one of our teams, and the whole idea that this has to be a two-step process. No surgeon is picking up a scalpel based on one test result. Generally, they want two, and the second one is either a biopsy or an image. That's still to this day something that we try to really hammer into new additions and new scientists, that you're trying to solve part of the problem. This isn't like drug discovery where it's, aha, I have the magic pill. This is, you want to narrow down the problem so the next test can narrow it down further and give confidence to act.

ZIERLER: Now let's take our discussion in sort of the broad span of early cancer detection in historical perspective. Relative to when you first started thinking about these things deeply, and where we are today, where's the major progress that's been achieved? What feels like, you know, the future is still in front of us?

LISTWIN: I'd say we've made progress in terms of cancer care on three legs: one in terms of prevention. Obviously, there was a lot of smoking going on 25 years ago, still is globally, China and other markets. So, prevention really, really helped. In early detection, really, the progress was in getting people to understand the available screening. I mean, my gosh, my cousin died at 51 a couple of years ago of colon cancer because the standards in Canada weren't ready for him to have a colonoscopy. So, what's out there being utilized has really been the thing that has changed. Then, on the imaging front, more advanced imaging, for instance, now it's emerging as one of the standards of care on prostate cancer is to have an MRI, which was never the case, and MRI-guided biopsies and others. We haven't had the breakthrough. Grail, as you may know, is an Illumina company, who's working on a multi-cancer biomarker testing—biomarker just meaning some marker of biological fluid: urine, blood, whatever it might be. We haven't had the breakthrough there that we wanted and expected.

ZIERLER: Now, it's interesting because of all of the ways you could have come at the cancer problem, you focused on early detection. If you could walk me through, what was your inspiration for that, and what were you thinking, even perhaps from a market perspective in terms of where dollars were being invested versus the biggest bang for the buck?

LISTWIN: There's sort of two sides to that early detection coin. My dad had a colonoscopy, and we discovered that we are genetically susceptible on my paternal side. I ended up having bleeding, and I went in at 20-something, which I think many 20-year-old men wouldn't, and they found polyps, which back then it was like, "Well, we'll take them out." But, today, we believe that polyps are precursors to colon cancer, so that early detection may well have saved my life.

On the flip side, my mom at 62 got misdiagnosed with a bladder infection, and they gave her antibiotics [laugh] for what was a stage four ovarian cancer. She was my best friend. Sorry.

ZIERLER: It's OK.

LISTWIN: Finally, my sister, who was a nurse, wrangled her into the hospital, where she got diagnosed, and it was too late, and she died. So, our family have lived through this. My first wife ended up getting vaginal cancer at 28 years old, which is unheard of. Her doctor had a good day: he found it on a pap smear, which is very unusual. But, ultimately, it was just too late. Sorry, I'll pull myself together here.

ZIERLER: That's OK. This is what it's about. Don, it's OK. It's what it's about.

LISTWIN: So, that's what influenced me. Then with my mom, my mom died. Actually, I'd left Cisco, and gone to two public companies that joined. For those of you who are out there thinking about that, don't ever do that. That's [laugh] murderous on everybody involved. I remember being with her, and the CFO called me when I was in hospice, and she just died, and said, "We missed our quarter." I said, "Well, that sucks, but I've got to go take care of this." So, it was it was really that moment. I'd done my thing as a public company CEO. I finished up that, got that company back strong, it was weak, and we had merged the two companies just as the markets in the spring of 2001 began to crash.

I ended up working through laying off 1,500 out of 3,000 people, going through 9/11 with 200 people stranded globally. After 25 years, I thought I'd done my thing for business. I had been financially successful. Then where could I take my skills in market and business development

and technology, and apply them to a bigger problem? What became clear, specifically through ovarian cancer, is that early is pretty easy to treat. Outcomes are fantastic if you find it. The problem for most women with ovarian cancer is the symptoms are very much like menopause. The age group is 60 to 70 for ovarian cancer. They're taught as women to shut the hell up about your bloating or you're uncomfortable with this or that or the other thing. So, the idea was being able to figure out a way to sort out early detection. This is true for almost all solid tumors. When you find them early, you can treat them. They're quite treatable. But we just have diseases. The worst two, I guess, in terms of not being able to find them are pancreas and ovarian cancer.

ZIERLER: Now, to be clear, when you did this shift, were you thinking that you were going to leave the technology industry altogether or was that a soft landing? What were you thinking at the time?

LISTWIN: I certainly was thinking I was going to leave operating roles. In that Cisco days and others, there's no such thing as 9 to 5; 5 to 9 was the basic day [laugh] back then. I continued to do technology investment and, to this day, I have my little venture company, Listwin Ventures. I probably have 20 different investments that I do in and around areas that I'm familiar with. But I have done more recently medtech, a company called RapidAI, revolutionized stroke care globally, and changed the global standards, where that company probably is saving, versus the old standard, hundreds of thousands more lives. Also, I'm involved in handheld ultrasound, which later on in the story is important because I think handheld ultrasound machines that cost on the order of \$5,000 to \$7,000 can become the everyday imaging tool for the general practice, which can really help in this continuum of, OK, we do have a blood test. It's high. Let's go do

this imaging test. But you don't have to go anywhere. We'll do it in a GP office place. I continue to invest and be on a lot of boards, public company boards, private company boards, but not operating roles, and I really was operating as the CEO of Canary.

ZIERLER: Was there a playbook, were there are other people that you emulated or referred to coming from technology and finance who made this pivot to healthcare?

LISTWIN: The vision of this was from a guy named Dr. Lee Hartwell at the Fred Hutch Cancer Center in Seattle. How that all came about is, I sent out a series of emails on a Saturday to a number of institutions' development departments, and said, "Hey, I'm interested in working in ovarian cancer." Development Director Pat McGowan emailed me back about an hour later, which always is good for me [laugh] in terms of, are you on it? It was Saturday, nonetheless. She said, "Yeah, we have this great program—Nicole Urban—and we'd like to see you." So, I went up to Seattle, and when I went to Seattle, I met Dr. Lee Hartwell, who was the Institute's director at the time, and this really was his vision. His vision really was this two-step process: biomarker and what we call molecular imaging—so not just imaging like a CT scan, but we put something into your body that can really be specific and home to the cancer, so we can be sure there's not false positives. This was his vision, and he's the one who originally helped me convene a team. Then, I learned along the way as I went, imaging from Sam, genetics from Peter, and so on. So, that's how this all started.

ZIERLER: Now, geographically, you were in the Bay Area, and you went up to Seattle? How was that connection?

LISTWIN: Yes, I was in the Bay Area and went up to Seattle, and that's where my primary major funding went. Nicole was a data mathematician, and she needed to get a wet lab, and she was about 24th on the list [laugh] as a data mathematician. So, I gave her the first million-dollar gift I'd ever given, and she got a lab to begin to work. She was working on ovarian cancer biomarkers, and I continue to fund her. As Lee and I got a better relationship, I said, "Shouldn't there be a place where we can do all of the work, all the multiomics work together, and wouldn't Seattle be a good place to do that?" He said, "Yeah." So, I ended up negotiating with him and discussing with him, and gave the Hutch a \$10 million gift to create a center for early detection at the Fred Hutch. A bunch of that money was used to bring in proteomics people, Dr. Sam Hanash and Dr. Mandy Paulovich, because there was no expertise there. That's how the program started.

ZIERLER: Were you in a financial position where you thought you could do most of the giving yourself that allowed you for a certain level of control over the vision of what you wanted to accomplish?

LISTWIN: Certainly at the beginning, yes. We built a whole variety of models. There were big teams, which we can talk about a bit in the future. There were lunches, where I'd sit down with scientists, and they'd pitch some idea, and I'd pull out my checkbook and write him a \$50,000 check to go and see if the idea made some sense and held some water. But the hallmark of Canary over the long term has been leverage. For every dollar that I've put into the Foundation, there's probably been five more dollars from other people. For every of those dollars, we get leverage of around 10 to 1 from the National Cancer Institute and other granting

institutions. The whole idea was to build some leverage but, at the beginning, I had enough resources to get things going.

ZIERLER: Don, being in the Bay Area, Stanford being right next door, when did you establish that connection?

LISTWIN: Lee and I discussed, and he said, “What we should do is to build this team, and we don’t have everything we need at the Hutch. Notably, what we don’t have is advanced imaging technology at the Fred Hutch.” Stanford had—bless his soul; he’s passed—Dr. Sam Gambhir as a world-leading, one of the top 3, I think, and arguably one of the best in molecular imaging. So, Lee convened a meeting, which was held at my home here in California in Woodside, and ended up with Pat Brown from Stanford who invented the DNA microarray. We had Frank McCormick from UCSF. We had Peter Laird, a methylation expert from USC. Sam came in as the imaging guy. Sam Hanash came in as the proteomics guy. Marty McIntosh came in as a data scientist for us. We all came together. That’s where the two Stanford links really came in, the majority of which, over the long term, was Sam, as Pat left after five or seven years to start Impossible Meats [sic].

ZIERLER: [laugh] Don, I see here in the story so far, there is the philanthropic world, the foundation world. There’s academic scientists. What about government-supported basic research? What’s the role of FDA, NIH? How were you thinking about public initiatives in this development stage?

LISTWIN: Well, what becomes clear as you develop in this world is, if you give scientists with a good idea and good scientists some seed money, when they get early results, they're about five times more likely to get a grant from the government. That was the whole idea. How do you give them a head start? Let's imagine there's five people trying to do this proteomic study, and four of them have an idea, and my Canary person has an idea and preliminary data, they're always going to win that grant. So, that was a model which we used. We also used models of most of my major funders early on in the days were more senior venture capitalists that I knew, the most noteworthy of which was Don Valentine, who is the founder of Sequoia, who was my father-in-law.

ZIERLER: Oh wow. [laugh]

LISTWIN: [laugh] Then probably the most important to the story was Bill Bowes, and he was really the anchor that helped us start building infrastructure at Stanford. But, to this day, it's about leverage. I've got a call recently from a new foundation just formed. They sold the company for \$5 billion to another high-tech company, and they put a billion into work, and they want to work on early detection of pancreas cancer. So, I think we've got to a point where the brand, we have a trusted, respected brand, and that's also another way that we can create this leverage outside of NIH, NCI. Who knows what is going to happen in this day and age with a grant from that institution?

ZIERLER: Don, the idea that you're in a position as an individual investor with a vision to fund research in a much less conservative way—you can write a check if somebody has a good idea, with the dream being that if it works, they could go on to a much larger phase in funding

from government sources—is that an investing philosophy? Is that a perspective to achieve success that comes sort of directly from the Silicon Valley VC investing kind of world?

LISTWIN: Oh, I think absolutely. I mean, you should think of me as the seed investor, and then we go out and look for our Series A people, like Bill Bowes or Mr. Valentine or, for that matter, a great example of that—and I know he doesn't mind me sharing—Frank and Denise Quattrone, who is quite a famous banker in the world. Frank's dad died early in his very early 50s of prostate cancer. I knew Frank, both from a business and a personal point of view, and I approached him. He and his wife gave us the first money to start our prostate team. Now, it was one of our more challenging programs because we had to commit to milestones. So, one of the differentiations and one of the skills was, you know, I always used to say at Cisco, "Don't confuse efforts with results." [laugh] With the prostate team, we're like, "Frank's going to give us the next million dollars if we do this or we get close to this." Because one of the things about cancer philanthropy which is frustrating to people who give is it just feels like a giant black hole. You raise money, it goes in, and you never hear a damn thing back or, for that matter, you don't hear—which would be better—"Well, we failed, and here's how we failed, and so now the aperture of our next attempt is smaller because we know not to do that." That's, again, for future.

One of the advantages of Canary is that we know what doesn't work, and so we say no to that. That skill came from Cisco. We built giant ASICs for our routers. I didn't know how to build an ASIC, but I knew when one was going to work and one wasn't going to work. After the second try, one never worked after three turns ever, and so after the second turn, if it didn't work, we canceled it. We had that kind of attitude where we're not canceling programs but giving them

enough to get going and having them prove it versus a scientist who gets a three-year grant and, five years later, you know whether or not something happened.

ZIERLER: Don, it's a question that you can apply always to sort of in the history of great ideas, what is your sense of why no one thought of this approach before you? In other words, if it's so obvious, the importance of early cancer detection, and it was so obvious that this was a part of the research process that needed funding, why did Don Listwin need to come along in the late 1990s, when these problems had been around decades earlier?

LISTWIN: I think there were two big problems. One is there wasn't collaborative science models, there were no funding mechanisms to do that, so we were one of the very first that pulled that together, with Lee's support. The other big problem, which still exists to this day, is the business model in the world for early cancer detection is terrible. The story I've heard is Abbott Labs has as many trucks as UPS; you just don't see them. They're running around at night, picking up blood samples, and they're in, to use the tech analogy, it's a mainframe processing model. There's seven huge sites, and the way the government will pay for them is cost plus. So, versus I have a blockbuster lung cancer drug, I become a very rich scientist, I get accolades, and I get pharma money pulling, there was no money from industry pulling here. Part of the technology development we did also—and Stanford has led the way—is in point-of-care devices, where there are disposables. You can build businesses that are very successful businesses in this field, as opposed to the old model of, "I'm going to sell this biology." The business model is still broken. I'll tell a quick story about how my dentist is always interested in what I'm doing in this area. We chatted one day many years ago, and she said, "Well, my office

is the right place to do this. You come and see me twice a year. I can take a drop of blood out of your mouth without you even knowing it. If I had something the size of a printer next to me”—which is what some of these new early detection biomarker platforms are like—“I can drop it on there; run 128 tests.” The chip costs \$1. Sell it for \$50 if you want. You can make a really, really successful business out of that. So, that’s one of the things I’ve also encouraged is I’ve done a lot of mentoring to a lot of scientists on them starting their own businesses and being successful, because if all the great minds went to Google, we wouldn’t have great minds doing this research.

ZIERLER: Don, is that to say that, even if the goals of your initiative are so idealistic—it’s all about helping people, it’s all about improving health outcomes, it’s all about making sure that other families haven’t gone through what your family has gone through—does there also need to be a level of—I don’t know if the right word is “cynicism”—world weariness that money really talks, and it needs to be present in all of these considerations for the whole model to work?

LISTWIN: Certainly, for it to scale, it certainly has to be. But if you can start saving people’s lives in high-risk clinics—and that is just the wealthy people, but wealthy people got cell phones first, and that’s how technology development goes. You prove it out, and the wealthy can pay for it, and then you get the next generation, and it’s two times cheaper, which means four times more people—rule of thumb on consumer electronics—can get access to it. We’ve got to the point where one of the big partnerships we had was with Cancer Research UK, who were told, “genetics, genetics, genetics, genetics,” and they put money into [laugh] genetics for 10 years, and didn’t have any change in outcomes. They came, and they started talking to me. I said, “Well, here’s where we think the leverage is, particularly for you in the UK, because you have a

public care system. So, if you get something working, you've got the tools, the money, and the infrastructure to roll it out, which is far different than here in the United States."

ZIERLER: What was most important for you to convey in those early years that there was money to be made, this was not a financially losing proposition? What was the case you made, and who needed to hear it?

LISTWIN: Originally, the case was just made to funders that, you know, everyone goes on these great binges of excitement on proteomics and genomics and the next thing. Liquid biopsy, if you recall, that's the latest and greatest. We needed to show people that there was a pragmatic way that could begin to save lives. I think sometimes people want all the lives saved. If we could save 10% of women's lives in ovarian cancer in the next five years, that'd be a huge home run—and then 20% the next five years, and 30% and so on. We're just in those conversations globally with trying to roll out early detection technology. But we have a very long way to go to convince any government infrastructure because, up until now, all the questions are, "Well, here's all these untreated masses. How do you get to them?" I say, "We get to them when the technology gets to the price that we can get to them. The only way that happens is with generation after generation of working on it."

ZIERLER: Don, I wonder if you can explain the pipeline where you're talking to scientists, they're telling you what they need, and now this eventually goes to biotechnology to create the devices, the diagnostics that give the scientists the tools they need?

LISTWIN: Give me that question again. I'm not quite sure where you—

ZIERLER: The pipeline that goes from you talking to scientists, the scientists telling you what they need technologically, diagnostically, how you take that information and then bring it to biotech so that they create these devices, how does that pipeline work?

LISTWIN: Most of them to date have been through—the Stanford ones have been through start-ups, through venture. We'll work on some program, and we're very careful about not getting financially involved in any of these things. We don't want to have any view of conflict of interest. Early on, I did a couple of investments, and a couple of my donors came back and said, "Well, are you using my money to sort out what's the best thing for you to invest in?" I said, "No, but I can see how that might be viewed as a conflict." So, the start-ups that are coming out of Stanford right now are coming through the typical venture channels where we helped, and the money that we put into their lab, we don't get any percentage of. It goes to Stanford. It goes to the School of Medicine. It goes to the researcher themselves.

ZIERLER: Was your idea for Canary, would there be any scientists that were directly employed, or it would always be external partnerships?

LISTWIN: They were always external. We employed young PhDs that became program managers so, as we grew, we grew different team structures. We started with ovarian, which I can talk about, not because it was my mom's but because the team thought it was one of the most challenging ones to work on. We then ended up—were found by a family in New York, where a well-known banker had died. He was a marathon runner, who died in his 50s of lung cancer. They wanted to start a lung cancer team, so that's how that team started. The prostate one we talked about was with Frank. So, we would convene those teams. They would talk about what

the best problem was. To our earlier conversation, the problem the prostate team said they wanted to solve was helping doctors and patients decide whether they should get treated. In prostate cancer, a quarter of the men, you're fine. You should be careful, you should be diligent, but it's not going to progress. The quarter on the top end, you've got to go to surgery, radiation, whatever, right away. The big public health problem was, what do you do if you're a man in the middle? So, that was the problem that the team tried to work on, because if you can convince people who didn't want to go to therapy to go to therapy, you were going to save lives.

If you could tell people they didn't have to go to therapy [laugh], and they were going to, you could save a lot of morbidity. It really depended what problem the team thought they were going to solve. In the case of both ovarian and pancreas cancer, there are two pretty good blood biomarkers. One's called CA-125 for ovarian cancer, and one's called CA 19-9 for pancreas cancer. The problem is that the incidence of the disease is so low that if you do your statistics, the false positives are crazy. This is where Dr. Gambhir said, "This is where imaging has to solve the problem." We've been working on a molecular imaging program for 15 years, with the idea that you inject a body with this particular substance, and it goes and finds cancer vasculature. Avastin, from Genentech here locally, knew all those targets because they were targeting drugs with them. So, we didn't target a drug; we targeted a little bubble that when you put an ultrasound over it, it vibrated and then it burst, and you could see the cancer, and you knew it was specific. To this day, we're just opening a new center at UC San Diego for early cancer imaging detection using ultrasound, with a young—used to be a staff scientist at Stanford, Amit. Each one of these, you know, if you looked at the care continuum, you said, "What's the big missing piece?" In ovarian and pancreas, it's imaging. In lung cancer, it's also imaging. I mean,

the way you handle lung cancer is you get a CT scan. He doctor doesn't know whether or not it's cancer or scar tissue from asbestos or whatever else. So, the protocol is you wait 90 days, and your chance of living if you have cancer goes down from 50% to about 10%, while the doctor waits 90 days to figure out if it's cancer. So, how do you do a test structure that says, "No, dammit, it's cancer; go pick up the scalpel"? Each of these, we examined the care continuum, what was out there, and where you could insert and provide some leverage, versus saying, "Oh, it's the utopian dentist office thing [laugh], and we'll genetically change babies to get rid of their bad gene structure." I think we were pretty practical on where was the leverage in the care continuum.

ZIERLER: Don, you said something very interesting earlier about getting started focusing on ovarian cancer, not because of your mom but because it was so challenging. Fascinating there, why not go after the low-hanging fruit first? What's the science? What's the investing philosophy behind that?

LISTWIN: It's what the scientists wanted to do.

ZIERLER: Easy as that?

LISTWIN: It's as easy as that. [laugh] Nicole, who I talked about, she was also part of that team, and we convened the first team, and discussed a variety of these different things. I think there's some pretty big minds and some pretty big egos around the table, and they said, "Let's see if we can crack this one." I think it's as simple as that, David.

ZIERLER: Is that to say, Don, that you always let the scientist take the lead, that what they want to do is what you want to do, or are you ever sort of at the forefront of saying, “I think this is what we should work on”?

LISTWIN: At this point, I have some rules of engagement and, you know, back to the, “we’ve already learned this; I’m not doing that again.” Some scientists want a blood test that’s perfect. Well, they don’t exist yet, so why don’t we find one that’s specific? What that means is, we know it’s cancer. Even though we’re going to miss some, we know the ones we’ve got are cancer for sure. There are guardrails and, of course, after 25 years, I know more than I did at the beginning. I trusted Lee, in particular, and Sam to really help guide scientific principles. But I was the one trying to think about how do we get other people engaged, and then how do we bring this to market, not as a company but through other vehicles, so that it ultimately can be successful? So, that was the role I played.

ZIERLER: Don, as Canary was getting started, how did you refine what role you saw it playing in this larger ecosystem? In other words, at the beginning, you have all of these ideas. What did you learn about what Canary’s lane should be, where it should leave other aspects to other organizations, and where you saw a real opening that nobody was doing this? I wonder if you could walk me through that.

LISTWIN: Certainly, most all of the money in cancer is in therapy and drug development. That’s still the case. When you go to the National Cancer Institute—and I was on the board of scientific advisors for five years—the early detection group is rolled in with the prevention group, so it’s the [laugh] poor brother to prevention. So, there’s not much money at all. It was

pretty easy to be the only one that said, “We’re going to do this,” because the big pots of money in diagnostic company, they go, “Well, we’re just not ready to do that.” Now, to this day now—and I digress a bit—the prostate team has been doing this clinical trial for 15 years on that, sorting out what men should go to therapy or not. There’s a calculator now that men and doctors can put in and, with 99% certainty, know where they are in this process. Now we have hundreds of thousands of samples. That program probably cost \$30 million to \$40 million, so far. Now we have biotech companies, so now there’s biotech. There really wasn’t biotech to think of 25 years ago. We sell them our samples, and the outcome we’re looking for is they actually get a test that works; they just didn’t have the samples, because it takes forever to get these done.

Why didn’t anyone else do it? I think because people worked on it, and failed, and then there was none of this big economic pulling. Now, in the future, fast-forward, the two huge successes on this, CR UK—which we talked about earlier—decided to shift and make early detection one of their anchor programs, and bring their money and plug to it. The other big thing that happened in the US here in the last decade is Phil Knight, of Nike fame, one day came to a podium, and surprised everyone, and said, “My wife and I decided to give another billion dollars to Oregon State Hospital System, but we want it focused on cancer.” A very famous doctor, Brian Drucker, got named the director, and he surveyed the world. Brian came back and, after talking with me and hosts of other people, went to Mr. Knight and said, “Early detection is the right low-hanging fruit for us right now.” So, there’s a giant institute up there that’s working on early cancer detection.

ZIERLER: Is Canary a part of that initiative? What role do you play in this?

LISTWIN: Sam and I played a role in convincing Brian that early detection was the right thing. Sam and I played a role in convincing the leadership team at CR UK. It's at Cambridge that the major cancer work is being done. There's a couple of actually Stanford people that are leading that effort now. I do—I'm going to call it—sales calls. They had somebody who wanted to give \$25 million to the program, and I said, "Let me tell you, here's my unbiased view of this, I'm not going to get a nickel, but let me tell you how this helps the overall ecosystem." We managed to land that donor—they did—and get that program going. Similarly to this big new foundation that's got this interest in early cancer, they said, "Well, should we give the money to you or give it to Stanford?" I said, "Look, for the beginning of small money, I have IP agreements done with everybody. I have a great gift agreement done, which I don't think, in today's day and age, anyone's going to get the low percentage of overhead that we have so," I said, "start with me. If you want to give \$25 million or \$50 million, and you think Stanford's the home for it, I'll be the first person to guide you through the process and where the pitfalls are." I'm just interested, I mean, we started with six guys and a goat, and we are now the legions of thousands.

ZIERLER: Don, you mentioned calculations. Inevitably, this prompts questions about your views on machine learning and artificial intelligence, which is obviously a very recent development and potentially is revolutionary for the field. What are your perspectives on what AI can bring to early cancer detection?

LISTWIN: Well, I'll go back. You said machine learning and AI. I'll start with machine learning. The example there, which I think is the one that I lived through, was in the stroke

world. The company that was started actually by my father-in-law and two Stanford scientists, Greg Albers and Roland—geez, I just—we'll get it—

ZIERLER: We'll come back to it, no problem.

LISTWIN: We'll come back to it. [laugh] Bammer, Roland Bammer—they started doing machine learning on CT images for stroke. We got to the point where the crossover happened. The machine was much better than the doctors. That just happens because the machine learns the next one and the next one and next one. Where you want to call machine learning, you know, structured machine learning, unstructured, in the whole AI continuum, that's a whole discussion. But that started as long as 10 years ago, and it's already there. Another example that's happened is, we run as a family an eye clinic in Belize. There's no healthcare in Belize, so we built this eye clinic with the help of a doctor, who's a neighbor, and Stanford, who's designated a global health program. We rotate doctors through there. But what we've done is there's AI cameras now. So, we have a technician, just like if you go to LensCrafter, and you put your chin in, and it takes a picture of your eye, and it sends it to the cloud. It runs what I'll call machine learning, but they call it AI. It comes back and says, "You have diabetic retinopathy. You better go start working on knocking off the Coca-Cola because you've got bad diabetes." So, it's already happened.

The third story is Gary Glazer, who used to be the chair of radiology, he said, "Well, the first practice to go is going to be pathology." [laugh] He said, "The second one to go will be radiology." I lived the radiology stuff because, in Rapid with stroke, the neurosurgeons wanted the tool because the hospitals would make \$50,000, \$100,000 per case. I mean, the numbers were just egregious. The radiologists hated it because they saw the fact that the neurosurgeon didn't

have to send it anywhere. I think that that development will come where we'll just improve outcomes and improve outcomes. In the case of Rapid, the major thing that that team did—which was not my doing, but I helped scale—was the global standard for stroke was six hours. After six hours of a stroke, they wouldn't give you care because they thought you were done. What the clinical trials with this technology proved is you can have many strokes, as you might imagine, up to 24 hours. So, the global standards changed because of this technology. The company grew rapidly, as you might expect [laugh], during that time. But there's no question, in imaging and pathology, that's where we'll probably have the biggest impact, to start.

ZIERLER: Do you think, you know, the idea that the machines are coming for the jobs, does that mean that people who now work in pathology and radiology, is it that they're going to be out of work, or is machine learning optimizing them to do what humans will always do better than machines?

LISTWIN: Oh, I think it's the latter, I mean, I do think it's always going to be the two together. The pathologists on the Canary Group, reading the slides at 15 different institutions, the inter-reader variability was just incredible. All of a sudden, you just give an algorithm, and you send the algorithm to all 15 places and, whether the data is good or bad, it's all the same. [laugh] So, I think, in pathology, for sure, it will very, very rapidly change that field. What the mix is, I don't know. I mean, gosh, I was in the United Lounge last week, going to Belize, and a robot came by, picking up the glasses.

ZIERLER: [laugh] *Brave New World.*

LISTWIN: Right. The people weren't gone, but they weren't they weren't doing the busperson work, so maybe a practical example of how the mix changes. I don't know enough about pathology to tell you how the mix is going to change, or radiology for that—more about radiology—but the mix will certainly change. The machines are faster and better.

ZIERLER: Don, obviously, you're a sponge for knowledge. You do have a technical background in electrical engineering throughout your career in finance and technology. When is it important for you to read up yourself on cancer biology, on the technical literature, and when do you rely on your trusted partners, the scientists, the doctors, who basically tell you what you need to know?

LISTWIN: It's a mix. I read, I still read a lot. I don't read very many novels because I read a lot [laugh] during the day. I'm like, you know, put on *Reacher* on Amazon or something for me. [laugh] So, I do read a lot, and then our teams generate a lot of technical data. But, when it comes to the teams, these guys are world-class scientists and they do it every day, so I guess it's sort of fifty-fifty.

ZIERLER: Don, I want to ask some sort of macro-political questions about public policy. Let's start first with, of course, your dual perspective, the Canadian healthcare system, the American healthcare system. What can each learn from each other? Let's focus first on the positives. What do you see as the best in Canada, in the United States, specifically as it comes to early cancer detection?

LISTWIN: I think, certainly, on a funding level, we still are doing better at NCI funding for early detection in all cancers versus in Canada. For the UK, for that matter, as well, the government doesn't fund much of any research. What they fund is the public healthcare system, so they have to rely on people like Cancer Research UK and others. I grew up in Canada, and my family's in Vancouver now. My sister's a nurse, and she'll tell you, at least on the day-to-day care, and watching my mom go through it, things are slow, but they're ubiquitous, and things here are fast and expensive. But I think technology is the thing that will change in the United States, where if it's 50 bucks in the dentist office some 10 years from now, I think that we will adopt those technologies very quickly. An example on one thing that happened in Canada with one of the teams, the ovarian team, one of their big successes is the discovery that the fallopian tubes are really the primary source of serous ovarian cancer, which is the most deadly of the ovarian cancers. That was discovered, as all ironies in the world, by the surgeon of my mother [laugh] so, you know, unbelievable. The poor woman came out, and said, "I can't get it," and my mom died, and then we funded her anyway. But that practice was absorbed into Canada first, because taking out the fallopian tubes takes five more minutes of OR time, and that is an expense. In Canada, they went, "Yeah, we're going to do that." It's only now that that's translated into US care because people are pushing back on the five minutes in the OR. So, one is a little bit altruistically driven, but clunky and slow, and on this side, very financially driven, can be very fast if you're wealthy, and it is terrible if you're poor. I mean, you just don't get any care, as you know.

ZIERLER: In the best-case scenario, the Canadian and American systems would absorb the best of each, where it would be fast and ubiquitous, if I understand correctly. Is there an

international model? Is there, like, a Finland or a Sweden or a Japan? Is there some society in the world that is doing a good job in both of these areas?

LISTWIN: Not that I know of. I think it's one or the other. The Scandinavian countries are well-known for their healthcare systems, but there's no research money and very little innovation that's going on. China is a huge opportunity. Our lung cancer program, we ended up with a biomarker panel, five different things that determine lung cancer, and that clinical trial is now being funded by the Chinese government because it's 10,000 people. I suspect, because of both their commitment to machine learning and AI in China, the enormous number of people, and even being able to call the rich people in, will have big impacts in China in this field in the coming years.

ZIERLER: I wonder if you can walk me through. It's unfortunate that there isn't a perfect country out there that can be a model. Let's say you weren't the founder of Canary. Let's say you were the builder of a new country. What would you want to see? What would be the public policy initiatives that would get people into the clinic that would encourage a culture of going to see your doctor that would produce the kind of outcomes that you dream of?

LISTWIN: Wow, David, that's a big question. I have never started a country. [laugh]

ZIERLER: [laugh]

LISTWIN: Certainly, you want to focus on access for people as it pertains to early detection. Pap smears are, of course, a very important early detection test, and some cultures just aren't having it. In some cases, in Mexico, they figured out if they go with a mobile pap smear run only

by women in buses to the church that they can get [laugh]—so, there's no one size fits all by culture or by country. I think you just have to be mindful of who you're dealing with and what their issues are. Right now, colonoscopy is the gold standard. It's not that, I mean, people think it's a terrible procedure; it's not. The prep is no fun, but the procedure itself is a twilight experience, and you're in the lobby. So, I would just make sure that both information and access were out there, and we still are failed, I mean, my god, my cousin died five years ago in Canada. Some of the public policy stuff gets tied up in the cost of doing this, and so you take a hard look at what public policy is. But the sad news is a life has a price, and that's how many of these decisions are made in terms of whether we deploy these tests.

ZIERLER: Let's delineate that in terms of what public policy can do to encourage people to go see the doctor. Let's delineate that by what should people be doing who are non-symptomatic, and this is just sort of protocol, and what should people be doing who are symptomatic, in terms of the government encouraging, providing incentives to get people to go?

LISTWIN: Let me back up once and say, look, we want to differentiate not so much, at least in early detection, symptomatic versus non. If you're symptomatic, go to the damn hospital, or go to the ER, or go to your doctor. But with the genetic tools that you referred to earlier, we now have two big buckets of people who are normal risk, we think, and then we have two buckets of high-risk people. We have people with family histories. Two or more people with breast or ovarian cancer, you're high-risk in your family. Then we have genetic testing, BRCA1, BRCA2, a whole variety of different genetic weaknesses in the body. Well, that's where we want to start. So, if I started my country, I'd be more focused on how do we help people understand if they're

high risk, and get them into the care path, as opposed to going, “Well, I don’t want to do that”? If I had convinced my cousin—which I didn’t—that he was high risk, because my dad had it, and I maybe had it, he might’ve been able to get care. But I think in that case, he ran up to the barrier of he wasn’t 50 yet, and when he turned 50, he got the colonoscopy, and then there he was with stage 4 colon cancer. So, part of where we’re focused is, can you bring these tests, at least in ovarian and pancreas, to the high-risk community, because you can delineate those, both genetically and from family history.

ZIERLER: Don, what do you see as the future? What do you see as, you know, all of the things that you’ve learned, what’s most important to emphasize 2025 looking ahead?

LISTWIN: Let me phrase the question this way. If I had to bet on where the best outcomes would come bang for the dollar, it would be in molecular imaging. I really think giving surgeons tools—in pancreas cancer, the confounding issue is pancreatitis. If we could even do imaging that said, “Oh boy, you have pancreas cancer, not pancreatitis,” that would move people down the care path much faster. With ovarian cancer, imaging can do it. With prostate cancer, it’s becoming clear that imaging is really going to help. I mean, my god, if you understand how a biopsy is done on the prostate, blind, someone poking your prostate 12 times with a needle where the sun don’t shine, and doing it blindly, now image-guided biopsy is there. So, if I had to say where the technology that will at this next year, 10 years, make a big difference, it’ll be in imaging. Much of that imaging needs AI imaging, of course, to be successful. But that’ll be the tool that we’ll put in the quiver that we don’t have right now.

ZIERLER: Don, I think the last thing we can cover in today's discussion, it's really, you know, it's unfortunate, it's in the headlines, the federal government funding for cancer specifically is a grave situation right now. First, how did we get ourselves to this position, culturally and politically? What's the way forward, given what's happened so far?

LISTWIN: As I understand it, it's not just cancer, right? The National Institute of Health has some 30-odd different institutes, of which NCI is the biggest, at about a quarter of the budget. That all happened through the Clinton years where, as president, he increased the NIH budget radically, so the money was there. Where I think the community lost its way is the way it works is that if I get a grant, an R01 grant, let's call it, where, as a scientist, I get \$250,000 a year for three years, my institute gets the overheads associated with their institute paid by NIH. So, I'm going to get the 750,000 over three years from NCI, but NIH is going to give Stanford 60% more of that. What is that, 450,000? Well, a perverse incentive got created, which is, if you could get away with convincing the panel that you needed those overheads, they'd give them to you. All of a sudden, on one side of the coin, you'll have people argue, "Well, my scientists don't have to do photocopies anymore. My scientists have grant writer support because of the overheads. The Fred Hutch's is 73%, for gosh sakes. I used to argue with Lee, because he'd give me the photocopier thing, and I'd say, "Lee, at Cisco, our overheads were 4%, and the first CEO, John Morgridge, had an assistant that he shared with four people, and he'd photocopy his own stuff. I said, 'John, why are you doing that?' He said, 'Because I only need two and, if I had an assistant, I'd probably do 20.'" [laugh] So, it's a little perverse. Do I think there needs to be a better structure? I do. I think, like many things that are happening right now in the administration, it's too draconian. If you said to people, "Look, we're going to get to 30%, and you've got three

years to do it," I think people could absorb that, and understand, start making changes in their hiring practice, the building, the level of buildings that they build, and the like. But right now, in our community, people are gobsmacked. They don't know whether to you know what or steal second base. People are kind of frozen. They don't even know if grants today on March 25th that they've been awarded are going to get the NIH funding pulled from them, so it's frozen the whole community. Do I think, like, many things the administration are doing, I think, directionally, perhaps correct, but the way and the brutality is just you'll never get the proper result that you're after.

ZIERLER: Is that to say, Don, that already we're seeing the negative impacts, that we're already seeing experiments on holds, that there are cures and therapies that might not happen because this has already taken place?

LISTWIN: There's certainly hiring freezes, and building, you know, addition freezes, and the like. So, at an infrastructure level, yes. Will it stop a drug development pipeline? That I can't comment on. I doubt it, with the pharmacy money pull. But all institutions are reeling from this, especially the big ones. I think Memorial Sloan Kettering is closer to 80%. So, I don't know how you lose half your budget without losing a bunch of productivity.

ZIERLER: Don, the irony in all of this historically is you got involved, you brought your own success and generosity to this at a time when federal funding was ascendant. What's the message now if, in order to close this gap, if it's not coming from government sources, where do you get it from? What is the role of private benefactors? Are you in touch with people who have the means to do what they can, at least to backfill some of these budgets?

LISTWIN: Well, yes, and the best example is the Bill Bowes Foundation continues to support us, and annual level, we renew with them, this new big foundation. Just to be very candid, many of the major donors we have have passed [laugh] over the last five to seven years, as they were in their 80s. We continue to fundraise and reach out, but private will never be able to replace 60% or let's call it 40% of \$30 billion. I mean, that's the shortfall, so it's at least \$12 billion if not \$15 billion a year. What my current approach is, if I continue to fund certain labs, they're going to continue to be able to move forward independent of whatever happens in the administration, because I provide some certainty. I can't provide complete certainty, but I can provide certainty that this new imaging lab is going to be funded for three years at UC San Diego.

ZIERLER: Finally, Don, last question for today, the idea that imitation is the finest form of flattery, given how unique the founding vision of the Canary Foundation has been, where have you seen others sort of take up that model? What have been sort of sister organizations or parallel endeavors that have been inspired by what you've accomplished over these past 25 years?

LISTWIN: I think the two I already referred to, one is the Oregon system, and they have a very unique model, I'll just add, where they don't go for government grants. The billion dollars, you come in as a scientist, and you get your full budget, and away you go. Cambridge is the other one I'm very proud of. There's now initiatives at MIT, there's initiatives at Harvard, so the word's getting out, David [laugh], that there's an opportunity here. What I think was viewed as an intractable problem 25 years ago is viewed as we can get there from here. Then we'll wait and see. To your AI question, are we going to be able to create inference models out of a biomarker

lake that gets developed? Maybe we can. I don't know. Wouldn't that be amazing? But right now, as I said, six guys and a goat, we're thousands of people that believe that we can get this done, and we have industry now pulling, and we have environments where the scientists can also make money if they're so entrepreneurial-oriented.

ZIERLER: Don, is that to say that now this problem is no longer viewed as intractable, thinking back to where you were in the late '90s, early 2000s? Is that the greatest success of this whole story, just moving the ball forward, where so many people share your vision that we really do have a handle on this now?

LISTWIN: Yeah, exactly right. Early on, we gave postdocs to the American Cancer Society in early detection because no one would come into the field. So, we lured people into the field. Now I think they believe indeed the success that they've seen. So, the water's warm, come on in.

ZIERLER: [laugh] That's great. Well, Don, this has been a wonderful initial overview conversation. Next time, we'll go back. We'll develop your own personal background, the all importance of your family's experience to what you accomplish next. We'll take the story from there.

LISTWIN: Thank you. All right. You're very good at this, David. You made it easy.

[End of Recording]

NBWM
Don Listwin
Video conference

April 2, 2025
by David Zierler

DAVID ZIERLER: This is David Zierler, Director of the Caltech Heritage Project. It is Wednesday, April 2nd, 2025. It's my great pleasure to be back with Don Listwin. Don, it's great to see you again. Thanks so much for joining.

DON LISTWIN: Thank you.

ZIERLER: Don, in our first conversation, we took a wonderful wide-angle lens to your career, to the issues that are most important to you. Today we're going to go back and establish some family history, so let's start first with your grandparents. Did you know, were you lucky enough to know all four of them?

LISTWIN: Three out of four. On my mother's side, my grandmother's name was Olive, [laugh] Olive Urton [sp] from England. Her husband, Charlie, died, I think, when I was 2, of cancer related to mustard gas from World War I. So, he was in the cavalry and, to this day, I have his footlocker down in the house at Lake Tahoe. It keeps all the table tennis supplies. [laugh] So, I knew my grandmother. On my dad's side, yes, Polish-Ukrainian—Grandpa John and Grandma Anne—and they were interesting folks. My grandfather didn't graduate. I don't know if he graduated elementary school. I don't think so. In the Depression, he decided to put sugar water in a bottle. He got I think it was the fourth or fifth Pepsi franchise in Canada, and that turned out to be an incredible business. It has gross margins like software. The nice thing is that just about anybody in your family, no matter how dumb they are, you can get them a job—

ZIERLER: [laugh]

LISTWIN: —whether they're lifting a case or selling a case or doing whatever. So, I grew up in that family. My dad was an entrepreneur—soft drinks, a dry cleaning business, food businesses—so a good upbringing.

ZIERLER: How many generations back does your family go in Canada? Were your grandparents first generation?

LISTWIN: Yes, they were first generation. I did meet once my Polish side. There's Polish-Ukrainian on my dad's side. My great-grandparents came over for a very short visit once. But I think they all emigrated in the early 1900s.

ZIERLER: Do you know the story where they got to, how they got to Canada?

LISTWIN: I don't. I was all set to go to the Ukraine, and explore that. [laugh] I put a hold on that for a little while.

ZIERLER: Good idea. [laugh]

LISTWIN: We're not sure, like, I think the Listwin—my last name—was either Listwinovich [sp] or Listwinski [sp], and it got truncated as they came into the country. But it's clearly—of course, 23andMe is currently defunct-ish—clearly, the heritage is Eastern European through my dad's side, and English through my mom's side.

ZIERLER: Let's now go to your parents. Where did your dad grow up?

LISTWIN: Oh, both sides, all these people I'm talking about grew up in a town called, the city called Saskatoon, Saskatchewan. Saskatchewan is in Canada. It's north of North Dakota, Montana. About a million people total. Saskatoon was probably, when I grew up, 125,000–130,000 people and, just given the whole thing going on with President Trump and the like, probably has 10% of the world's fresh water. [laugh]

ZIERLER: [laugh] So, both your parents grew up there?

LISTWIN: Yes, and they met in high school.

ZIERLER: What were the neighborhoods? What was the socioeconomic situation for both of your parents?

LISTWIN: I'd say lower middle class. As the Pepsi business grew, it ultimately became a family business with a \$10 million top line and a really good bottom line because—[laugh] not for the transcription—there was a lot of cash that flowed through those kinds of businesses. I remember one day, we were at—I don't know. You're not probably old enough that you remember these pop shops. Back in the day, in the '70s, back when things were getting tough in a recession, the Coca-Cola Company said, "We're never going to do anything but a 10-ounce bottle on the shelf." Some competitors came and said, "I bet you people would come and buy a case of 30-ounce bottles." So, he started doing that. Then one day, I worked there always in the summer. I played volleyball. I'll have to show you my new medal. I just got my new medal.

ZIERLER: Ooh, OK.

LISTWIN: I played volleyball in high school and in university, and so working at a soft drink factory was incredible because you'd lift a quarter of a million pounds a day easily as you move things around. That was good for jumping skills. But you'd have the Hutterite farmers come in, and that was their one indulgence, was soft drinks. They'd pay you with two cartons of eggs, and one carton of eggs had fresh eggs from hens in the morning, and the second carton had \$20 bills rolled up in that carton. [laugh] That was the business in the 1970s.

ZIERLER: Wow.

LISTWIN: I spent a lot of time working in soft drink factories. I probably started driving forklift when I was 13.

ZIERLER: Oh my goodness. What level of education did your parents achieve?

LISTWIN: My mom graduated high school. My dad told a story about how he failed his last exam and didn't graduate, which I think is malarkey. Mom was the brains. Dad was the brawn. She was very smart, very good at math, ran all the accounts, all the books, even to the point where when she was dying from the cancer—which we'll get to—she told me, “Don, here, I've hidden \$1 million away from your dad so he doesn't spend it on silly stuff.” [laugh]

ZIERLER: [laugh]

LISTWIN: Mom was great. She was my best friend.

ZIERLER: Do you know the story of how your parents met or where they met?

LISTWIN: You know, I don't. I do know it was in high school. I do know they got married pretty quickly. I have an older sister, Louise, that lives in Vancouver in Canada. But not a whole lot of the history of my parents do I know.

ZIERLER: Your dad got involved with the soda business right out of high school?

LISTWIN: Well, yes, he went to the family business for a while, but then he didn't want to stay there. He was the middle son, so oldest brother George and younger brother Ron, which is 10 years younger, which was probably not planned. I think he wanted his own space, so he and George went away, and they started a dry cleaning business. So, one summer, I drove dry cleaning delivery and pick-up for him. So, always doing that. Then that was going pretty well, and so then he had an idea to do a grocery business. It was called Capital Food Markets. He did that for a number of years, tried to start a second, and it failed, we're told, because they could never cut a profit out of the meat department. The meat was bad.

Long story short, the understanding after they shut down is there was a timer clock no one knew about, and the freezers were going off and the fridges were going off at midnight, coming back on at 4:00, and that was just enough time to screw that up. But then he started the Pop House, which was the competitor, the wholesale competitor to the Pop Shop. Then, ultimately, Pepsi forced the family to sell the business, which was a travesty because it was such a good platform for everybody. I mean, you probably employed upwards of 150 people in that kind of business. The dynamic had just changed, where the business had been protected because we did glass and recycling, and the legislature said, "We don't want cans." Finally, cans got to a point where they were more recyclable, and so the economics on shipping a case of soda in a can is about 10 times

easier than shipping a case of glass. So, Pepsi said, “Hey, we have 80 franchises. We’re going to consolidate to 8 or 10,” or whatever the number was, and forced the family to sell to Winnipeg, and consolidate there.

ZIERLER: Don, what year do you enter the scene?

LISTWIN: I was born March 22nd, 1959. My mom’s probably five-foot-one on a tall day, and I think I was 9 pounds, 14 ounces. So, good work, Mom.

ZIERLER: [laugh]

LISTWIN: [laugh]

ZIERLER: Now, your upbringing was—were your parents pretty well off by the time you arrived?

LISTWIN: I would say, no, we were middle class but moving forward. We lived in a pretty small house, and as the Pepsi business and the soft drink businesses started to grow, then my dad decided that he wanted a bigger place for us to grow up as a family. He bought a plot of land and, apropos to Raymond, he started to build. He became the general contractor himself, and built it. We were one of the very few—at the same time, he was building the Pepsi plant. My uncle was a mechanical engineer, and so my dad said, “Design the plant.” He said, “I don’t know anything about it.” He said, “Well, what should I do?” Dad said, “Start with a straight line on top, and then make one 90 degrees down [laugh] and keep going.”

There were extra materials and things left over, and so he decided to build a pool, which in Saskatoon was pretty rare because it's probably minus-32 there right now. So, we hand-built this pool. There was a backhoe to dig the hole, but with one carpenter, we built the frames, poured the concrete, did the aggregate. I remember wearing plastic bags on my feet, scrape, you know, putting muriatic acid to seal the aggregate [laugh] around the pool. But, at that point, the soft drink businesses really took off, and Coke came around. There was no Pepsi competition, there was a Coke competitor, and the two fathers did turn the businesses over to the sons, the Coke father and my grandfather. That's when the money started flowing into the family. Then, like any red-blooded, aggressive guy, they started fighting with each other, until there was the famous duopoly meeting, where the grandfathers took all of the sons [laugh] by the ears, and sat them down, and said, "Let me explain to you what a duopoly is and how it works. Stop beating up on each other. You can have 55% market share this year, and we can have it next year." It sounds terrible; it sounds like the mafia. But, as I said, those businesses were very profitable, and so that's when I'd say we went to upper middle class.

ZIERLER: About how old were you during that transition?

LISTWIN: Around high school. I ended up accelerating, back when they did that, so I did first grade through fourth grade in three years, and I got invited to go to this special experimental school. [laugh] We were just moving into that new place that I was talking about on Harvard Crescent, and I got an offer to go to this school. The unique thing about it is it was a free-ranging, wide-open, not as structured educational program, almost learn at your own rate. But, at the same time, there were mentally handicapped kids that were there. The hypothesis was to see

whether or not, in a social environment—not an academic environment—that that would benefit one or both classes of kids that were there. They never did come to any real outcome. But we'd eat lunch together, and we'd play sports together, football and things. That was King Edward High School for four years, and that's when—actually, we talk about history—we had no sports. The only thing we had was an ice rink, and there was no gym or anything, so we would go to the YMCA Friday from 8:00 to noon. That was the extent of any kind of sports. So, I ended up going that one Friday, and I ended up seeing the table tennis players. The Saskatchewan table tennis team played there, and so I joined that team. In 19...early—I can go look at it—I became the junior champion, the junior table tennis. But that was, you know, people don't understand the difference between ping pong and table tennis. [laugh] Table tennis is I practiced five hours a day for, you know, and I played the national champion once, and I think he gave me one point. So, the tearing of excellence is pretty—in, like, any elite sport, it just changes radically as you go up the stack.

ZIERLER: Don, that gifted program, did you score particularly well on a test? Did you catch the attention of a teacher? What was it?

LISTWIN: Well, in one through four, I apparently scored off the charts on all of that stuff. Then, once I was accelerated, I was flagged somehow. That's all I know.

ZIERLER: Don, were there any important religious or cultural observances in your house, growing up?

LISTWIN: No. My mom was part of the Protestant Church. Early on, we got taken to church early. But, no, I think there was a pretty good separation, which I still preach to my kids, the difference between faith and religion. I'm not a big fan of religion. [laugh] I think it's some of the best pyramid schemes in the world. We talk about, way back in the day, where the really smart people who don't own any land said, "What can we own? I know: a piece of someone's mind. That's what we'll own." [laugh] So, no, not much in that way. I have faith in a variety of things, but I really am not a big fan of organized religion.

ZIERLER: Did your mom work in the business? Did she stay at home? Did she have her own career?

LISTWIN: She stayed at home, but she was the bookkeeper. She would get us to school, and then she'd be down in the office, doing the books for Tip Top Cleaners, it was called, or Capital Food Markets. So, she did all of that, you know, the general ledgers and all the accounting.

ZIERLER: Don, would you have had a sense of your parents' politics? Would they talk about the prime minister or the Vietnam War, things like that, at the dinner table?

LISTWIN: No. Dad came home pretty tired most of the time. His MO was, you know, eat dinner and go downstairs and veg out. We did talk about taxes, and I hold the same thought at this point. Up to 50% is OK. [laugh] After that, why am I killing myself doing this? I mean, right now, I think my marginal tax rate—even though I don't pay it in California—is 57%. So, we talked about that. We talked about business, and go do it and get it done, and don't let anything

stand in your way. I learned that from my dad, because he could be a bull, and there's two sides to that. [laugh] But he was hardworking, dedicated, and determined.

ZIERLER: Don, working in the business, was that more your own initiative? Was that an expectation that was put on you?

LISTWIN: Well, if I wanted a vehicle, it was. There were no free cars or anything. My first vehicle was an old Chevy delivery van, white delivery van, that I had saved money and I put— [laugh] this is probably terrible—I put red shag carpet and black velour on the inside, and a speaker system, and a hidden compartment for your booze. That was my first vehicle, and it couldn't go any more than, like, 50 miles an hour. But then I worked at the soft drink factories, and then my first purchase at the house is I said, "Mom, I want a pool table." She said, Well, I'll get half of it." So, I bought a pool table, so I'm still pretty good stick these days. Then I finally got my Firebird.

ZIERLER: [laugh]

LISTWIN: I wanted to keep my van, and my dad said, "No. There's one parking lot in the driveway." So, I sold my van with a tear down my eye, and got my bright blue Firebird.

ZIERLER: All this is to say that, even as your family was starting to make good money, you certainly didn't grow up spoiled?

LISTWIN: No. I mean, we, you know, we—that's a very fair statement. But we didn't want for anything either, I mean, there was always—and we would go, you know, a family treat as we got older, more into the late teens, always do a Hawaii trip that they treat us to, because it was

always freezing cold and people tried to get out of there. As time went on, they would help with things like, you know, Dad's Christmas gifts were always half an inch of \$10 bills or something, and that was sort of—he said, “I don’t know what you want.”

ZIERLER: [laugh]

LISTWIN: So, you know, never, never—but, with him, with that, I mean, Dad was old-school. With table tennis, I got to the point where I had to travel to Calgary to compete. That's an eight-hour car ride, and I was 14. He's like, “I ain't doing that.” So, that's when I started playing volleyball, and then, well, that's my—my team just won. The team I host back home just won third place at nationals, so they sent me—

ZIERLER: Oh cool.

LISTWIN: [??]

ZIERLER: There you go.

LISTWIN: So, I hosted them a million years ago, when we were playing. I was playing for the University of Saskatchewan. We came down to the US to play some US teams. It turned out to be a storm of the century, which was not good logically. But then we would go, and we just got annihilated, but it was so many different factors. The gyms were so much bigger. The balls were different. The rules were different. We were totally unprepared. We ultimately won the national championship that year in 1979, so I have my medal up on the wall. I got to know the coach recently there, just having gone back to Saskatoon to visit some friends, and so I've started supporting them. So, we did the same trip. I brought them down for a week in December this

year, and they just got smoked by Pepperdine and UCLA. The coach said it was awesome because it was this huge wake-up call that, while they were competitive with just about everybody in Canada, there was a whole new level to be. So, now, I'm going to do scholarships for them. David, a scholarship for a volleyball player at the university of Saskatchewan, one year tuition, is \$8,000 Canadian or \$5,600 US. [laugh]

ZIERLER: That's pretty good. That's a lot of bang for your buck.

LISTWIN: I did buy them some [??] the team.

ZIERLER: Don, being around your father, just to foreshadow to your own achievements in business, did you learn from him? Did you learn what it takes to succeed in business from your dad?

LISTWIN: I learned the hard work and dedication part of it. I mean, it was a 6 a.m. to 6 p.m. job, and I learned that. I learned he was very creative whenever, you know, a soft drink factory is a giant electromechanical series of systems, and he would not be shy with calling his machine shop guy and saying, "This would be better if this thing twirled this way instead of that way," and they'd make it. So, I learned, I think, that creativity from him and, as I said, just the hard work part of it. I mean, fast-forward to Cisco, I was in the office 5 a.m., and there till late. Then when you could work from home, it was 5 to 10 p.m. on a daily basis. So, I learned that kind of work ethic from him.

ZIERLER: How old were you when the Pepsi franchise had to end?

LISTWIN: Sadly, I wasn't old enough. If I had known more, I could have helped there. So, the answer is, I think, late 20s. The opportunity was that the franchise was granted in the 1930s in perpetuity, so Pepsi really didn't have a right to take it away. But they strong-armed everybody, and everyone got afraid. They said, "Well, this big guy in Toronto tried to stop." Well, the way a soft drink is made, it starts by concentrate that you buy from Pepsi-Cola, and they ship to you the magic formula. Then you add water, and then you add sugar and bubbles and all that kind of stuff. So, they just stopped accidentally shipping concentrate to people who weren't cooperating, all of a sudden. You'd make soft drinks weekly and, all of a sudden, you're out of inventory. But that would have been an easy media play for me today [laugh], but they didn't know. Unfortunately, the family thought they were going to have a chance to have a bidding war between Calgary, which was on the West, and Winnipeg, which is on the East. Pepsi said, "No. We have a master plan, and you get to sell it for one-time sales to Winnipeg." Well, a business like that in today's day and age is worth six times sales, eight times sales, easy, cash flow and gross margins and yada, yada. So, it was too bad that I couldn't help him more at that time; wasn't skilled enough.

ZIERLER: How did he pivot? What happened next?

LISTWIN: Oh, he started trying to sell Canadian water, which he learned very quickly that consumer businesses, retail in particular for consumer businesses are incredibly challenging. You have to buy shelf space. Someone from Safeway says, "Well, you give me 250,000 under the table, I'll give you four facings." So, it's back to the mom hiding the money because that was going nowhere. He was probably a little younger than I was at the time, but just couldn't give it

up. But I learned a lot about retail from my grandfather. We would go—he'd go on the truck with me, and he'd say, "OK, we want to go Thursday to this store." I said, "Why?" He says, "Well, the Coke guy comes Wednesday, so then what we do is, after the Coke guy comes, we take his six facings, and we make them three, and then we hide the rest of the bottles behind the cereal. [laugh] Then you put yours out there." I said, "Well, my family sounds like crooks." [laugh] Sorry. So, I'm always very wary when people in high tech say, "Oh, I'll tell you about retail." I'm like, "Yeah, I had like three years of it, and it's a brutal, dog-eat-dog environment."

ZIERLER: Don, academically, what were your interests in high school? What did you like to study?

LISTWIN: Oh, I was a math and science geek. I was, I think, top three in math in the province a couple of times, until my senior year, where I thought, OK, I've got a chance to win. They opened it up to a whole bunch of the Chinese kids that had come in, and they had all been held back because their English was bad, but they'd all finished four years of math at university [laugh] in China. So, I didn't do so—and they changed the whole [laugh] testing environment. But I got invited, I got recruited, for god's sake, to math at the University of Saskatchewan. So, I went for a weekend to a math camp, if you will. It was kind of fun; some interesting things. But I know I didn't want to be a doctor and I didn't want to be a lawyer, I mean, all the professions that you would do. So, engineering was default, but a good default, like, something I enjoyed.

ZIERLER: There was an assumption or an expectation that you wouldn't continue sort of a working class entrepreneurial life, like your dad, that you'd go on to college?

LISTWIN: Yeah. I think I was the first family member that went to college.

ZIERLER: Wow.

LISTWIN: My sister went, and wanted to go to nursing school. For every bit of math and DNA that I had, I took it from her, I'm sure, because she just couldn't handle all the different math and science in a nursing degree. So, she stepped down, and she got her nursing diploma, I think it's called. But I was the first one that actually graduated. Now my daughter's the first one, I think, who will get her PhD.

ZIERLER: Cool. Don, what was available to you? How widely could you apply?

LISTWIN: At university?

ZIERLER: Yeah. Did you know you wanted to stay home, or did you think about elsewhere in Canada, even the United States?

LISTWIN: It wasn't even a thought process back then. You were going down the street, and you stayed at home until you got a girlfriend, and then you got chucked out to the apartment because they didn't want her around all the time. So, there was no, you know, there's no idea. I mean, my daughter now, or this fall coming up, we're going to go tour schools, and she wants to go to NYU. I was like, "Well, OK, but maybe we should have some back-up schools." She's a Canadian, so we're also looking at UBC and McGill and some other good schools in Canada. But no, it was, right down the middle, you were going to the University of Saskatchewan. That first year, the men had never had a volleyball team. They had just got funding to do one. So, I

was the only high school grad that made the team. There were a lot of older dudes that were seniors in college that had joined the team. It was a great four years.

ZIERLER: What were some of the strong programs in university?

LISTWIN: Well, anything is probably the strongest, I mean, it's a huge agricultural province. Wheat is the big, big, I mean, some—there was a slogan someone came up with that was just terrible when they were trying to advertise the country, the province. It's called the POW province: potash, oil, and wheat. So, those are the three things [laugh], the three natural resources that the organization has. So, ag was strong, engineering was very strong, and then the rest of the school, when it's built in a province like that, is built to graduate the whole host of people you need to run a province. So, there's a dental school, and there's a medical school. Is the medical school fantastic? No. But will it produce doctors? Yes. There's a legal environment. So, it was pretty broad-based. I have, for years, tried to argue that you need to try to become known globally for something there. They built, maybe a decade ago, a world-class cyclotron, and that helped differentiate them. But it's almost impossible to recruit somebody as a professor to that place in this day and age because it's cold 10 months out of the year. A lovely place, lovely people, super low cost of living, but it's really cold, and it's really slipped in terms of its rankings in terms of a lot of schools.

ZIERLER: You lived home all four years?

LISTWIN: No. Then the girlfriend came, and then the dad said, "Hey, here's the apartment. Get out of here." So, he would come every Friday morning. He'd come with groceries [laugh]

Friday morning at 6 a.m. I always remember he'd ring the doorbell in the apartment, and I'd just stagger out, and he'd go, "OK, here's four bags of groceries and 12 beers." [laugh] He'd put it inside the door, and then he'd go to work. But we played, I mean, volleyball, I'd say, my sporting career has been, you know, the volleyball team practiced 4:00 to 9:00 every day, and that was tough on studying engineering. We were a poor school, relatively speaking. So, when you went to travel to play other—Calgary, Edmonton, Winnipeg—you're on the bus for 10 hours. So, you'd leave Thursday morning on the bus, and you'd get home Monday night. So, you went to school Tuesday and Wednesday, and just were begging people for notes and stuff. So, again, it was a wonderful experience. We, ultimately, in my junior year won, but it was tough on the grades. [laugh]

ZIERLER: Don, why electrical engineering? Why did you choose that for your major?

LISTWIN: Good question. I think it was a sexy one back then. I mean, civil engineers, you build a bridge, and I think it was just that. But if you're looking for a whole bunch of deep [laugh] thought, David, you're looking at the wrong tree. It was fun though. Do you know of the Iron Ring Ceremony?

ZIERLER: Oh, sure.

LISTWIN: Well, it was bizarre, because I wasn't, but like half the guys were high in this thing, and it's a closed ceremony. If you have a relative who's an engineer, they can come in, and then you hold this chain, and you chant. [laugh] It's pretty interesting. But, again, I wouldn't trade those four years. I graduated fine, and I ended up meeting one of the founders of the first

company I worked with, who ultimately got me my first job in engineering at his networking company.

ZIERLER: Ah, interesting. In college, did you take any business classes, econ? Was that attractive to you at all?

LISTWIN: No. Computer science was just starting. I actually hand-programmed a PDP-8 with toggle switches, which is pretty cool. We ended up, in your earlier years, they called it engineering English [laugh], and you had to go to these classes. The professors were mad because they knew you didn't want to be there. So, they would put a whole bunch of questions, saying, "In this book, who was the maid? Fill in the blank." So, reading the CliffsNotes did not help you do that. [laugh]

ZIERLER: No. [laugh]

LISTWIN: Everyone squeaked through all the rest of those classes. But by the time you were in, we used to call it third and fourth year, everything was just all engineering and thermodynamics and whatever it might've been.

ZIERLER: Did you work during the summers? Did you stay on campus to do research?

LISTWIN: Oh, gosh, no, I worked, man. I lifted soft drink bottles, 12 hours a day. I would go with my dad. I didn't like getting up early, so I ended up—and he'd come in, and wake me up, and I'd go, "Get out of here." I built this thing, which is pretty ridiculous. I took my record player, and I shedaisied [sp] an electromagnet and some tacks that I put on my door. So, all he had to do is open the door a half an inch, and the tacks would make the electromagnet go on. I

had another coupling to 110 volts, and it would turn on my stereo, and it played *Stairway to Heaven*. So, it started slowly.

ZIERLER: [laugh]

LISTWIN: That's how I woke up in the morning. [laugh] But, no, it was pretty down the middle, you know, get a job. Then we played volleyball all the time. If you could get a crew together, you would do it. The nice thing was there was a girls team. When you're not training, you're playing—now I'm talking high school and university—you'd be playing volleyball.

ZIERLER: Now, the college girlfriend, would that become the wife?

LISTWIN: No, did not turn out—a lovely lady named Dorothy. She was among the best if not the best player in the country. We ended up meeting at a tournament, and one thing led to another. She ended up coming to Saskatoon. In 1979, both the men's and women's team won the national championships, which is, I think, a one and only ever done. But, no, that ran its course. Then, in 1980, I moved back. I moved to Vancouver. I had been given a job by this founder, George in engineering, and I had an engineering job, and we were doing—I mean, you can't believe how you used to do circuit boards. You used to do green and red tape for lithography, and then you'd take photos of it, and then you'd etch circuit boards this way. So, you'd be drafting basically to build a circuit board. I thought, yeah, I don't know if I want to be doing this very long. [laugh] They had a sales opening in Vancouver for Western Canada, and they said, "Would you like that?" It was technical sales, and I said, "Great." So, I moved to Vancouver in 1980.

ZIERLER: Is that the year you graduated?

LISTWIN: Yeah, you graduate in the fall. So, I went to work for a little, maybe six months, in town and, in the spring, was off to Vancouver.

ZIERLER: Who was that original connection? Who did you know?

LISTWIN: In Vancouver?

ZIERLER: Yeah, well, to get you the job in Vancouver.

LISTWIN: Oh. The two founders of the company, one named George, was a professor of engineering at the U of S. That's how I met him. He said, "You're a real ball of fire. Why don't you come work for us?" So, he got me a job, \$1,500 a month. Stayed with a buddy. We bought six albums every Saturday morning. Came and listened to the music. Then finally said, "We have this sales job." The territory was British Columbia, Alberta, Saskatchewan, and Manitoba. It's a big chunk of country.

ZIERLER: Oh yeah.

LISTWIN: So, Monday morning, you'd get up. You'd get on the plane. You'd fly all the way east to Winnipeg. You'd do sales calls. You'd come all the way back—Saskatoon, Regina, Edmonton, Calgary. You'd come home. On Friday, you'd try to do some sales calls in Vancouver. On Saturday, you'd do your paperwork. But it was fun. I ended up moving. When I moved to Vancouver, I moved in with my sister's best friend, on the couch. I kept looking for apartments, in the newspaper. She finally said, "Don, if they're in the paper, they're shit. You've got to get in your car, and drive around." I was, "Oh," because they're—you know. So, I drove around, and I found this place: one bedroom above a shoe store and a restaurant. The French restaurant was

fantastic—chocolate mousse—and ended up meeting a really good guy named David, who owned the shoe store. So, I would go down Saturday morning, and do shoe sales for him. We'd have a friendly bet over a beer on who would sell more shoes in an hour. So, that was the whole Vancouver bit. But I knew a lot of people in Vancouver because University of British Columbia had a team in the league we played in, so many of those, both men and women, I knew. They played volleyball Saturday morning, so I got invited, and it was a very easy integration into a community.

ZIERLER: Did Vancouver feel like an exciting, cosmopolitan kind of place, compared to where you were from?

LISTWIN: Oh, no doubt, no doubt. But Vancouver is mini San Francisco. It's a huge Chinese-Canadian community, you know, huge Chinatown. The biggest gay community in Canada is there, so very much a San Francisco vibe. I think it's the prettiest big city in the world when it's sunny, which is not very often.

ZIERLER: Yeah. [laugh]

LISTWIN: When I moved there, I counted, there were 52 days in a row with no sun. It didn't rain every day, but it was overcast. You come from Saskatchewan that has 300 days of sunshine a year. So, I do suffer from SAD, Sun Affected Disorder. I have to turn it off for Zoom, but I have this giant white light on the side here for the wintertime here.

ZIERLER: The technical aspects of your education, was that useful? Did you draw on that for sales?

LISTWIN: Oh yeah, absolutely. We originally sold one thing, which was basically we know today as modems. We invented the precursor of the basic modem technology that comes to your house now. I basically had to go to the telephone companies, because that's who bought them, and we're trying to get—and it was like 56,000 bits per second was the fast ones. [laugh] So, yes, having an engineering background really mattered because all the buying people were super technical. I wasn't super tech... I had to get up to speed fast on that stuff. Then the second product line was a switch. Back in the day, if you had three different computers doing three different things—one doing finance, one doing HR, one doing admin—you had three screens on your desk, because they didn't talk to each other. So, we made a box that went in the middle, where you could only have one screen on your desk, and that became a very successful product line. The company ultimately went public on the strength of that growth.

ZIERLER: Who were the clients? Who were you selling to?

LISTWIN: In the modem world, it was mostly telephone companies. But in the switch world, we were big news. We were the leader in enterprise switching, so GE Aerospace was a big customer. NASA, Kennedy Space Center, was a big customer. Ultimately, we sold NASA our next generation. I was the program manager, and so I worked at Kennedy Space Center for two or three years. I commuted Saskatoon, Minneapolis—oh no—Saskatoon, Winnipeg; Winnipeg, Minneapolis; Minneapolis, Orlando. Rent the Hertz car, and drive an hour on the Bee Line. It was a good thing I was 25.

ZIERLER: [laugh]

LISTWIN: [laugh] Then we had a three-bedroom apartment in Cocoa Beach. I had other guys that worked on the team, and I would be two weeks on, and the other guy, a buddy named Andy, was two weeks off. We were there during the Challenger explosion.

ZIERLER: Who were the competitors for your business? Who were you competing against?

LISTWIN: It was another Canadian company called Gandalf, as like Gandalf the Great. They just hadn't figured out how to use microprocessors in their switching fabric. We figured it out first, our head guy, Brian. So, the company was really, really taking off. But then, well, two things happened. One, that's when Dad got colon cancer, about 1984. I said to my management, I said, "Hey, look, I've got to move home, and take care of my family. So, if you can find me a different job, because I can't do this sales job, great. If not, I'll figure something out." They said, "No, no, no," and they put me in product management, which, you know, the four Ps: product pricing, promotion, positioning. I learned that, and that has actually been the backbone of my career since then. Helped figure out where that new product lived, which worked very well for a long time. We didn't execute very well in engineering on it. Then Ethernet came and became the big disruption, which we did not embrace properly. I ultimately left the company, and went to another small company called SBE, Sideband Engineering. It was actually a shell of the CB Radio Company, but they built datacom stuff. That was the one—I don't know if we briefly talked about—where we'd start drinking wine at 4 o'clock, and I didn't like it very much.

ZIERLER: Don, in all your adventures as a traveling salesman, did it come naturally to you? Were you a good salesperson, or did you really have to work on that aspect of your personality?

LISTWIN: I think I was pretty good at it. This is a goofy thing to say, but my wife had me read once, and said, “Hey, here’s the news. You’ve been alive 60 times, and this is the first time you’ve been a guy.” [laugh] I said, “Oh.” Then she said, “So, do you have good instincts?” I say, “I have fantastic instincts. If I don’t listen to them, what am I talking about?” So, no, I think I have good instincts, and I’ve learned how to be a pretty good active listener. It wasn’t the ice cubes to Eskimo kind of sales guy, but you build some trust, and you know your stuff, and you listen to what they want.

ZIERLER: Don, what sticks out in your memory when you got news of your dad’s diagnosis?

LISTWIN: [laugh] Expletive deleted. [laugh] I had just started getting into a more serious relationship in Vancouver, and so I was thinking, what am I going to do here? But I just told her, I said, “Look, I’ve got to go,” and then I went. I recall going and talking to his doctor about it. It was just a general practitioner; it was not a cancer doc. But he’s like, “He’s not going to live.” I was like, “OK, dude, I got a perfect score in statistics in my senior year. Let’s lay out the graph. [laugh] Let me see where this thing has opportunity.” So, he got lucky. They managed to resect the colon, and take out most of the cancer. He had a bag for a long time, but then they actually reattached that. So, he survived for a good 20 years, post that cancer, where Mom was not—as we talked about earlier—Mom was not so lucky; she got 20 months.

ZIERLER: Do you think that your response to the doctor’s fatalism about your dad, do you think that planted a seed in you that there’s got to be a better way here?

LISTWIN: Well, I don't want to get in front of my skis, but what was clear to me was that there was an opportunity to succeed, and that the doctor hadn't given the family any hope, and I thought that was a travesty. So, I came home to Mom, and said, "Hey, there's a chance here. We've just got to block and tackle, and keep working through this." Because it was chemo and surgery, and then chemo and radiation, and it was a pretty brutal attack on his body. I don't know if it planted a seed or not. Certainly, the wide range—my uncle George, I talked about my dad's older brother, ended up getting prostate cancer, and he didn't want to treat it. Then he finally did, and he died on the operating table, and so he's the guy that shouldn't have. That prostate question that I said we work on as a prostate team—"Should you or should you not?"—had I known what I know now, I would've said, "George, live with it for a few more years and die with it in two years, instead of going to the OR and dying next Wednesday," which is what he did.

ZIERLER: So, you going home wasn't just moral support. You were with your dad, driving him, taking care of him?

LISTWIN: Oh yeah, of course—

ZIERLER: Tell me about—

LISTWIN: —and everyone was. Nothing's more than three miles away in Saskatoon. [laugh]

ZIERLER: [laugh]

LISTWIN: It's not that hard to get anywhere. It's not like you're going to UCSF or something. [laugh]

ZIERLER: But you had the bandwidth; you could keep up with the work. That was OK?

LISTWIN: Oh yeah. Having bandwidth has never been an issue.

ZIERLER: [laugh] Don, tell me about the four Ps. Let's go through them one by one.

LISTWIN: Oh, OK. [laugh] Well, you start with what's your product? What's the positioning? What's the pricing? What's the promotion? When you start teaching young product managers, you talk to them about that. On positioning, a good buddy of mine who's marketing guy at Procter & Gamble Start [sp], he said, "Look, you either describe it or you position your product." So, it's Joe's low-cost cars. [laugh] Oh, OK, they're low cost. [laugh] So, there's just some basics of doing that. You want to occupy a piece of someone's mind. In today's day and age, I could never be ahead of marketing, the promotion techniques and technologies and online stuff that goes on. [laugh] I would have to relearn a whole portfolio of that. But that's always the basics. You want to be, if you can, you want to be a worldwide leader in some category for something. I want to be the worldwide leader in routing for the internet. Oh, OK, I'm Cisco. Too many people try to build the number 4 product. I think 60% of profits go to the number 1 market share product, and 20% go to the number 2, and everyone else gets what's left. So, if you can't build a great product, you're just pissing in the wind.

ZIERLER: So, this was, you know, the company saw potential in you. This was not necessarily an opportunity that you would have gotten, had your father not gotten sick? You might've been on a different trajectory?

LISTWIN: Absolutely. Very true. I did well there. I got that new product off and going, won that contract at NASA, but as Ethernet evolved, they said, "We've got to get down to this place called Silicon Valley [laugh] because we don't know what the heck is going on." So, they brought the company, offered four or five—I don't recall—of us who did not have children—some were married; some weren't—to move down to this area. We all moved down. They hired a new president, a wonderful man, Peter Cregut, and he looked at our finances. We had a small office in Dublin, California, and I bought a home in San Ramon. The first home I bought in Saskatoon was 102,000 Canadian, I paid outright for it. So, it was 70,000, and that was my down payment for my house in San Ramon.

ZIERLER: Welcome to California. [laugh]

LISTWIN: Barely make ends meet, and had dirt in the yard for at least a year, but it got us going.

ZIERLER: What year would this have been? When'd you make the big move?

LISTWIN: Gosh, '84 or '85.

ZIERLER: Your dad is stable at this point? You felt OK leaving?

LISTWIN: Yeah. Once he got his innards reconnected, and things were going OK, I moved down. Then that company went into a big proxy fight. The CEO lost, and a new CEO came in, and he fired everybody except for me and the CFO. I thought, oh, merciful God, fire me too.

ZIERLER: [laugh]

LISTWIN: [laugh] We had won this weird deal in Vancouver, which was not representative. The product could do it, but it was the wrong fit. He thought, “Oh, this is it.” I said, “No, it’s not.” It was my first, like, I was super naïve. I was sort of like, “Well, I’m going to leave.” He said, “OK, well, I’m going to give you six months’ severance.” I was like, “Oh,” because I just thought [laugh] I was leaving and clearing out my locker. So, that was fine. Then I went and joined this other networking company, which was an OEM, just a technology provider. Actually, Cisco was one of the customers. As we talked about earlier, I lived in San Ramon. There was a commute to Concord, which wasn’t terrible. I left that whole scenario to go to Cisco, which of course turned out fabulously for me and my life. But it was, man, gosh almighty, there was no 237. That was an hour and 45 commute because Cisco was originally in East Palo Alto and in Mountain View.

ZIERLER: Don, I have to ask, this being a long time ago, did it feel at all like the Silicon Valley that we know today? Was it abuzz with technology and development and investing, or was it sleepier than that?

LISTWIN: I’m not sure I would’ve had the full optics on it, David, but it was certainly more exciting than Saskatoon.

ZIERLER: Sure. [laugh]

LISTWIN: Networking is the thing. At that time, 3Com—Judy Estrin, a well-known tech person there—3Com was up-and-coming. SynOptics. So, there was more interest around the networking, which was all enterprise-based networking, which was sort of the precursor to the

internet. It was not internet yet; you built private networks. But that was where the older company Develcon had a great opportunity. We had all the pieces to make campus area technology that SynOptics ultimately made, and became a multi-billion-dollar market cap company. The CEO, Rick said, “No, we’re going in a different direction.” That’s when I said, “Well, geez, we had everything we needed, and he made the wrong choice.”

ZIERLER: So I understand correctly, SynOptics was a contractor to Cisco?

LISTWIN: No. SynOptics was, in that era, the first wiring closet company. You put your switching box in a wiring closet, and over a twisted pair that ran Ethernet, you could then connect your PC to the systems. We had all of the pieces. Remember those modems we talked about? Well, that’s that same technology. We had all that. The switching technology for Kennedy Space Center, we had that. We had 3270 IBM technology that nobody had. We had X.25 switch. We had all the pieces, and it was just sitting there. Super disappointing, because it would’ve worked really well. We’d had a customer base that had our older technology that I think we could’ve upgraded, but it did not happen.

ZIERLER: You mentioned the four Ps were so formative. Already at this stage in your career, were you drawing on that to sort of propel your career?

LISTWIN: Yeah. I came up with a map, which said, “Here’s local area network. Here’s campus area network. Here’s wide area network. Here’s the size of them.” So, it was a three-by-three grid. I said, “We own the middle piece. That’s the one we should own. Let’s not [ahem] around. The boss said, “No. We’re going to do the wide area piece.” I said, “The bit structure of

what we transfer is 25% efficient. It's terrible. It's 75% inefficient. That's the last thing you want to do over super-expensive wire overnight[?]. Nobody cares if you're doing it out on fiber at Kennedy Space Center." So, yeah, that did help because then I joined Cisco as a first product manager and, as we talked about earlier, ended up doing clean-up on aisle 4 on all the software that people wrote overnight, and tried to tell people what it was; (a) tried to figure out what the hell it was, and then clean it up. I would do this thing called—one of the old sales leaders of mine taught me. Make the appointment at 5:13 So, I would do beer. I'd go buy beer at 5:13, and invite the engineering guys so they would tell me what they wrote in code that week. That was in East Palo Alto when East Palo Alto was the murder capital of the United States.

ZIERLER: Wow.

LISTWIN: I'd go across the street to the little store and get the beer, and the people are going, "Dude, what are you doing?" I said, "They seem really nice." We were preparing for Interop, the trade show. One of my guys comes in, and says, "There are some shots in the parking lot." I said, "Well, get in here." [laugh] FBI raids. It's nowhere like that now. East Palo Alto, I love you. I go to the golf store all the time. But it was super dangerous back in the day, right at the Dumbarton Bridge there.

ZIERLER: Was Stanford in those early days, was it sort of interconnected with Silicon Valley? Were you seeing Stanford graduates do start-ups, or this is all earlier than that?

LISTWIN: I think that it's earlier. Where they did start-ups was Sun Computer, so it was in the compute space that was the hot space then. During the Cisco's tenure, both Jim Gibbons and

John Hennessy—both of whom were dean of engineering at Stanford—were on the board. So, they did try to create linkage. Mr. Valentine—we talked about—my father-in-law, he created a lot of scholarship opportunities in Stanford, so I think it got tighter. But, in those days, networking wasn't quite the thing; it became it quickly. But let's call the '80s was compute, and the '90s was networking.

ZIERLER: So, at this stage in your career, at SynOptics, were you already sort of C-suite or one step below that?

LISTWIN: No, I never went to SynOptics. What I said—and I said poorly—at Develcon—

ZIERLER: Oh, I see, yeah.

LISTWIN: —the Canadian company, we had all the fixings to become a SynOptics.

ZIERLER: I see, I see.

LISTWIN: We didn't—I said, "Forget about it," and left to this other company. When I joined Cisco, that was the 50% pay cut to an individual contributor, and so, no, and that's when Sandy and Len, the founders of Cisco, were there. That was the story where Sandy told—there were no brochures, and Sandy told everyone, "If the customers weren't smart enough to figure it out, we didn't want them for customers," which didn't go with the classic marketing strategy.

ZIERLER: Sure. [laugh]

LISTWIN: When I was just joining, there was a revolt, and all of the VPs came into the CEO's office, and said, "It's us or her." So, that was, like, the first week I'm there, like, what the

hell is going on? [laugh] But I worked for this lovely guy, Doug Tsui, and he was just starting to build out the product management team, and helped me get centered there, and I went up the ranks.

ZIERLER: Well, Don, I think maybe that's a perfect narrative break. Given how important this pivot is in your career when you start at Cisco Systems, why don't we pick up there for next time?

LISTWIN: That sounds awesome, David.

[End of Recording]

NBWM
Don Listwin
Video conference

April 7, 2025
by David Zierler

DAVID ZIERLER: This is David Zierler, Director of the Caltech Heritage Project. It is Monday, April 7, 2025. It is wonderful to be back once again with Don Listwin. Don, great to see you again. Thanks again for joining.

DON LISTWIN: Thank you, David.

ZIERLER: We're going to pick up our conversation, the beginning of your career at Cisco. Let's just do some Cisco history 101. Tell me what you know about the founding of the company and its sort of origin mission.

LISTWIN: It was a married couple, Len and Sandy, at Stanford, and involved—I don't know in what capacity in the IT organization—but the proliferation of devices after Ethernet and local area networks hit created real problems, predominantly on academic campuses, to start, because there was no technology involved to try to isolate traffic. So, everything was what's called a LAN bridge, and they were—everything was connected to everything. At some point, that runs out of steam in terms of technology. So, they came up with this idea of the internet router, and instead of in layer 2 of the tech stack, which is the MAC-level switching, they said, "Why don't we do it at an IP level or at the protocol level?" Because back in that day, there were upwards of 20 different protocols vying to become the protocol, which, as you know, TCP/IP ultimately was the winner. They had started building some of those technologies, and I believe they were building them out of the company's technology. If you recall, we talked about SBE, who built,

back in the day, there were two standard bus systems—VME and Multibus—that you could buy standard off the shelf. VME was a Motorola product, and you could buy processor cards, and program it, and do other things. The other little company I worked for—everyone built processor cards and memory cards—they built network interface cards, Ethernet, Token Ring, those types of things. So, I think they hacked together the very first router, and it sort of worked, and the in the living room conversation, you know, built it in the living room, and then ultimately spun out the company to grow it. I know that Sequoia Capital—as we talked about, my father-in-law's company, in the beginning—did put an initial \$2.5 million into a Series A. I believe, to this day, that that was the only money that ever went in the company from an external source.

ZIERLER: Wow.

LISTWIN: I'm not even sure they needed it, outside of having working capital to kind of move forward with things. They left Stanford and they started building these products. This is in the—you know, I don't know well enough; was not involved—late-ish 1980s because, by the time I joined, which was mid-1990, the company had already gone public, which was, I think, March of 1990. So, I missed that opportunity. But I didn't know what the heck an option was anyway—

ZIERLER: [laugh]

LISTWIN: —so I just wanted to get out of Dodge, where I was—I was not having any fun—and went and interviewed. So, we had talked about my colleague Andy Lockhart called up John Morgridge, and said, “Hey, I went to Stanford, and I know networking.” Morgridge took the

lunch, and Andy got a job in corporate development, business development. Ultimately, as you recall, he was the guy that worked with me at Kennedy Space Center. He ultimately got the first job, which was to fly to Tokyo, and make Cisco Japan from a piece of paper. So, that was an exciting time for him. He ended up having to build the entities, and find a small office. His ultimate job was to hire a leader, and he hired a guy named Tak Matsumoto, who beforehand had built Sun Japan to a very formidable company. So, he was a well-known commodity, very well connected, and that turned out well. So, Andy got me an interview in product management with who ended up being my boss, Doug Tsui. We talked and we got along, and he offered me that product management job to do product management for software. As we talked about earlier, I got the 50% pay cut, benefits were the same, and then there were these cool things called options, which I don't know what they were worth, but you could figure it out mathematically. But who knows? I started as the Cisco software product manager.

ZIERLER: Don, if we could just go back, it's such an important point, in the living room, what exactly did they innovate that set them apart from the competition?

LISTWIN: Well, they invented routing versus switching at a very simple level that you can—as the box is looking at all the packets coming through, switches just forward everything. Routers go, “Oh, should I forward this or not? Is it somewhere else?” So, the router has a map, if you will, and knows where other things are. Hence came a thing called the routing protocols, which we use for all sorts of things. We use them for sending money. We use them for routing airplanes and the like. They invented that routing protocol. It was called IGRP. But they really were the first, in my mind, people who came up with this idea commercially.

ZIERLER: Now, were you integrated before this with Stanford Research at all, or was this sort your entree to campus and research culture and things like that?

LISTWIN: Me personally?

ZIERLER: Yeah.

LISTWIN: No, not at all. Not at all. I was plugging away my little company in Concord, and was looking for [laugh] exit stage left. Outside of, I think, Stanford being an anchor customer in the prototype area, they had both left Stanford, to my knowledge. But I'd fact-check some of those things [laugh] because this is all third party for me. They were there when I was interviewing, but it had already got acrimonious there when we had talked about the other vice presidents really upset with, in particular, Sandy, the woman in the relationship. So, things were pretty hectic when I was moving in.

ZIERLER: Now, from the outside, looking in, at the interview stage, were you aware of Cisco's innovations? Were you aware already of its reputation?

LISTWIN: No. Well, I mean, Andy did a good job of helping me understand what it was. Having been in the enterprise campus-based networking world for a long time, and really having hoped to build something even a little bit better than what they built—remember we talked about the AKA [sp], the SynOptics smart wiring closet thing—I was well aware of the opportunity. I had even tried to start, when I was at SBE, an FDDI, which was a fiber-based backbone, company with an innovation to double the speed. I just never got—it was with myself and the

CFO at the time there, and it just never got off the ground. I clearly would've needed a mentor to help me get going. But, no, no real interaction with Stanford in that regard.

ZIERLER: Now, beyond you, as you said, wanting to get out of Dodge, the willingness to take such a big pay cut, was part of that because you were really excited about where Cisco might be headed, but you saw an upward trajectory here?

LISTWIN: Well, yeah, two things. One was I knew the markets. I knew the technologies. I knew the customers. So, the water was warm. It wasn't like I'm dropping into a drug development company or something like that. They were growing quite dramatically at the time. So, I think the first year that I joined, they more than doubled in size. So, there was a lot of excitement in the company and, of course, there was a lot more excitement because 90%-odd of them, their option gone public. Now everyone had their option spreadsheet. [laugh] Every day you looked at, OK, oh, this piece of paper could be worth \$140,000 or whatever it was. But then the people were great. It was very intense, very smart people, but there was a no suffer fools culture in there, you know, sort of eat or be eaten. You needed to know your stuff and do it right.

ZIERLER: Tell me about your initial work. What were your responsibilities?

LISTWIN: Well, I alluded to earlier in our conversations, David, that there was no product management. So, for people who are reading or listening, product management is the job of trying to help define and shape how your product exists in the marketplace, both the product characteristics, how you try to compete against other people, pricing, and so forth. So, the essence of Cisco's strength for many years was their software. We had a competitor that

ultimately emerged from the East Coast in Boston called Wellfleet. Everyone used to say, about three years after I said it, “I wish we could have the Cisco software and the Wellfleet hardware”

ZIERLER: [laugh]

LISTWIN: —because our hardware was still some of the older clunky stuff. But the guys would write software, adding a security filter for a particular protocol that someone never knew we needed. They would do that, and they would FTP it, where they would file transfer it to the customer. My job was to run around, figuring out what the hell just happened [laugh], accumulate the 37 things the engineers did last week, and on the weekend I’d write a release note to sales going, “Hey, there’s a new software release.” I would go to engineering management, and say, “Can you guys bundle these up so I can call it something [laugh], like, 10.2 or whatever?”

ZIERLER: [laugh]

LISTWIN: “OK, we’ll call it 10.2.” Then I’d say, “OK, here’s feature number one and here’s the benefit, and does the competition have it, yes or no?” The first part of my career there was running around engineering, trying to figure out what the hell they were doing, trying to write it down for the sales force, because it was all competitive advantage, and help them understand what it was. But the two giant dominant forces in that company early on were engineering and followed strongly became sales. Marketing and product management was a core real afterthought

until, finally, John Chambers came and said, “We need somebody trying to arbitrate because now engineering is fighting with sales, and sales is fighting with engineering.”

ZIERLER: In product management, do you interface at all with advertisers, advertising, getting the word out there through media?

LISTWIN: Yes. Remember the four Ps we talked about. Promotion is one of those things. But there was a marketing communication. So, the VP of marketing at that time, Cate Muther, she had marcom, marketing communications, as one group, she had product management, which Doug worked for her, and then she had documentation and training. Those were her three groups. She was responsible for the group that did outbound marketing. Now, we were supposed to be the content providers to that. A lot of companies put a group in between—they call it product marketing—in between product management and marketing communications. As far as I’m concerned, it’s a total waste of an organization. If you guys can’t talk to each other, well, the next thing you can do is let’s put a fourth organization in place because you don’t, you know, like, learn the language. [laugh] So, the product people were very strong, not as good in the marketing communications, but marcom was a service agency, and they’d say, “Look, here’s what we think PR should say. Here’s the journals we’re going to try to get in.” Then we would, you know, I probably built a million PowerPoints in my life. [laugh] You build the PowerPoint deck for the salesforce because we had a great advantage of—to this day, Cisco does—a very talented direct salesforce. So, the interface with the customers was one-on-one.

ZIERLER: Can you explain, Don, the give and take between how Cisco is driving technological development, and how it's responding to technological development more generally, and how you deal with that from a product development perspective?

LISTWIN: Well, there were largely anchor customers that dragged you by your hair. Motorola was one, Boeing was another, and Fidelity in the financial services area. Boeing in general had made a big commitment to get rid of draft tables for building planes, and to go totally online to CAD, computer-aided design. There was a hundred things they needed done; probably a thousand things they needed done. They ran out of address space. As you know, every end device has its own unique address. Well, it's one thing when you think there's going to be a million of them on the planet. There's probably a million of them in my house right now.

ZIERLER: [laugh]

LISTWIN: So, you had to innovate on how to do all of those things. I would say our biggest real go-after-the-market innovation is when I switched jobs. I did the software first—and then I want to tell this great story—and then I was asked to do network management. I went, OK, another software platform. I'm just confused. I'd go to people, and no one would want to talk to me. It's like, well, we need to at least fix the infrastructure on the router. It was very early on, and John Morgridge had not met me. He'd met me and shaken the hand at the photocopier. But he asked me out for lunch. I said to him, "You know, John," after the niceties, I said, "John, we don't have a network management strategy." I've got to get my glasses. John always wears little glasses like this, and he'd go and he took them off, and he looked at me, and he said, "Son, as

CEO, I always have a strategy. You may not understand it, you may not agree with it, but I have a strategy.”

ZIERLER: [laugh]

LISTWIN: I said, “I stand corrected, sir. What is your strategy?”

ZIERLER: [laugh]

LISTWIN: He said, “To do as absolute little as possible without the customers getting pissed off.” I thought, oh, I wish someone had told me before I took this job. [laugh] This is a job to just get yelled at constantly. So, I went, “OK, I get it now.” So, all we did was put in the basic hooks, APIs, things that someone else could build that software for. Hewlett-Packard tried, and DEC tried, and a variety of people tried, and they all put tens and tens of millions of dollars into trying to do heterogeneous network management of multiple entities, and it was all a terrible failure. So, as we began to penetrate more into enterprise big business, as opposed to just academia and government, like NASA or wherever else, IBM, of course, was the big dog. The question was, could you add value by integrating some of the IBM stuff? Of course, IBM’s view many years ago was, well, anything that comes along, we’ll just integrate into IBM, SNA architecture, which is their architecture to move stuff around. We didn’t think that was the right thing. It turned out to be a very good time to try to add another protocol and another set of technologies. Notably, it was Token Ring, as opposed to Ethernet, a different physical interface that they were trying to move forward, better technology, but probably three to four times more cost per endpoint. Some people said, “Well, we don’t want you to integrate our big mainframe. We want you just—we’re

now building little Token Ring networks in departments. Can you help us move that data around without having to put it through the mothership?" We said, "Yeah, we can figure out how to do Token Ring bridging and routing." So, we started doing that, and Doug said, "Well, there's maybe more to this than that." Now, I had had some IBM experience with my last company, the Canadian company, where we did emulators, and we made old deck or a new deck VT100 terminal look like an old IBM machine. So, I knew a 3278 from a 3745 from a whatever, like, I still remember them. Doug said, "Well, there's probably more we can do here."

During that time in the '90s, we ended up entering into a recession, not unlike this week. Recessions are good selling opportunities. I mean, you get to sell something for only two reasons: you either solve a problem or save some money, or both. Now, you've got the internet, the CFO goes, "Well, what the hell is this internet wide area backbone, and what the hell is this IBM wide area backbone? Why can't you have one of these?" That was the simple economic idea. Can we merge them together? Of course, IBM wanted us to merge to them, and we wanted them to merge to us. Early on, as we got going, and Doug and I started talking about, well, what's the journey for this, he came up with the idea of a multi-phase plan. That was his way of saying, let's coax the market, and tell them that it's not a giant flash cut. Of course, the IBM guys were the big dogs in the organization, so you don't want to get on their bad side. So I came up with a five-phase plan that had three stakeholder communities. Stakeholder 1 was the people who ran the local area networks. Stakeholder 2 were the people who owned the wide area networks. Stakeholder 3 were the people who did the network management, and tried to keep the thing. So, I said, here's a three by five, and here's what I'm going to do. Stage 1, I've already—I had stage 1 done. I released it. I released the five-phase plan via marketing. Stage 2 then was the

next step of this. SDLC tunneling, not important. You could plug in terminals and things. We laid that out. At that time, it was me and Joel Bion. There were two of us doing [laugh] this entire global strategy. Joel was one of the early, early engineers; totally brilliant. He'd write code and post it the same night, like everyone else. [laugh] So, that's when we started getting attention. Now, I do remember a story where John Morgridge and I, once we were starting to get traction with IBM, and we'd done the five-phase plan—and the beauty of a five-phase plan is you can always change to phase four, and no one even remembers what it was, as long as it looks the same.

ZIERLER: [laugh]

LISTWIN: So, we were like, "Yeah, we're just kidding about that. We're going to do this instead of that." But it looked the same and it felt the same. We went to this smaller financial services company in New York, and the guy who's there—he's 38 or something—he says, "I want IBM reliability, and I want IBM network management, and I want IBM this." John Morgridge, he takes out his glasses again, and he said, "Well, you don't want us; you want IBM."

ZIERLER: [laugh] Straight shooter.

LISTWIN: Straight shooter. The call ended, and the sales guy was mortified, and he got the purchase order an hour later for our stuff. So, the IBM stuff really started. That was what in enterprise really started to differentiate us, whereas Wellfleet and others never had that. So, I went out and hired a head of engineer...in concert with engineering because [??] run it, a head of engineering, a guy named Cliff Meltzer, and then a guy called Nick Francis. The rule of thumb

that I was taught by senior leaders is you can't take people who've been in those organizations for more than 10 years, because they're broken [laugh] and they're bureaucratic. Those were both nine-year guys, I think. [laugh]

ZIERLER: [laugh]

LISTWIN: They came in and became real anchors. Nick ultimately ended up working for me, as we fast-forward. I'd say the last interesting thing is that the nirvana was, could you channel attach to an IBM mainframe? The mainframe has its own what's called Bus and Tag architecture, and then it had a front end processor. We could attach to the front end processor, but everybody could, but it was slower, and it was really a big IBM router. We didn't need routing, because we were routing. I think it was Cliff—I'm not sure—who talked about the IBM Fellow program. IBM fellows back in that day had about a \$25 million budget. They were there to do things that others weren't doing yet, you know, "I'm going to make the next photocopier." "OK, well, now we're not doing that."

We got and met with him—a guy named Bill Beausoleil—and Bill said, "Well, we should build a channel-attached router." I said, "Well, we'll build it." He said, "Well, I'll tell you how to do it," and it went. Ellen Hancock was the head of networking at that time, in the running for the next CEO job, and she went to the board to stop it. The board said, "Ellen, we've had fellow programs for 100 years. This is why we have them." She got told, "No." So, we ended up doing that. I remember to this day, we ended up renting an IBM mainframe for our booth in Interop and, man, was there a buzz. We had our channel-attached router, moving stuff from Newfoundland—[laugh] I'm making stuff up—to the show floor in Vegas. That was probably my big career

breakthrough early on, and was a very important differentiator versus anybody else in the market.

ZIERLER: Don, orient me in the chronology, this transition where things really start to pick up. Your career is going well. What years are we talking about now?

LISTWIN: I joined August of 1990. I'm guessing now, David, but I'd say the IBM stuff kind of went through '93, '94. Then Doug was leaving. They didn't think Doug was right for the next level of growth. I thought he was fantastic. They did a hire, and they hired a guy, which we'll just say was not my favorite hire. There were two people. There's this guy and Jayshree Ullal, who is now the CEO of—oh gosh—a giant switching company, making billions of dollars. It'll come to me. We're online here. God, talk about a brain fart. Jay. Arista. So, Arista is probably only one of the few companies in the history who have really challenged Cisco in some of their core markets. Now, this is much later; this is 2000-plus. But Chuck—Chuck was the guy's name—came in, and he and I didn't get along. I felt he was very, very astute politically. Let me just leave it at that.

He had hired a number of then-product managers. So, there was a guy, Brent, for the hardware, for the routers itself, and there was a woman, Heidi, for network management. Our team was maybe five across with Chuck. But I didn't get what I needed. I'll just leave it at that. Ultimately, he ended up leaving the company, and it was essentially a competition between me and Brent, I think, to get the job. I ended up getting the job as director of product management. That was mid-90s. I was OK. I'd get in work at 5 a.m., and I'd leave at 8 p.m. It was a real hell because I lived in Santa Ramon, and the office was in Mountain View, and 237 hadn't made the right-hand corner [laugh] there yet. But it was early days, and you worked really hard. Then Ed Kozel, who

was the head of corp dev at the time, he said, “You’re going to fail.” I went, “I’m killing myself.” He says, “You don’t have enough people, and you’re trying to keep up with an engineering group that’s doubling every year.” So, I went to my boss who, at the time, John Chambers had come in, and then John ended up getting international sales and marketing. He did not get domestic sales, and that’s because one of our guys, Terry Eger, who’d been there forever, said, “Well, I’m not working for John.” Ultimately, he did, and John was, as we know, historically was being groomed to become the CEO of the company. I’m sorry, David, I lost my train right now.

ZIERLER: It’s OK. The stark binary, being told you’re going to fail, the distinction between success and failure, I mean, is that really about job security or about how well you’re doing? How do you measure these things?

LISTWIN: Well, look, I say now I’m hoping to join a board right now of a company that’s 100 million a year. As far as I’m concerned, all the managers are good at 100 million a year, except if you want to go to 250 a year. So, you need managers who know how to get there from here. My team was fine, but it wasn’t good enough for where we were going. So, I asked John for more headcount, and that’s when we brought in a guy named Kevin Kennedy, who was at Bell Labs. He was running Bell Labs router program, and Ed knew him. Then we brought in this Nick Francis that I talked about, and we brought in—I brought in like four. I doubled the size of my team, and that saved my job, because I was a good leader—I still am, I think—and I just needed some more horses. You had to get super technical people, or engineering wouldn’t listen to you. Kevin had a PhD from MIT. You needed to be able to go toe-to-toe with the engineers, or they’ll just dismiss you and walk out of the room. A big part of product management’s job is, we

did hundreds of customer presentations a year. John built a culture at Cisco, where I built the first executive briefing center there, and you got measured. So, every Monday morning in executive staff, one of the charts that would go up was, “OK, Don did 15 EBCs last week, and his score was 4.9 out of 5. Kevin, you only did 12, and your score was 4.8, and here’s the area they don’t like.” So, a big part of that product management was having to be very technical, like, we weren’t doing PR.

ZIERLER: You mean technical just in terms of internal communications?

LISTWIN: No, I mean, in being able to talk to engineering customers, and being able to talk to the engineers writing the code or doing whatever, you had to be able to argue with them. “Well, this is the way I want to do this filter thing.” A good one, like Larry Lang would say, “Well, that’ll work, except if you did the filter 2 stage like this, you’d get a far better outcome.” That’s what we ended up building, and those people were powerhouses in terms of, you know, there was the salesperson, and there were systems engineers that were in the field. They were very good at what they did, but they knew how to implement what we built. They weren’t doing the next level of things, and that’s what the product managers were doing.

During the history—of course, the history of Cisco is well known for its acquisition work—as that acquisition strategy would start in the future, as Ed would start driving that, as a business unit, you could do a little acquisition. As a line of business, you could do a bigger one, which might be a business unit. Then Ed would go, “We’re totally missing fiber optics, and I’m going to go and buy a corporate bonk [sp] and put it in place there.” We had not started that yet. The first time we did an acquisition was myself and Mr. Chambers, and we bought a little company

called Crescendo, which was Mario Mazzola and Jayshree and Prem and Luca. Over time, they got called the Italian Mafia plus one Indian woman.

ZIERLER: [laugh]

LISTWIN: They were building really good switching products, and they were building them for smaller businesses. So, we had two problems. We didn't know how to build switches, because you still needed some, and we had no idea how to go to small-medium business from a distribution perspective. But that one, John and I were in the room, and Mario's got a number in his head that he wants, and John doesn't want to give that number. I come up with this, what I thought was pretty smart at the time. It's standard fair now, but no one knew. [laugh] This is 1995. I said, "John, stock is 46 bucks a share. Offer him 2 million shares, 92 million," because I think his number was 100, "and show him the graph and the chart for the last six months, and go, 'This is going to be worth more.'" Now, back in the day, there was a tax treatment called pooling of interest, where if you put two entities together, and you just said the other entity is now part of the big entity, there were no tax implications. So, that two million shares, however it got distributed among that people's company, they didn't have to declare any tax, and it just rolled over into Cisco stock. That made all of those people [laugh] very wealthy over time. They were anchors. They'd built the next level of switching called Catalyst switches in the company, which was a huge, huge success in the enterprise, after some fits and starts.

ZIERLER: Don, to clarify, when you're talking, engaging with engineers at a client, a customer on a technical level, are you taking their input back to Cisco, and changing your software, your hardware, your development?

LISTWIN: Yeah, you change your road map. Motorola says, "Well, you do these four filters," and you didn't know about these number 5 and number 6 for IBM stuff. "I need this. I need you to be able to filter so someone can't send something to this printer." Oh. So, you'd go back. Now, as things got more hectic, now the list is 100 deep. Now this is where you're in negotiation with sales, because now they're coming in, and the aggressive sales guy's pitching feature number 19 that he wants for his deal, and we're only going to release the next 10 next week. So, you're in this [laugh] battle royale, trying to get engineering to do as much as they can with quality, trying to satisfy sales, and try to keep banker customers happy.

ZIERLER: Now, on a personal level, I want to pick up the thread, you know, the dramatic decision. You're taking a 50% pay cut. This is a risk. When does this change for you financially, personally? When do you really start to personally reap some of the value, the monetary rewards from all of these developments?

LISTWIN: I don't explicitly know, David, but I'm sure I was caught up by the time I became a director. The product manager was 75,000, half. I think when I got network management, I got a little bump. We'd get annual bumps. But, more importantly, we kept getting more options as we went. But the big step was that director. Then the real breakthrough was when Cate, the VP of marketing, decided to leave, and I earned that opportunity. I remember John Morgridge bringing me into his office, and I'd been in a sales meeting, and he scolded me for something I did. He said, "This isn't some pissant little opportunity, Don. This company is going to be important. It's already special, but it's going to be important. So, get your big boy pants on, and get to work."

ZIERLER: Is that the point? So, I'm trying to just establish the chronology. When do you enter sort of big benefactor territory, when you can think about, even before we get to Canary and all of that, when do you sort of enter the next stage where you can think about giving yourself on a significant level?

LISTWIN: Oh, I see. Well, let's call it '97, '98. I mean, the early stock I got, I mean, the stock is—the company probably did six stock splits. So, my first big giving was I gave \$2.5 million to my university. I can look up the date, but I'm thinking it was for an engineering chair, specifically for communication, better communications for students, because at the UofS when I went to engineering school, the guy would pick up a piece of chalk, stare at the chalkboard, talk to the chalkboard—

ZIERLER: [laugh]

LISTWIN: —for 45 minutes. You'd go, "Why didn't you just put that down, and I could've paid to photocopy it?" So, I ended up giving a chair for innovative teaching, which ultimately was very useful in the early years, and then it became known as Internet education [laugh] and so somebody else did all of that. Of course, the whole market has changed. But that was my first big gift. Look, anytime, no matter how much money you have, the first million-dollar gift, you've been taught, at least people my age, since you grew up, that a million dollars was real money.

ZIERLER: Sure.

LISTWIN: When you're giving it away for the first time, you look at yourself in your mirror, and go, "You sure you really want to do this?" But it was good. It turned out to be a good thing. I

know they've taken that two and a half. I got my report last year. It's worth six. So, I think it helped fund that. I don't know that that chair—I told the new dean, I said, "Look, I don't think that chair is a proper thing after 20 years. You should take the thing, and chat with me, and figure out where you want to point it."

ZIERLER: Don, let's overlay, you know, going from the early '90s to the late '90s and all of the developments at Cisco for you personally, where does that fit within the broader narrative of what we now call the dot-com boom? More and more people coming online personally at home. All of these companies sort of now have a dot-com aspect to their business. What's the impact of that for Cisco? Alternatively, how is Cisco influencing those developments?

LISTWIN: One of the biggest breakthroughs, I think, in terms of using the tech globally was the mouse. If you've got a clickety-clack, enter stick[?], blah, blah, blah, as soon as this thing come...my mom started using the computer when the mouse was available, right, color screen and the mouse. That's mid-90s. All of a sudden, the human interface is useful. Then Netscape and the rest of these guys start with the browser now making it easy to get to information. Back then there was a Silicon Graphics CEO, who was promoting his things as Internet servers around the world. We just, I think, candidly, just tried to keep up. Now, during that phase, there were the protocol battles. DEC had DECnet, and IBM had SNA, and Novell had their thing, and Banyan had their thing.

I remember early on in 1992 with a consultant and I, we wrote 16 protocol briefs, trying to explain to people [laugh] why they were all different. Ultimately, actually, thanks to DARPA—I digress—but we have TCP/IP because there was a big battle between TCP. Ultimately, all the

little protocols disappeared, and it was TCP/IP. But there was a battle in terms of what the telco companies and people, big military wanted, and there was something called ATM switching. They said, "Well, ATM switching is deterministic, and we know when the packet's going to get there, and IP's not." So, DARPA said, "Yeah, interesting, but let's do a bake-off." So, they did a bake-off. They gave \$60 million to two entities, and TCP/IP ultimately won, and that's why we have what we do. Of course, it's ridiculous. Now we're streaming 16K movies, and saying TCP/IP wouldn't work. They said you can't make a phone call with it. So, that had progressed, and then Cisco had been helping the military build MILNET. Finally, MILNET peeled off to be their own network. That's when Al Gore showed up. Everyone makes fun of Mr. Gore, but I'm going to help correct the record because I was involved on the periphery with MILNET. What he said is not—you know, maybe overstated—"I invented the internet." He invented dot.com. He said to everybody, "We should have commercial entities use this." Academia said, "They're going to flood it and kill it." He said, "No. We're going to charge them, and we're going to charge them for access lines, and they can fund the backbone." We have the internet as it is in some regards today because of him. That's when businesses started getting involved. Probably the big push that we went to extend the internet was not just from enterprise, but the next step that Kevin Kennedy built was called access routers. So, for someone's regional office, how do you make that go? That was a big push. It turned into a \$5 billion product line.

"Mr. Morgridge," he said, "look, this is always a risk for a company: a second product line, a different price point, different distribution. We've got to get this right." So, Kevin and I built this. It's Kevin success. He built like 16 different platforms, and huge success. Then the next thing is, OK, how do you get to the consumer? That's when all of this ADSL and VDSL and cable. We

built the first cable internet router. So, there's a whole business unit for consumer access. So, in that regard, we innovated along that stack, going from enterprise, down to small-medium business, then to consumer. Then, ultimately, for me, we got schooled where the service providers, the AT&Ts, the Verizons, the Deutsche Telekoms said, "What the hell are you doing trying to sell us enterprise crap into service providers? We don't buy your stuff. We buy stuff made for us [laugh], like Bell Labs made and Nortel Labs and those types of things." The market exploded itself. Where the dot-com stuff started was really probably Yahoo!. Here's me telling what I missed pretty badly. I went for lunch with Mike Moritz from Sequoia, and he says, "I got this thing called Yahoo!." I said, "Oh, interesting." He said, "We're looking for some corporate development money." I said, "OK. Well, tell me about it." He says, "Well, it does what Yahoo! does." I said, "Well, how do you make money?" He said, "We don't know, but we'll try to figure it out." I said, "Mike, you might be able to go back to your office and say that because you're a venture capitalist. I sure the hell can't go back to my office and say, 'We'll just figure it out.'"

ZIERLER: [laugh]

LISTWIN: So, we didn't do the investment and, of course, in hindsight, it was stupid. But if you think about it, that was the next most important thing, which is, can you find something? Then Google came along, and fun story there. So, Google comes along. I'm in the office. Now, this is post-2000, though, but I've got to tell why I got it. I'm in the office, Sequoia office, trying to purchase a little company that they have. Mr. Valentine's there, and I know him not as my father-in-law—and wouldn't for another 15 years—but he was chairman of the board, so I knew

him through that. I had been VP of marketing. He's in a three-piece suit. I said, "How's everything going?" He said, "The air is rare from the smell of Google."

ZIERLER: [laugh]

LISTWIN: No one's done anything for two weeks, waiting for this IPO to go. [laugh] Of course, everyone in that shop made an aggregate billions on that thing. So, that was the thing. I think it was why I still have the little cubit [sp]. March 27, 2000, Cisco hit the highest market cap. We passed GE and Microsoft for—I don't know—like 24 hours. I think it was 527 billion, which sounds pretty funny when you're starting to talk two and three trillion these days on these mega cap companies. But that was sort of the beginning of the bubble. The stock in 2000 had hit into the 80s. The company had locked out everyone from—I don't know if everyone—any vice president from trading, which Mr. Morgridge always pointed out is "we probably made you guys millions over the last five years. We're not letting you sell." [laugh] That's, for me, when the OpenWave opportunity emerged, and it was very clear Mr. Chambers was going to stay in his CEO chair for 10-plus years, and I was anxious to move on. So, that's when I moved on, sold all my stock in the fall of 2000, so that's why I joke I was there the right 10 years, 1990 to 2000, and then went to OpenWave. Then the markets—the bubble, the internet bubble cratered in, I think it was March of 2001.

ZIERLER: You left Cisco as number 2?

LISTWIN: I did.

ZIERLER: What was the title?

LISTWIN: Executive vice president of a bunch of stuff.

ZIERLER: On the basis that just because of the dynamics of the company, you would never be CEO? That wasn't in the cards?

LISTWIN: Well, yeah, I mean, John retired, I think, 15 years later. John related very heavily to his role as CEO. [laugh]

ZIERLER: What were you most proud of in your tenure at Cisco?

LISTWIN: Oh, just being part of the journey with everybody. I was the growth guy. I got the IBM thing right. That's probably the biggest catalyst to become the number one dog. Then in late 1997 or so, it became clear that we were not organized right, to me, that we were functionally organized, engineering, sales, marketing, whatever it was. I pushed John and the board. I said, "Look, I think we need to go to a line of business." We had an offsite with the exec team, and I said, "OK, here's the thing." So, I brought in a Sony Walkman. I brought in a boom box.

I brought in a three-piece stack home stereo. Then I had a picture of Michael Jackson's stage. I said, "Consumer, small-media business, enterprise, service provider."

ZIERLER: Oh. [laugh]

LISTWIN: "You can't sell that shit to them, and you can't sell those three things to the small-medium business, because he wants to put the CD in, and hit play, and have a volume button." That was a good metaphor for people, and people got it. I said, "John, look, we've got to get—consumer, I don't know that we can ever play there, but these three we can. Look, just

reorganize. I don't care. Just give me one." Because the enterprise was the big dog, and the service provider is broken. He said, "Well, you can have the service provider." I said, "Fine." We took the service provider, went to the August sales meeting, August–September sales meeting, because our fiscal year was August, and we went and the service provider sales team had missed their number. It was the first time a sales team in history across the board since the company was started missed a quota. Kevin DeNuccio, who had just been hired from Bell Atlantic, joined the team to run that sales group. We were at some little hotel in Silicon Valley, and he had the world's worst champagne for a toast.

ZIERLER: [laugh]

LISTWIN: We're up on the on the podium, we're about to toast, and I drink it, and it comes out my nose. It's so bad.

ZIERLER: [laugh]

LISTWIN: "Sorry, sorry, sorry." I dab, dab, dab. I said, "OK, look, we're going to get your products that are service provider-ready. We're going to get them for you this year. We're going to double our sales. You're all going to make a lot of money. When that happens, I'm going to buy your Dom Pérignon next year." All of that happened.

ZIERLER: Cool.

LISTWIN: I got a very big Dom Pérignon bill. I did that, I think, three more years: one billion, two billion, four billion, eight billion. Then the year I left was just around the sales meeting time, and I wanted to go and get them all champagne, and say goodbye. But John

thought, “No, we don’t need—don’t need you in the building, Don. You’ve left the building.”

But John was kind enough, where he picked up the \$250,000 [laugh] champagne bill—

ZIERLER: [laugh]

LISTWIN: —and get it for the team, and I moved on to OpenWave.

ZIERLER: Don, one thing we haven’t talked about in all of this is the regulatory environment, the FCC, the FTC, any other three-letter government agencies. Are you involved in that world or are these early days? Is it still kind of the Wild West?

LISTWIN: No. It’s still very early. People just don’t understand. I mean, to this day, I can’t explain to you taxation by state on the internet. [laugh] I don’t know what’s going on. The only thing, as I said, I was involved in was MILNET. So, one more fun story, and then I’ll move back to you. We ended up—this is late. This has got to be 1999. So, I’m very senior. Probably 15,000 of the 30,000 engineers work in and around—we had a business unit structure. There were around 200 to 250 people, and their job was to be number 1 or number 2 in a unit, and that was it. If you couldn’t get to 1 or 2, you better go buy something, or we will just sit down and go, “We can’t compete because there’s no profit to be had.” I can’t remember the two-star general’s name that came with his entourage to ask us about doing some feature development for their software for MILNET. His attaché was this captain, this woman. We all sit down, and I’ve got like 10 guys, and he’s got 10 people. He turns to the captain, and he says, “Everyone’s American, right?” She looks at him like, “Oh.” I said, “Yeah, General, I’m sorry to say”—I hadn’t

naturalized yet. I said, "I'm Canadian." He said, "Oh," and he looks at her [laugh] and, for all I know, she was a corporal at the end of the meeting. [laugh]

ZIERLER: [laugh]

LISTWIN: "Can you excuse me?" I said, "Yeah," and I got up and I left the room. He came back in, and he said, "Well, we're going to have to ask you to leave the meeting." I said, "I totally understand and respect that." But he said, "You understand that it's my budget and I'm the decision-maker." [laugh] I'm paraphrasing. You're sort of like, "Yes. You know they're going to come out of the room later, and tell me what you wanted, and see if I want to do it?" He said, "Yes. Look, as long as an American asks you, it'll be OK." [laugh]

ZIERLER: [laugh]

LISTWIN: I was like, "OK." It was like it was nothing. It was like, I don't know, three guys —I'm making it up—three guys for two weeks is like, "Absolutely, we'll do this for the military community." [laugh] But that was sort of the only regulatory environment we got stuck in. I did sell the internet backbone to China, and they did ask us to put in sniffing technology to find people's conversations, and we refused to do it. I'm pretty sure, given how good they are at that kind of stuff, they figured—

ZIERLER: They figured it out, yeah. [laugh]

LISTWIN: —they figured it out themselves, but I said no. It was a five-year sales cycle, too, and I was with the deputy minister singing karaoke, which is my absolute least thing.

ZIERLER: I hope the champagne was better, at least, for them. [laugh]

LISTWIN: Well, the problem is the damn guy didn't drink, on top of it.

ZIERLER: Oh no.

LISTWIN: There's a [??] sorry, David, I just about killed myself.

ZIERLER: [laugh]

LISTWIN: So, after he's getting to know me, because the whole thing is, "If I have a problem, I've got to call you," the deputy ministers are the guys who do stuff, and the minister's the political arm. I said, "Well, Mr. Minister, how long is this going to take to install?" It was the Chinese national backbone. We're selling them, like, 1,200 of the biggest things we had. He said "Maybe 18 to 20 months." My jaw dropped to the floor. He said, "Mr. Listwin [laugh], we have the Red Army." [laugh]

ZIERLER: [laugh]

LISTWIN: That's all he said. There's no such thing as right of way. [laugh] If there's a farm there, move your farm left, because fiber optic cable is going right through your living room. [laugh]

ZIERLER: Wow. Don, when you make the dramatic decision to move on from Cisco—obviously you're a known entity in the industry at this point—are you getting headhunted? Are you putting out feelers? What's the point of connection for OpenWave?

LISTWIN: No. Ed Kozel, again, had started saying, “Hey, we’ve got to start getting into software businesses, or at least software businesses that are network-adjacent, for example, a call center; very networking-oriented. We can’t just be hardware all the time.” So, we started investing in companies, for example, TIBCO was one that has been around forever. Another one was called Software.com in Santa Barbara, and I actually sat—so, Ed and I sat on boards, as did other people, because I’m sure Ed did a half-dozen or more of these investments. Software.com was a large-scale mass...email. AT&T was their first customer, because email was brand new, and how does it work, and so on and so forth. So, I had joined the board there.

During that conversation, every board meeting became increasingly loud about the mobile internet. The number one thing people want on the mobile internet is not browsing, but they want to be able to do their email. So, the two companies—one was called Software.com; the other was called Phone.com—neither of them were the traditional dot-coms. They actually had revenue and software stacks. Those two companies decided to merge, and that became the CEO opportunity. Having known Software.com guys for a long time, and they were the bigger of the two, I said, “Mobile internet, this is awesome,” and so I left and did that.

ZIERLER: What was the learning curve for you, and what could you bring with you directly from Cisco in terms of your experience, your perspective?

LISTWIN: Well, I knew the customers. Mobile internet was being sold to the service provider customers, so I knew most all the customers around the world. The technology was another technology stack. It wasn’t all that unique. You had to learn about the mobile phone experience. I mean, very early on, if you ever had a data mobile phone in 2001, they were terrible. The

experience was terrible. It just wasn't ready in any way. I brought a lot of acquisition experience. I brought experience in being able to manage—it was 3,000 people when we merged together. I brought public company experience, financial experience. But we got hammered by the meltdown in the market, and so that was a terrible start. Then I laid off 1,500 out of 3,000 people, which was just gut-wrenching. Then 9/11 hit, and we had over 200 people stranded globally, because they were all young engineers with [??] dollar credit limit [laugh] on their credit cards, installing stuff in Belgium or whatever. So, we got very lucky. That whole plane that was coming from Boston that I think ended up going into the Pentagon, we had had people on that plane going to LA for a trade show. They were showing up day of instead of day before, which was policy, to help the marketing people set up. I screamed at them and I said, "You bastards, get off that plane on whatever day that was, and go the earlier day."

ZIERLER: Oh my goodness.

LISTWIN: That saved like seven employees' lives, just serendipitous.

ZIERLER: Wow.

LISTWIN: It turns out that these kids, their community is work. It's not church. It's not their neighborhood. They're all living in apartments or whatever. I walked in, and everyone's looking at me, like, "What should we do?" I'm 40 years old, going, "I don't know what we should do." [laugh] I said, "Here's what we're going to do. We have 212 people stranded. That's the only mission for this company. We're going to get 212 people home, and then we'll go from there." I think I quoted some Nietzsche as well [??]—

ZIERLER: [laugh]

LISTWIN: —about dark holes or something. I'll find it later. [laugh]

ZIERLER: Don, as CEO, what did you learn about yourself or what did you have to tap into in a way you never did before, leading OpenWave, being number 1?

LISTWIN: I didn't realize that their whole community was work and that I was the pastor, I mean, I didn't. So, that was more an aha. Of course, once you get the aha, and you understand what problem you're trying to solve, then you can say, OK, what they need is a job, a mission, so that's kind of how we went. But it was an enormously difficult time. The wheels fell off. My mom, at that time, we talked to kind of close the loop there. She had been fighting the ovarian cancer. I was then up post that apocalypse of [laugh] the stock market crash. She ended up dying in front of me. The CFO called literally three minutes later, and said, "We missed the quarter." I said, "I'm sorry, Alan, but the nurse is asking me if they can have my mother's eyes. So, I'm going to deal with that first, and then I'll call you back." I came back home, and I was in a staff meeting with everybody, and I melted down into a complete, I mean, it should be—under Wikipedia and "meltdown" should be a video of me just losing my shit. Kevin Kennedy had joined me, and he saved—I walked out, and he became not immediately, but he took over the reins till I could find myself, which took many weeks.

ZIERLER: Well, Don, in our next conversation, of course, we're going to—because of how formative it is for everything that came after, we'll trace the entire odyssey of your mom's illness and its impact on you, and the inspiration that it created in you, going forward. Just to close the

loop for today, at OpenWave, how did you get the company back on track? What was the sort of upward trajectory after the recession?

LISTWIN: One big thing is we had a pretty good messaging business that, you know, the internet, the mobile internet was the shiny thing that we had ignored. Hired a really great young guy. Richard Wong came in to revitalize that. We had customers and product and not much competition. That was the one thing. Then we just got, I mean, as you know, technology moves and moves and moves, that the handsets finally became getting better. They were usable. But, maybe to end this segment, the stock at one point during a board meeting was trading at \$0.43 a share when we had \$5 a share of cash in the bank.

ZIERLER: Whoa. [laugh]

LISTWIN: Now that's what stockholders call a vote of non-confidence.

ZIERLER: I would say. [laugh]

LISTWIN: Unfortunately, I was going through my divorce, or I would've bought the whole kit and caboodle. But it wasn't, you know, my strength is a momentum player, and without Kevin there, we never would've done it. He just helped us grind it out. I'll finish with a joke. I'm going a little backwards.

ZIERLER: Please.

LISTWIN: When he and I started the service provider business, I was the outside guy; he was the inside guy. He built this 20-point plan to beat Lucent, who is a primary competitor of AT&T,

Bell's Labs. The good news out of it, we joked, was Lucent did 18 out of 20 of them themselves to themselves, so we only had to do two. [laugh] So, Kevin's the ultimate grinder, and he is the person that I give all the kudos for grinding us out of that hole we were in.

ZIERLER: Wow. Well, Don, last question for today—because I also want to set the stage for your perspective on philanthropy and being in a position to give—after donating to your alma mater, did you sort of expand your purview? Were you giving more to education? Were you interested in healthcare philanthropy before you started thinking about your mom and cancer?

LISTWIN: I'll say it's a good segue. It's kind of where I got reintroduced to my now wife. I was divorced. There was an event for a company, an organization called Room to Read, and it was a fundraiser, and it was in one of the country clubs nearby. I got invited by somebody, one of the staff members, to come. I didn't realize, Mr. Valentine ended up being there, and his daughter Hilary was one of the very early board members. They were doing this thing where they build libraries and schools internationally. Their first one was in Nepal. I went and I thought, well, this was interesting, and I'd had some money, and so I donated a school. Now, it turns out, a third of the guys in the audience worked for me or used to work for me. So, I would go around, and say, "Hey, David, do you want to do a school or a library?" He'd go, "Yeah, sure, right." Finally, the very last guy is named Bill, and I go, "Bill," and he goes, "Count me in, Don."

ZIERLER: [laugh]

LISTWIN: That was the first time Room to Read had raised \$100,000 at an event, and John Wood, who's the founder of that organization, wrote a book about it. So, Chapter 19 is called *Count Me In, Don.* [laugh]

ZIERLER: Oh, there you go.

LISTWIN: So, I started there and, yes, it's been—we give to many more things, but 80% of my giving has been to cancer.

ZIERLER: OK. Very good. Well, Don, wonderful as always. Next time, we'll pick up, I want to trace your mom's healthcare journey and all that comes after, so we'll go from there.

LISTWIN: Now, remember—thank you.

[End of Recording]

NBWM
Don Listwin
Video conference

April 28, 2025
by David Zierler

DAVID ZIERLER: This is David Zierler, Director of the Caltech Heritage Project. It's Monday, April 28th, 2025. Wonderful to be back with Don Listwin. Don, great to see you. Great to be with you again. Thank you so much.

DON LISTWIN: Thanks, David.

ZIERLER: Today we're going to pick up—it's obviously a difficult story, a poignant story but, of course, it's one that is central to your life and your career. I want to trace the narrative of your mother's illness and, of course, the impact and inspiration this had on you going forward in your life. Let's just start right at the beginning. Where were you and what was the news when you first got word that your mom was sick?

LISTWIN: Well, I was living where I am now, here in California, Los Altos—actually, Woodside, come to think of it. My mom had been sick for some time. I have an older sister, Louise [sp], who's an RN, registered nurse, and she had been worried that Mom just wasn't feeling well. When Mom died—I just looked it up—she was like 62, 63. Women go through menopause and, it turns out, part of the big problem of ovarian cancer is symptoms mimic what women experience during menopause. Of course, culturally, they're just told to [laugh] shut up and deal with it, and so that's what Mom was doing. She continued to not feel well. I'd go up in Vancouver, they lived in the Vancouver area, and that's about a two-hour flight from here. I had my own wings, so it's pretty easy to go up, even for a Saturday, Sunday, and go visit the family,

and come on back down. Increasingly, she just wasn't well. I mean, it's almost like this ear thing. I've had this ear clogged for five weeks now. [laugh] I'm going to the audiologist tomorrow. At some point, you're kind of like, OK, this isn't normal. My sister managed to drag her into a clinic, because her doctor had given her antibiotics.

ZIERLER: Thinking it was a UTI?

LISTWIN: Yeah, like, you know, hey [laugh], you know the drill 30 years ago, it's like, "Hey [laugh], let's give you antibiotics and see what's going on." Louise persevered, God bless her, and she got Mom to go to a different doctor, who was a little bit more blank sheet of paper, and did some tests. They said, "Well, this isn't right." My memory's pretty fragmented on this, I must say to you, David. But, ultimately, the tests came back that she had ovarian cancer, and pretty late stage, I mean, yeah, it was late stage. It was stage 4 ovarian cancer, which, now that I know as much as I do about it, it's not a death sentence, but the odds aren't with you. So, that was the "Oh, shit." At that point, we ended up getting her into Vancouver General Hospital, which is in Downtown Vancouver. They lived in a suburb called Langley, and there was a doctor there, Dr. Dianne Miller, who began to take care of her.

Of course, the first thing they do, in this particular case—not that it's all that important—the way the cancer was located in the abdomen disqualified radiation as a treatment, and chemotherapy was the key thing. So, she started on chemo. I mean, gosh, chemo's still devastatingly hard, but 30 years ago, it was even worse. Nauseous. Wouldn't eat. I tried to get her to smoke pot [laugh], some pot, but couldn't get her to do that. She went through the chemo, through the whole course, and then went back to VGH with Dr. Miller, and they opened her up. When she came out, she

said, "I was very excited at the beginning. I had suction. I was suctioning out all this cancer." Then there was a veneer left that they couldn't surgically deal with, and sewed her back, and basically said, "Well, I think that's all we can do." So, you know, continued to travel up, I think, almost every weekend. I was working at the time—we talked earlier—at OpenWave, the mobile internet company. We were in a hell of a tough month. I mean, for god's sake, it was September 2001, so 9/11 had just happened. We talked earlier that we had over 200 employees stranded globally, so trying to figure that out. So, the end is coming, and so I fly up. I have a one-on-one with my mom, and she's just most worried about my dad, because she's taken care of him all his life, like, she was the brains of the family; he was the brawn. I said, "Don't worry; I'll take care of Dad. I'll make sure he doesn't have to go into a home or anything. We have all sorts of resources. Don't worry about that."

She was in hospice at the time, so I expect that that was sort of the trigger she was looking for. Then I went back to their house, stayed that morning, early. I don't recall when I got a call from the hospital saying, "It's ending, her life is ending." So, I hopped in the car and drove. She was actually in hospice at a place called White Rock in British Columbia, on the coast. I missed her passing by—I don't know—five, seven minutes, or whatever. You're sort of in the room, and it's kind of shocking when it's your mom. As we've talked about, we were very close. As I'm doing that, one nurse comes in, and starts asking me if they can have her eyeballs. [laugh] The phone rings, and it's my CFO, Alan Black, and he goes, "I got bad news: we missed the quarter." It was September 29th. That was a Saturday. That was when most of these internet markets had started collapsing and, in particular, the mobile internet still wasn't a steady, viable kind of growth business. I said, "Well, Alan, I've got bigger issues [laugh] to work with right here today. I'll call

you back in a couple of hours.” [laugh] We donated her eyes and anything else that they would take, although, after all that chemo, I don’t know what they take, and that was it.

ZIERLER: Don, I know that the memory must be a blur. It all sort of gels together. But do you recall, at any point, from initially receiving news of your mom’s diagnosis, right to her last moments? Is there an ignition? Is there a spark for you in that timeframe where you say, “I’m going to do something about this?” Or does that really come after?

LISTWIN: It comes after, David, it comes after. The engineer in me kicked in, and started doing more and more research on ovarian cancer. What became very clear is when found early, it’s—curable is a big word—little-c curable. Eighty-plus percent of the time, you can cure these women by cutting out the stuff they don’t need anymore in their 50s or 60s, or whatever else it is. After the fact, that’s really when I started going, what can I do about this? During that whole period, as well, I ended up going through my divorce, and so [laugh] it was a rocky time. Now, the good news is I lost 26 pounds. [laugh]

ZIERLER: [laugh]

LISTWIN: A lot going on. Young son going back and forth, and so on. I had a very good team at OpenWave, a number of very senior Cisco people who came to work with me. I recall, I was in a conference room, and I was going, you know, talking to the team after we missed the quarter. I was like, “Hey, it’s going to be OK. We’re going to come back.” I burst into tears, balling. [laugh] I’ll get there. My buddy Kevin Kennedy, who is a brilliant friend and a genius, he walked me out. He was the number two guy, and he basically kept the wheels on the bus for

me for months, if not longer. But I kind of had to work through—there was global unrest. There was my personal unrest with the divorce and the family. So, it was a really long, tough time. Several months till I kind of got my shit back together. I can't tell you, really, when I started, you know, thinking about, like, OpenWave had got to a point where—for those of us who are going to see this or listen to it—there was a board meeting that I was in, where the stock hit 43 cents a share when we had \$5 a share of cash in the bank. Now, if there's a vote of no confidence in the CEO [laugh], that's freaking it.

ZIERLER: Yeah.

LISTWIN: So, that was part of it where I went—and my board is, you know, I'm getting death threats—I mean, really, we had to hire security—not from inside the company, but outside people wanted [??]. “My whole life savings is in your company, mobile internet.” It's like, “Well, you shouldn't have done that.” That company, ultimately, thanks to Kevin, got stabilized. We actually got re-engaged in a second product line, in the messaging area, that we had abandoned, which was silly. It came back very strong, and that company got to a point where the stock went back up to \$25 a share, which was probably the right level. I just said to the board, “Hey, I think this is the time. I think Kevin's brilliant and should do it if he wants.” It turns out, he was on the board of JDS Uniphase—which was the big fiber optic supplier back then, a high-flying Canadian company—and they had just let go of their CEO, and they tagged him, so he had two jobs. JDSU was 10 times the size of the company, so he decided to do that. The board ended up doing a search process, and brought in an individual to take over.

ZIERLER: How ultimately did the ship get righted at OpenWave, or did it not?

LISTWIN: Well, it did while Kevin and I were still there. It was two things. We were both a mobile internet tech that made the browser work on a phone, which that was hard years ago [laugh] because the phones were so small. But it was this—if you recall from the earlier conversations—this large-scale email. Internet service providers, unless they were the biggest of the big—top five, Google, whoever it was—they couldn’t build this stuff. We had ignored it. “Abandoned” is the wrong word. We’d ignored it, and hired a really brilliant young guy named Richard Wong, MIT engineering grad, who came in, and he turned that business around. That gave us some cash flow. Then, during the selling process, before me, before I came in, there were just so many promises made to service providers. When I say service providers, I mean, telcos who think, “Oh, I’ve got to get in this business.” We just had salespeople, who used superb sale tactics in the short term saying, “Well, your competitor just bought \$3 million worth of stuff, and if you don’t buy some software to make this go, you’re going to look stupid in the market.” It’s called stuffing the channel, if you recall that term, where they paid for it, but they didn’t use it because it didn’t work—not that our software didn’t work, but the end-to-end system. I mean, you’re on a bloody Motorola flip phone, trying to do something outside of text messaging. I think time helped, because the handsets got better and better. But I had to go.

My saving grace is I ran the telco business at Cisco as my last big gig with Kevin. It’s about a \$12 billion business a year. I knew many of the people that the company had sold to before I came in, like, Telmex in Mexico City. I’d go in, and go, “Carlos, look, I’m really sorry. I didn’t do this. Let me fix it.” That took probably two years to dig out of that inventory pile. Then Richard came along, and really started kicking it on the other side, and it got stabilized. But, unfortunately, when Kevin and I were both leaving, we said, look, we’re at a crossroads here. We

either have to become one of three things. We either have to become a hardware gateway provider, like a Cisco, and sell ourselves to a Cisco or a Juniper. We either have to become a client server company, and be pure software. But there's three options that at least the two of us thought. They went out and hired a CEO, which I think it's important for me to be very [laugh] demure on this. But my deal was to stay till the end of the calendar year, so I think that was on the order of 100 days. I moved out of the CEO's office, gave the new guy the CEO's office, and I

ZIERLER: Don, this is calendar year 2002?

LISTWIN: Correct. That's right. Well, I'll go back, David, '02 or '03—'02, probably; '03, maybe. I'm not sure, because it was September '01, so it could've been '03. The only thing that struck me is, the guy never came and asked me any questions. If you think I'm a complete moron, at least you'll ask me a few questions, and do the opposite [laugh]—like, there's an algorithm in there that can work—and he never did, and the place never became what it could have. I'll leave it on that note.

ZIERLER: Don, all of the dislocations after September 2001, in the business world, in your career, do you think—I mean, not to put you on the psychologist's couch—do you think that all of that tumult got you thinking about, not a pivot because it's not your specialty, but at least a new focus for your energies? Is there an origin story of Canary that only exists because of all of these dislocations in your career?

LISTWIN: Yeah, well, I think so. As we talked about, I was blessed when I exited Cisco in September of 2000, so I made good money on that, because I hadn't sold much of anything during the journey. Then, as OpenWave stabilized, as the CEO back then, you were making five or six points on a company. That was nowhere near the Cisco outcome, but still very nice; now, minus some percent [laugh], some big percent for your divorce. But, still, I thought, this was enough money, and is that what I wanted to do? Now, when I was at OpenWave, I was flying on the order of 300,000 to 350,000 miles a year, and I was early 40s. But, man, I came into a board meeting once, and I remember one of the board members going, "I've never seen it said in 40 years of being a board member and a VC, but you need to stop working so hard [laugh] or you're going to be dead." The business was all Japan, Korea, and Europe. We were way behind in mobile internet technology in the United States and Canada and North America, so you were on a plane. I remember going from San Francisco to London to San Francisco to Japan, and then getting on what then was the longest flight ever on United—17 hours—to be a host on CNBC, back when Mark was on, the big guy. That was a three-hour gig from 9:00 till noon. So, you're on the plane. I took my Ambien, I had my glass of wine, and I wake up, and the flight thing says eight hours left [laugh], like, oh my god.

ZIERLER: [laugh]

LISTWIN: So, you land, and I go, and I, oh, whatever. I get up at 5:00, and I go to a Starbucks, and I go to the studio. They're very nice. He's funny. There's a funny story. He's sitting there. He was very cordial—not engaging, but cordial. He's in his suit and tie top, and his boxers, and he's getting his makeup put on. [laugh] He leaves and he goes out, and he's got a

giant bowl of Cheerios, which he keeps under the desk that he eats [laugh] at commercial. So, we're going on. As the news goes, it's like [mimics news music], "Juniper misses their quarter." We're like, this is freaking fantastic. I know everything about Juniper. [laugh] They're my arch rival in the telco business. So, I was just really good. [laugh] I have to say, I was really good. A little adrenaline flowing, and then they'd go on. They stopped doing this segment for the following reason, which is then they'd start talking about global economic uncertainty and interest rates. I just looked at the camera and go, "I got nothing," which I got praised for at the end of the show. That's when people turn off the show [laugh], when people don't know anything and they start yammering on. I don't know. That whole period was—it was enough. In hindsight, those are the power-earning years. I'd have a whole lot more money now if I didn't quit working after 25 years of working. But everything's lovely.

ZIERLER: Don, are you thinking—again, I want to get to really when Canary gets running, at least in your mind—is it a soft retirement from you from the telecom industry, or are you thinking there's a next chapter, or I'm going to keep myself involved in investing, or consulting? How are you thinking of the next stage of your career?

LISTWIN: That's the right question to which [laugh] I don't know that I fully thought through the answer. But I do think you're right. I think part one was this is a soft landing from what has been a very hard four years, physically, emotionally, mentally. The bank account seems fine, and can I do something to help? So, that's the moment. Now, I continue to and still run my little venture firm, Listwin Ventures, and I do seed, and Series A, and all that kind of fun stuff. I was more involved back then. That was my hand in the business. I was probably on seven or

eight start-up boards. So, I didn't abandon that part of, hopefully, my talent, at least my engagement. But it then started with, well, OK, I have figured out the ovarian cancer conundrum, which is, you can't detect it early, and is anyone working on that problem?

One Saturday morning, I sent out a series of emails to major institutions, after the web search, that had some amount of ovarian research, and said, "Here's what I'm interested in and helping" —and make up a number very quickly. Thirty minutes or less later, a woman named Pat McCowan emailed me back, from the Fred Hutch Cancer Center in Seattle. Pat said, "Hey, we've got this great researcher, Dr. Nicole Kidman"—[laugh] it was not Nicole Kidman; I have met her at a cancer event—"Dr. Nicole Urban, and she's working on these things called biomarkers, which are blood tests, urine tests, to find this." I went, "Well, great." So, I came up to meet the director, Dr. Lee Hartwell; he wasn't in, but Nicole was in, and others. I said, "Well, what's your biggest problem?" She said, "I need a wet lab, because I'm a basically a mathematician statistician, but I think the next step on this is, I think I know where I should be looking, and I don't have wet lab. I'm not even in the top 20 for doing this." So, that's when I gave my first million-dollar gift. It's not easy, I mean, a million dollars, at least in my age, you grew up going, a million dollars is what you aspire to, so giving it away, even if you had more [laugh], is still a step.

ZIERLER: Don, orient me in the chronology here. What year was it when you emailed all of these institutions? Would this have been 2004?

LISTWIN: Yeah, it's '03, '04, I mean, I'm plus or minus a year on it, '03. To make this the story, I can go back and maybe look at my notes, as we do this. But I'd say late in '03.

ZIERLER: Did you hear back from anybody besides the Fred Hutch from that initial email?

LISTWIN: Yeah. People came back spuriously over the time. As you see[?], you have experienced it. Generally, it doesn't take more than five minutes for me to respond to an email.

ZIERLER: [laugh] Yeah, you're on it.

LISTWIN: I appreciate the same in kind. Then, like any good development director, she engaged me, and wanted to understand what was going on. She was, like, four days ahead of everybody, before they came back. In team building, I believe proximity matters. There's old HR terms of, you know, storming, forming, norming, and so, actually, I used that principle in Canary when we built teams. I don't know, I mean, she set the hook [laugh], and said, "You should come up." It's an hour and a half flight to Seattle, I should come up, and I came up. That's when the engagement started.

ZIERLER: Don, this is such an important point, I want to make sure I capture your perspective at the time correctly. There's a balance here, obviously. On the one hand, you understand that there are structural limitations in cancer biology, in biomedicine. That's the basis of why you're reaching out to help. On the other, you need to know your lane. You're coming from industry. You're not a medical doctor. How are you striking that balance where you both want to sort of point out an obvious limitation, and offer to help, but not appear to be so overbearing or assuming that you know things that the medical community doesn't? How are you doing that at the beginning that obviously sets this whole endeavor off on the right foot?

LISTWIN: Well, I would say, I was pretty arrogant. I would just put that. [laugh]

ZIERLER: OK. [laugh]

LISTWIN: I just finished helping build the internet and the mobile internet; I thought I could build stuff. I thought—which I think is true—that one of the things that was missing is there was, really back in the early 2000s, nothing like team science. People were individuals, trying to get their grant, get their breakthrough, get whatever it was. My belief was, bringing engineering principles and team discipline was the thing that was going to be the game-changer for what we were doing. Additionally, over time, it also became a fact where I canceled stuff. But you don't cancel stuff in the science business; it fails quietly into a whimper, but it still sucks up all the money. We got into different models, which we can discuss when you want, but there were many different funding models, and I brought those from my experience at Cisco. I'd have a lunch with somebody, and they pitch me on something I thought was really interesting. I'd go to my backpack, and I'd pull out my checkbook, and I'd write them a check for \$50,000 in the first hour, just like, "Go." Now, that would them nine months to get the \$50,000 from somewhere. As we talked about earlier, the other thing that became clear, as I learned it, is when you give good scientists money to get early data, they win the big grants. That's been part of our success is the leverage has been 10 to 12 to 1. So, I think it was applying those things. As I got into it, David, it also occurred to me—which I didn't know upfront, which is still a problem—that the economics around diagnostics is terrible. Diagnostics get paid in this country cost plus. People drive around with trucks full of blood, going to mainframe processing centers. So, ah, OK, now the idea of a PC instead of a mainframe made sense. We talked earlier about my dentist saying, "Hey, I can do that." So, it took time for me to—the arrogance said, "I can help them with engineering." The

learning became, “I can help with team, and then I can help with how to get leverage out of what we’re trying to get done.” That’s where things continued.

Now, Dr. Hartwell came back, and we met, and we talked about stuff. It was he who is a Nobel Prize winner. He said, “Look, this really needs to be a team. We don’t have all the assets of the Fred Hutch that we need,” because the Hutch was largely a standalone research center, not a hospital, so there’s no imaging and others. So he said, “Don, what I’m good at is convening scientists [laugh], and so, with your support, I’m going to convene a team of scientists”—we talked through, in the past, who they were, and can go through that again—“to study something and see if we can come up with this new model”—and that’s what we did. The team, as I alluded to earlier in our conversations, picked ovarian cancer because of how challenging it was, as opposed to the fact that my mom passed of it.

ZIERLER: I want to go back to that first visit up to the Fred Hutch. What were the big learning curves for you in the beginning? Even if you were coming from an arrogant place, what was the new information that you felt you needed to get read up on if you were going to take this seriously?

LISTWIN: Well, everything; I didn’t know a damn thing. [laugh] I mean, you know, what the hell’s a biomarker? What’s the difference between a genotype and a phenotype? Twenty-five years later, I still know, like, the scratch on the surface of it. So, it became clear that I had to learn, but that had never seemed to be a problem. Human biology is all about software code [laugh], right, DNA. At some level, you can start to make some comparisons. I’m very instinctive, and so I was like, well, let’s take a first step, and see what happens. Now, what

happened in that journey is, as we were trying to discover biomarkers, Pat Brown got involved, Dr. Pat Brown, who I believe will win a Nobel Prize someday, who now has left that research community. He was the founder of Impossible Foods, Impossible Meats, because he's a passionate environmentalist, and he said, "Cows are killing us." He had done some work, and he opened his laptop—which is very unusual—and said, "OK, here's a selection of genes that I think we should follow." He just gave everyone the information, which should have been a paper.

So, we did, and what we discovered along the journey—and it wasn't just me; it was everyone—is that these antibodies that you use to try to find these biomarkers, they're commercialized antibodies out there. But what we learned much through the path is that cancer looks differently over what is generally a 20-year journey, before it becomes dangerous. So, you can find this stuff easy, except for it's stage 4, and it doesn't help you, and it doesn't look the same here. So, we set out—and I did this through Canadian contacts—and set up a lab in Victoria, British Columbia, to build our own antibodies, which is not an easy process. Back to your question of, "What did you learn, and where'd you go," part of it was step-by-step. We ultimately ended up helping commercialize one biomarker called HE4, which is a companion to CA-125, both of which are ovarian cancer biomarkers, but neither of which is powerful enough to be one and done; you still need imaging to complement them. So, I don't know, David, it wasn't a master plan. [laugh] I've never really had master plans. I've surrounded myself with good people, I've trusted my instincts, and I've tried to be honorable and supportive. After the ovarian team, then we started getting known more in the community. We started a lung cancer team, which is still working a clinical trial in China. He's OK with this: Frank Quattrone and his wife Denise started our prostate cancer team, which is probably our most successful enterprise we've talked about,

where now you can really help men understand where they are in the cancer journey and what they should do, where there was so much uncertainty in the past. So, we had team structures, and then I had the individual scientists, and then I had the smaller things. That's when Dr. Gambhir said, "Maybe we should build a center at Stanford," and then that idea came along. This wonderful man, who's since passed, Bill Bowes—who was a founding venture partner at USVP, who I think was the founding investor in Amgen—he helped us, and he helped us start the Canary Center. So, we went from that to today, where there are centers globally, which are not—they're Canary affiliates. I don't want to [laugh] overstep here, but I think were inspired by the work that our teams have been doing.

ZIERLER: Let's go right back to the Fred Hutch. That initial million dollars, what was the nature of the ask, and how did you determine in your own mind, "This is a good investment This is something that's going to yield what the scientists, what the doctors want to achieve"? How did you assess those things?

LISTWIN: I would say, to this day, it's clear that there is some sort of biomarker test required [laugh] to alert people. This was way, not way before, but BRCA1, BRCA2, genetic tests that predispose people—mostly women, but men too—to cancer, it was not the rage. Right now, the whole idea is, can you identify yourself as high risk through either genetic testing or family history? If you are, you should be more diligent. OK, now what? Well, sometimes it's imaging. Sometimes there's nothing with ovarian cancer, right, there's nothing. The pursuit for me was, OK, we need a blood test for this thing. What I missed is, unless it was damn near perfect, no one's picking up a scalpel anyways, because the incidence of the disease is so low that false

positives can be so high. So, that was the learning along the way, that you've got to have a confirming test, biopsy or imaging, to be able to have a surgeon actually engage. But, look, I like Nicole. Pat had won me over. I've got a Nobel Prizewinner saying, "I agree." Like, this vision was Lee's vision, not mine, of the one step, two step. Mine was the brute force [laugh] engineer coming in and saying, "I'm going to break this bridge down. What's the next bridge?"

I thought Nicole's approach was the right one, but she didn't have the kind of support in the lab. So, I said I'll give them a million dollars for the lab. Now, that stuff can be disruptive, right, someone who thinks they're going to get a lab from the institution and, next thing you know, your neighbor got a lab. Well, it's because your neighbor was working on something that somebody cared about. None of that has ever changed probably over 100 years of [laugh] research. But we got going with Nicole, then some more for Nicole in around that, and then I approached Lee, and said, "What about if I had 10 million, what could you do here that's different than what we're doing on the ground?"

ZIERLER: What was the answer? What could you do with 10 that you can't do with 1?

LISTWIN: The answer is, he would build, with support from the internal leadership there, an early detection group. Notably, what was missing—the hot technology at the time was proteomics, so the study of proteins. There was this belief—which is still true—that, as cancer develops early, there are unique proteins that are shed from the cancer, and if you could differentiate them from the normal ones—and so, proteomics did that. They use mass spectrometers, which measure the time of flight of molecules across two surfaces. By that time, you could assess the mass of the vehicle of the protein, and you could identify it. That was

missing at the Hutch at a scientific level, so a big part of that money went to recruiting a guy named Sam Hanash and a woman named Mandy Paulovich into the Hutch, to round out that proteomics. Ultimately, Lee said, “We need imaging,” and that’s where Sam Gambhir from Stanford got involved, and then some of the genetics whizzes, like Pat Brown and Pat McCormick [sp] from UCSF.

ZIERLER: We were oriented in the chronology. Now, institutionally, let me just make sure I have all of the players involved. We start at the Hutch, and then where is Hartwell?

LISTWIN: Hartwell’s the director of the Hutch.

ZIERLER: Hartwell’s the director of the Hutch. Then where else? Is there any other steps before we get to Gambhir at Stanford, or how does Gambhir enter the picture?

LISTWIN: The ovarian—so, there’s Nicole’s lab, biomarkers. Then there’s, can we do an early detection—I don’t know—“center” is too big a word, but whatever at the Hutch? Lee said, “Yes.” He’s a very consensus-building leader, and people said, “Yeah, good idea.” Then that’s where the initial money goes. Of course, in medical research, there’s three prices for stuff: \$250,000; \$500,000; and \$1 million. [laugh] They start with a price, and see what they can put in to sell to you. Proteomics machine, mass spectrometers were expensive devices, so that chewed up a lot of dollars. But once that got done, he’s like, “Let’s do this team thing,” and that’s when, like, who else came in: Peter Laird with the methylation specialist from Southern Cal; Pat Brown, I talked about; Howard Hughes, investigator at Stanford; McCormick from UCSF. I’m trying to go around the room. Marty McIntosh, a brilliant guy and statistician from the Hutch,

joined for data analysis; and then imaging, it was Sam. So, make up the number, there was eight or nine of us in the family room when we had the first meeting.

ZIERLER: When exactly, during this process, do you think, “I need something more than being a guy who writes checks, and there needs to be a foundation, there needs to be a nonprofit that’s associated with all of this”?

LISTWIN: Well, I was running out of money. [laugh]

ZIERLER: [laugh] That’ll do it.

LISTWIN: That’ll do it to you. Well, I think we had established a pretty good reputation, and I thought, well, it’s not that hard building a 10-person organization for someone who has experience. I was flying up with my buddy Dale to a Hutch meeting, and we were brainstorming on—we had already decided to do this foundation, and then we were brainstorming. That’s when one of us—I think it was me, but he’s a really good buddy, and he’ll say it was him—came up with the idea of Canary for canary in the coal mine.

ZIERLER: Of course, right.

LISTWIN: When you say that to someone who’s 30 years old, their eyes go, “What the hell are you talking about?” You say it to somebody my age, they go, “Oh, I totally get that.” That’s when Canary—and I started with Canary Fund, which ended up being a mistake. We’re still legally Canary Fund, doing business as Canary Foundation, because I got emails from all sorts of venture people going, “What are you doing? Why didn’t you talk to me about it?” [laugh] I was like, “No, no, no, no. I’m doing cancer research. I’m sorry.” When that officially started, again,

we're talking 20-plus years, David, but I'm guessing '04, '05, and started reaching out to people. I'd say the core of the foundation's success early on was people who thought that I could run this thing more like a business than what feels like, for 100 years, what the black hole of cancer research funding. It just goes in, and nothing comes out. The best example of that is the Quattrone and the prostate stuff. Man, there was like an eight-page [laugh] letter of agreement on milestones and what was going to happen and when. Then, when you delivered, they gave us another bigger gift. The same thing with Bill Bowes. "Well, build this. Do this." "OK. Yep."

So, it was a bit of a venture-run exercise, if that makes sense, on building trust. I had a good reputation from the industry, and then Mr. Valentine, my father-in-law, had lots of contacts. But I knew Frank years ago, and so that's where it went. On an aside, it's interesting, where it takes, you know, people who are working full-time in ops jobs aren't very philanthropic, because they're thoughtful and they don't want to just throw money at stuff, willy-nilly. Steve Ballmer and I became good colleagues through the Cisco–Microsoft relationship. I said, "You haven't done much." He said, "I'm busy running one of the world's biggest companies. Leave me alone. I'll do it when I retire." [laugh] I said, "OK, I get it." But, for me, that whole class of investor in Canary has basically passed, and so the question is, for me, how do I continue to get money that's not just my own money, to move things forward?

ZIERLER: Don, it sounds like, if I've—let me see if I've captured this correctly. The idea is, as you were joking before, once you start running out of your own money, you know, you're being very generous, you're excited, you're writing checks, but this is fundamentally an unsustainable business venture.

LISTWIN: Yeah.

ZIERLER: The idea with Canary is that you are a known entity in the tech field. You have now built up all of these relationships in cancer biology and biomedicine and oncology. So, basically, your peers, the investor class, who might not have the time or the inclination to do all of the homework that you've already done, to do all of the relationship-building that you've already done, you're basically a proxy, where they're saying, "Ah, Don knows what he's doing. I'm happy to help. I'm not going to develop these relationships directly, but I can trust Don that if I give money to the Canary Foundation, this is going to be the best bang for the buck." Is that basically the idea?

LISTWIN: Yep. I tell all my kids and grandkids, there's only three assets in the world: time, talent, and trust. You can find faith. You can find love. You can find whatever you want in a combination of those three things. The core asset I had with the investment group was trust; both that I could get it done and that, if I couldn't, I would be honest and tell him I couldn't get it done. To this day, the brand is strong. Many people think brands are catchphrases and things. I had a very good head of marketing guy named Keith Fox that came and worked with me, for me at Cisco, and he came from Apple, so he was great. He said, "No, no. A brand is a promise of an experience." Core to that promise at Canary is being trustworthy. There's a new big foundation just this year interested in early cancer detection. It could be as much as a 10-figure foundation. They said, "We founders, we did all our research, and everyone says you guys are the cat's meow." That's 25 years of trust.

ZIERLER: Wow. Wow. Don, the obviousness of the importance of early cancer detection, just to play devil's, advocate for an investor that says, "I want to give to a St. Jude's or I want to give directly to a medical school or to a university," what is the hook for the Canary Foundation to say, "This is really the part of the puzzle that we're focused on in a way that no one else is"? I don't know if it's an elevator pitch, but what's that message to the people who are on the fence?

LISTWIN: Well, look, this business of this cancer philanthropy is the most competitive one I've ever been in, in my life—

ZIERLER: [laugh] Interesting.

LISTWIN: —most competitive. You've got hospitals selling hospitals. You've got doctors selling doctors. You've got organizations selling disease—pancreas, ovary, whatever it might be—and 80% of the people are emotionally invested in either the disease, the doctor, or the institution that they went to. So, right away, in this sort of intellectual pursuit, you're behind the eight ball. So, you've got to be able to go to people, like the venture people that I did, and go, "Here's the disruption, here's why it's going to work," and be able to talk through all of those different nuances, to their satisfaction. So, it's very clear, the facts are clear, but then people go, "Well, if it seems so self-obvious, why is it that you can't sort this?"

You can go through the statistics and the math. The simple answer is, the face of cancer over 20 years looks different. So, when you've got diseases, like ovarian and pancreas cancer, that don't present early on, you don't have any samples. Our biggest problem in those two diseases is you don't have early-stage samples to study, because you only get lucky. A woman has a

hysterectomy, and the doctor goes, “Well, I’m really glad we did this, because you had stage 2 ovarian cancer, and we took out everything.” There is a unique slot that matters. This new bigger foundation, disease is in the family, there’s a particular disease—which I’ll just keep offline—that they’re interested in that we’ve been working on but have been underfunded, and I hope it’s a breakthrough. But I’m at this point now where, strategically, I believe the rest of the technology development in genomics and biomarkers, it’s all moving along nicely; it’s imaging that’s a little bit behind. But it’s a giant industry with a lot of money in it, so finding new products for that industry makes good economic sense for them, and that’s where I’m mostly focused over the next five years.

ZIERLER: Don, I want to go back to the origin point with Stanford because, institutionally, of course, that’s what brings us together. Tell me about the connecting point to Gambhir and why this was compelling for you.

LISTWIN: Well, number one, it’s five miles from the house. [laugh] I digress, but as I built teams, and people did not like it, but they were West coast teams, because I said, “We’re going to get together every six or eight weeks. I need FaceTime. We need to build trust before we can Zoom in”—it wasn’t even Zoom or whatever—“before we can get to that norming kind of phase.” So, you know, great guy in MIT, “No, because you’re not going to come out to the meeting, and you’re going to try to get on the phone, and it’s not going to work.” When we built the ovarian team, or we were going to build the team, Hartwell said, “We need imaging and, “he said, “it’s Gambhir.” He’s the guy who innovated in PET, and innovated in all these different

structures over time. I think it was, at the time, when he moved from UCLA, the biggest move Stanford had ever done: \$50 million, and I think 50 people came with him.

ZIERLER: Wow. Wow.

LISTWIN: It was Lee's introduction that solidified that, and then Sam's help got us in the door, and then started to make this pitch about a center, which now is turning into—God-willing—an institute of a much broader scale that Joe DeSimone is now going to lead.

ZIERLER: Wow, so exciting. Don, you mentioned building out the foundation, 10 people. What are the areas of expertise? What is obvious to you? Where are you bringing in outside counsel to say, "Who do I need to make this all work?"

LISTWIN: Well, I don't know that I needed outside counsel. I mean, the number one challenge we had in building these teams were the general counsel's office at the universities, who said, "What do you mean, we don't own this?" I said, "Well, there's 10 universities working on this." Their whole model for all the years they'd been in this kind of business was, well, there's one company and there's one drug and there's one royalty stream, and that's how that all works. I must have had a dozen meetings. "Here's the 10 people working on this. Here's the workflow. Who owns this?" They said, "Well, are you going to own it?" I said, "No. But you can't own it, and you can't own it, and you can't own it. We're just going to let people have it." That took one or two years to kind of get through the rat hole.

ZIERLER: Don, is that a new model in the field, not having sort of a proprietary sole owner relationship of any technology that comes out of it?

LISTWIN: It was 25 years ago.

ZIERLER: Wow. OK. Interesting.

LISTWIN: Not now, it's not now, for sure. I mean, everything's about teams and doing things. So, we had to get through a bunch of those hoops. Sam was very influential on campus, you know, one of my best friends, and a great guy; brilliant as the day is long, but also humble, and could make complicated subjects digestible. He really was the anchor in Stanford. Then—I don't recall—I think he brought Bill in, because Bill Bowes was funding Bio-X. So, he also said, "Why is no one working together on this business at Stanford?" So, there's a program, a big program now called Bio-X, which was all of this business of exchanging things. Now, over time, we've got to the point at Stanford where there's dozens if not 100-plus affiliates. Jim Brooks, a prostate cancer doc, well, he's not on our payroll, but he's doing research on the prostate team. So, you just ended up, and we built a place where the water seemed warm, and people were wanting to be part of the party.

ZIERLER: What was the first product or first idea, where you had to think about, "OK, we now have this new non-proprietary model, but here's how we're actually going to deal with it because it's a real thing now"? What was that? Was it a drug? Was it a technology? What was the thing where you said, "Oh, this is actually working. We need to figure out how it all comes together"? Who gets credit? Who gets paid?

LISTWIN: Haven't had one. I mean, the HE4 biomarker we talked about earlier, we helped nudge through. That was someone else—I think it was in Seattle—had actually come up with

that. We helped validate it. Then it ended up going to a company, which we just, like, I was just like, “Hey, how can we help you get this commercialized?” Outside of that, there have not been any commercial successes. Now, I’ll back up, and say there have been at least 10 or more spin-outs from the Canary Center and Sam’s imaging labs on technologies in and around this, but not necessarily doing biomarker testing on your iPhone. I mean, a number of people have done that. I digress a bit, but I had said—and I have to be more careful when I say it is—if these people, who are the best and brightest in the world, can go to Google, and make more money, we’ve got to at least give them a path to consider commercializing their technology and making some money on it. So, that, I’d say—I had nothing to do—Stanford is particularly good at that, and we encouraged it, and we supported people. I still, to this day, help people understand how venture rounds work, and why they only get common stock and not preferred stock. [laugh] So, there have been those successes, but there hasn’t been the clinical success that you can go, “We did that.” Now, I think it’s going to be in imaging. We’ve been working on this microbubble stuff for 12–15 years, and I actually think the team is getting close. But the vagaries of this, the bubbles we were using were from a company called Bracco, a Swiss-Italian private company, family-held. They fight about, “Well, I don’t want to do ovarian cancer,” says the brother, “because the market’s not big enough.” The sister says, “Why don’t we just save some lives too? It’s only bubbles.” So, you’ve got to work your way through that hole. Whenever you’re doing anything new, it’s highly fragmented, and you’re betting on start-up. You’re doing a start-up yourself, and you’re betting on start-ups. It’s tricky.

ZIERLER: Don, it’s a great opportunity to ask you to reflect on the legacy of Sam Gambhir, what he built, and if you connected with him, because I know that he experienced tragedy in his

own family that was obviously a big impact on what he worked on and what his motivations were.

LISTWIN: Well, yeah, I mean, it is sad for the world and it's sad for the community that he's no longer with us, because he was brilliant and an inspiration and respected and loved. The tragedy is triple-fold. His wife, Aruna, P53 mutation, ended up with multiple surgeries; devastatingly hard. Their son, Milan, ended up with glioblastoma at 15. He died first, despite an incredible effort by our entire team—and shout out to Duke. Then Sam, at Buck's Restaurant some years ago, said, "You know, Don, I haven't been feeling well," and I said, "Yeah, I know, and I'm trying to get you to a doctor." [laugh] He goes, "Well, we've discovered I have cancer." [laugh] I'm like, "Oh, f..." excuse me. We can edit this, right? "What the fuck?" "Yeah, I have this thing called tumor of unknown origin." I had never heard it, and I was like, "Give me a break." This is a cancer that manifests, where the immune system jumps on it. It's so rare that there's no real practice. Half the community says, "Your immune system's getting it done; leave it alone." The other half says, "It's cancer, dummy. Go do something about it." Through a torturous, torturous set of interventions, they didn't work, and he died, so, I mean, that entire family, the tragedy. Then partly what set us back was Juergen Willmann, who was our VP of strategy at Canary Center, he ended up dying in a car accident in and around that same—and he was the lead on the microbubbles. So, between that and the pandemic, we probably lost five years of progress.

ZIERLER: Tell me about connecting with Joe.

LISTWIN: Well, I'm happy to say I flew him on my plane with a couple of friends and his brother-in-law to the Philadelphia game, and we kicked their ass, the Niners kicked their ass, so that was fun. [laugh]

ZIERLER: [laugh]

LISTWIN: When Sam was sick, he had been—and I'm going to be delicate here—he was being recruited by Harvard to become the dean of medicine. I think he wanted to stay and be the dean of medicine at Stanford. They gave him an outrageous offer of both money, faculty, and facilities. It was a family conundrum. Aruna's like, "Let's get out of Dodge." Sam's like, "I've got 500 people I brought here." Ultimately, Stanford countered with a spectacular offer, which involved this group called ACED, and a broader vision than just early detection. Early intervention, I would just say, is the addition to it. Then, as he got more and more sick, the Dean of Medicine Lloyd Minor reached out. I don't remember the chronology exactly, but we ended up building a chair in Sam's name, which was ultimately the funding that brought Joe. Sam said to me before he died, he said, "This is one of the best scientists in the entire world, like, on three academies of science, nobody's ever done that. He's an A player; I'm a B player." I was like, "Well, I don't dispute that Joe's an A," but I will push back on Sam being a B. I have not spent a ton of time with Joe yet. I think what he's doing is—what he describes, and I'm fine with—is a reverse merger: taking the Canary Center, and merging it with a bigger financial pot of ACED and its capabilities, and keeping the Canary brand, which I'm proud of. We're still in that progress, in that process. Sam made this Don Listwin Award for our annual symposium, which makes my skin crawl, I have to admit.

ZIERLER: [laugh]

LISTWIN: Recently, I've said to Joe, "Look, I want to split it. I want to make the Sam Gambhir Award for scientists, and I want to make the Don Listwin Award for support and staff, people who are lifting heavy statisticians, all the rest of the people that make this world turn." So, that's one of our first projects. Nothing moves quickly in institutions, and especially Stanford, but I think it's the beginning of the next generation of what it can be at Stanford. Time will tell, but we've got the talent and we've got the money and we've got the motivation.

ZIERLER: Well, Don, that brings our conversation then right up to the present. What exactly will it look like, as we're in this sort of transition period from center to institution-building? What will be lost and what will be gained as Canary sort of—I don't know—folds into this operation, loses some degree of its independence? How are you thinking about these things now?

LISTWIN: I don't know yet, David. What I will say is it'll be different, and I will say the people Sam recruited may not, you know, it's been a long time. In 10, 12, 15 years, they may move on. But I think that Joe will hold the broader idea. Some of the stuff he's working on, you know, patches to deliver drugs can be used to actually take blood. My daughter is definitely afraid of needles.

ZIERLER: [laugh]

LISTWIN: If I could just put a patch on her forearm, and get my biomarker, I would. What Joe's better at than Sam was, is getting out there and talking to rich people. [laugh] Talk to the

Walmart family or whoever else is out there. He can project—Sam could do it, but he would rather be working 72 hours on an NIH grant because he knew he was going to get it. I think Joe brings some gravitas that will be helpful. It's just unfolding as we speak. So, as they say, you're cautiously optimistic. We'll see where the duck lands.

ZIERLER: Don, I used the term “soft landing” in your technical professional career. Do you think that this is the way that eventually you can let go or step down from the level of activity that you've maintained for the past 20 years, by rolling this into Stanford, and not keeping Canary as a separate entity, where there's a successor that takes your place?

LISTWIN: Yeah. Kevin Kennedy—we talked about earlier—kind of generally chastised me in saying, “Why, after 22 years, would you just let this go?” [laugh] I think, on one level, the fact that Joe is willing to integrate and develop under the brand, which is about trust, is a big step forward. Right now, I'm as energized as I had—during the pandemic, I was like, “I'm putting on *Iron Man 3*, and watching it on the couch.” But, right now, I'm energized. I think there's new funding sources that are substantial, which are great, and then trying to build a new imaging center for ultrasound at UCSD—and so that's my number one priority—and then bringing more attention to pancreas cancer. I think there's an opportunity there. The foundation and me will be here for another decade, but it'll be in that business dev, market dev role. We have one full-time program manager, and then three part-time admin staff, and me. But Heidi's great. She's our PhD from Yale, and she's the program manager on the teams, and just keeps them clicking forward and forward. I'm not going anywhere, for now. I've got two big initiatives that I want to get done in the next 24 months: pancreas and ultrasound.

ZIERLER: Don, do you think in this new political and budgetary brave new world we find ourselves in, where the Federal Government, of course, the Trump administration is cutting back funding, is there a renewed sense of importance that the Canary model, the ability to interface with the private sector, the ability to interface with wealthy individuals, is that taking on a renewed sense of importance right now, just because the dollars might not be flowing from the agencies?

LISTWIN: It certainly is noisy out there, and people reaching in. Next week, as it turns out, I have a whole series of meetings with team leaders about what are the implications. Even just pragmatically, we have some of the best agreements in the world with institutions because we did them so long ago, like low overhead tax and stuff, and I don't want to lose those. One of these new big donors, she said, "Should I give the money to you or to Stanford?" I said, "Right now, you should give it to me, because I've got 7%, and you're going to get 20, right, you go in as a new donor, because they're going to be freaking out." So, we have an asset there. How long it's viable, I don't know. But I would say in a word, everyone's confused.

ZIERLER: Everyone's confused, but you do have—there's a model that you have that can be emulated and that can grow.

LISTWIN: Absolutely. So, is private money triply valuable now? It absolutely is.

ZIERLER: Well, Don, now that we've worked up to sort of figuring out what might come in the future, I think it's a little bittersweet, but I think we can we could wrap up these wonderful series of conversations. Let me ask some retrospective careers [sic] to bring it all together. Let's

start first. In what ways do you feel like all that you've accomplished in this space is a way to honor your mom's legacy? I wonder if you've thought about all of the moms who are still with us because they were luckier than your mom? What does all of that mean to you as you reflect?

LISTWIN: Well, I haven't succeeded. [laugh] I think I can before I go, I think we can.

ZIERLER: Meaning that the motivation right now is that, sadly, devastatingly, there's still too many other moms like yours, even 20–25 years later?

LISTWIN: Yep. Right now, the tools we give women like Angelina Jolie, "Oh, you're BRCA1, BRCA2? Cut off your breasts and take out your plumbing." Holy God. We can do better; we will.

ZIERLER: So, your perspective is 25 years, 50 years in the future, we'll look back at this. We're still in like the barbaric period of cancer care?

LISTWIN: Boy, before antibiotics, we'd just say, "How far is that infection?" and we cut off the arm. [laugh] So, I think we're very clo...I mean, everything else, genetics, proteomics, methylation, all those technologies continue to get twice as good every year. We will understand this problem as long as, at this point, there's enough money in the system. In the past, there weren't enough IQ points. That problem has been solved, I believe. There are enough IQ points, enough people dedicated to trying to get this solved. The other part, and why you think about it, where's the big money in these industries? Well, NIH funds, drug companies fund, and imaging companies fund. The next goal for me on a market development point of view is to make the

imaging companies give a shit about this new technology that can save lives and money for them.

ZIERLER: If there were any do-overs for the past 25 years, knowing all that you know now, would you have done anything different?

LISTWIN: We need another whole session then, David.

ZIERLER: [laugh] Come on, come on. What sticks out in your memory? Knowing all that you know now, is there anything that you would have done differently as you approached this from the beginning, the people you talked to, the things that you funded?

LISTWIN: Oh, if I knew what I knew now, I would have tripled down on imaging a decade ago.

ZIERLER: Why?

LISTWIN: Because I think that's going to be the answer. I think what we've learned is the infrastructure exists, it's there, and all we need is, I mean, my god, this this ultrasound stuff for ovarian is an injection that can be done in a GP's office. There's no cost structure. It's easy. If I knew what I knew now, I would have accelerated that. I don't know if I could've given what happened with Sam and his family and whatever else, but I'm going to freaking do it right now.

ZIERLER: Let's look ahead then, Don, the next 24 months. You mentioned two big initiatives. What's the best-case scenario? What's the outcome there?

LISTWIN: I establish a relationship with this funding agency on pancreas that is strategic, not tactical, and I get a relationship at UCSD to build the world's premier cancer ultrasound detection lab.

ZIERLER: Who do you need beyond your own Rolodex, beyond your own capabilities? Who else needs to be brought in to make this happen? Or no one? All the things are in place already.

LISTWIN: The wild card is the administration and the funding, and whether or not that screws up the UCSD stuff. That's my wild card that I've got to work on, and I don't know how to mitigate that at this point. I mean, who knows? You wake up every morning, and go, "What the hell happened today?" But on the other front, I think the trust that we've established allows us to continue to move on. I did say, I would say to you, I do want to see—I think there's an opportunity for progress in the ovarian biomarker stuff. I'm having a meeting with the head guy next week. I said, "Chuck, we've been doing this 25 years. What I don't want over the next five years is projects to fund scientists. What I want is, take a swing. Say, I think this is our best bet. Take a swing, and I'll fund it, because we've been doing bottoms-up for 25 years, and we're no closer than we were."

ZIERLER: That's a hard-nosed engineer's kind of way of looking at things, right? [laugh]

LISTWIN: [laugh] Take a swing.

ZIERLER: Well, Don, on that note, two more questions to wrap up all these wonderful conversations. As the Stanford-Canary partnership develops into an institute, 5 years out, 10

years out, 15 years out, however you measure your own personal timeline, your own personal involvement, what are you most excited about in the ways that this could develop?

LISTWIN: Oh, that's a good question. I would say, we were the gravitational center of this, and then, as Sam died, we weren't, and I think being able to make that happen again, and provide the leadership—you know. An aside, I go to these conferences, these annual conferences that Cambridge and Portland and ourselves, and we fund, and everyone comes, and some of the conversations are the same conversations we had 20 years ago. So, I've reinserted myself, and I said, "Look, people, we've done that. We know [laugh] the answer to that question." For instance, we had this one group from the UK come in and say, "Well, we have to provide equal access to everybody." I stood up on the stage, and I said, "Absolutely not. The way technology development works is the rich get it first, and then they drive the cost down, because it's elastic, and then everyone gets it. Remember the cell phone. Remember internet access. I don't want to get distracted about you doing anything but Cambridge suburbs, and proving out the technology." I've got to get more vocal because a bunch of this stuff, we know the answer to, and people are rehashing old conversations, which we've put a fork in. Sorry, that was a little aggressive. [laugh]

ZIERLER: No. It's born out of well-founded frustration that the needle has got to be moved, right?

LISTWIN: Yeah, absolutely.

ZIERLER: All right, Don, one last question. I'll make it a challenging one for you, but it's an important one.

LISTWIN: Oh thanks. [laugh]

ZIERLER: [laugh] Let's say, let's just imagine, beyond our lifetimes, 50 years from now, 100 years from now, you've got to hope that cancer is going to be something that is solved or at least highly solvable. It's in a way better place than where we currently are, circa 2025. Both on what you've achieved up until this point, and what you know is achievable in the next X number of years, not in terms of your own personal legacy or in terms of people celebrating or even remembering your name, what's most important that you feel like you have accomplished and that you want accomplished that gets us from where we are now, with all of the limitations that you know as well as anybody, to where you think we can be, which is, of course, what is motivating you to stay on this train to get there?

LISTWIN: Look, I think the technology will get there. Ten years ago, I wouldn't have said that to you, but I think we will. What needs to shift in developing nations is the business model to deliver it, because even in developing nations, it's different in—you know. There's no research funding in the UK. There's all sorts of delivery funding. Sometimes you go and work on delivery in a country like that. So, do I think, 50 years from now, cancer will largely be dealt with in a pretty easy, perfunctory way? I do. Now, the other 10 billion people in the world, I don't know, and that's a problem above my pay grade. But I think that if we can solve the delivery problem and the technology problem, somebody else can solve the problem for the rest of the world.

ZIERLER: The scaling issue?

LISTWIN: The scaling issue.

ZIERLER: OK. What a legacy. Don, I want to thank you so much for spending this time with me. You're a legend in the field. There's so many people who admire you. If I have done my own little part to get the message out for the magic that is Don Listwin, it's my great honor to do so. So, I want to thank you so much for spending this time with me.

LISTWIN: It was great fun. [laugh]

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