Rory Moore

Interview conducted by

Helen Weiss, Historian

April 19, 2016

San Diego Technology Archive

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Rory Moore was the seed round investor, co-founder of Peregrine Semiconductor Corp. (NASDAQ: PSMI), one of the world's leading providers of radio frequency integrated circuits (RFICs) for the wireless communications and aerospace markets. Peregrine ships millions of chips every week to cell phone manufacturers around the globe. Rory was also the seed round investor and founding CEO of Silicon Wave, Inc., now owned by Qualcomm. Silicon Wave produced the world's first Bluetooth chips. Bluetooth chips are now in billions of devices from cell phones to automobiles. Rory was a cofounder of e-Fire.com, Georg!a Now and Optical River. In 2009 Rory founded a pro-bono technology incubator called EvoNexus with Vice Admiral Walter Davis, a board member of CommNexus (now EvoNexus). A University of Michigan graduate, Rory continues to make angel investments in technology firms throughout the region. His other passions include unlimited aerobatic competition flying, scuba diving and surfing.

Source: EvoNexus website

THE SAN DIEGO TECHNOLOGY ARCHIVE

INTERVIEWEE: **Rory Moore**

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DATE: **April 19, 2016**

LOCATION: **San Diego, CA**

WEISS: I'm Helen Weiss for the San Diego Technology Archive, based at the special collections at the UC San Diego Geisel Library. I'm interviewing Mr. Rory Moore on April 19th, 2016. Mr. Moore is the co-founder of EvoNexus, a non-profit technology incubator, currently in San Diego, La Jolla and Irvine, California. We're in the La Jolla incubator office today. Mr. Moore continues to make angel investments in technology and has co-founded several pivotal technology companies, including Peregrine Semiconductor and Silicon Wave, among other companies.

Thank you, Mr. Moore, for making time from your busy schedule today for this oral history interview. So we'll be walking through your background in education and find out a little bit about technology-specific research and patents and then on to a lot of the details of some of the companies and EvoNexus.

You are from three generations of a California family and you were born in Fresno. When you were a child your family moved to a farm near Phoenix, Arizona. What were your interests growing up?

MOORE: Growing up on a cotton ranch, actually, was really a terrific opportunity to gain a real appreciation of a rural lifestyle to find things you can do that are outdoors in nature, as opposed to listening to the radio or watching TV. So it's a great opportunity for any young person to understand real values working on a ranch, how hard that work is and the long hours that your parents put in in that activity. So it was a great experience for me.

WEISS: In Phoenix you became friends with Ron Reedy. You were diving and swimming, in competitions, I guess. Both of you used some trained birds of prey for game hunting. Tell me how that friendship evolved. Later you and Ron would launch

your own startup company, Peregrine Semiconductor, which is now a global leader owned by Mirada. But we'll talk later about Peregrine but I just want to get a sense of your time growing up with Ron Reedy.

MOORE: Ron and I met either late in elementary school, seventh or eighth grade, or it was either freshman year in high school. I don't recall what year it was. But we met through the swimming and diving and gymnastics activities that we both pursued. We also both were very avid outdoorsy guys. We liked hunting, we liked fishing. That was the activity that we pursued outside of school. And we gravitated to a very old – one of the oldest sports of hunting, which is falconry, and we trapped hawks and trained them to hunt. A great activity; a lot of fun, understanding the real technical nuances of training hawks for hunting. We got involved with that during high school years and pursued that, along with other things all throughout high school.

WEISS: You graduated from high school in 1966, I believe, and went to the U.S. Air Force during the Vietnam War. Is that when you started flying?

MOORE: No, I went in the Air Force in '66. Ron went into the Navy in '66. I had some vision issues which would have precluded me from flying. So I did not fly in the Air Force. I did take up flying avidly after the Air Force, well, after starting several companies.

WEISS: Where were you trained and stationed and how long did you stay in the Air Force?

MOORE: I was in a total of seven years, including reserves. This enabled me to use the GI bill to go to college, the reserve pay to augment expenses, back then very beneficial. I ended up in that area, serving about seven years total. And I think Ron served a total of – I think he actually served a total of maybe 15 or 16 years. He had a longer payback scheduled because he went to the Naval Academy and I think they required at the Naval Academy for seven years of service to pay back for the college education. So he stayed on a while longer. But we both served during the Vietnam Era.

WEISS: Did you go to Vietnam at any point?

MOORE: No, I never got to Vietnam. I served at bases, a variety of locations. But Ron did end up on a ship offshore during the Vietnam War.

WEISS: After you got out of service you mentioned the GI bill. You went to the University of Michigan at Ann Arbor?

MOORE: I did. I had been recruited out of high school to go to Michigan and some other schools. I did fairly well in swimming and diving in high school, became a High School All-American, in fact. However, I had a very low draft number in '66, one what would have come up pretty fast. One of the best recommendations that I got from my mother at the time was to select my branch of service, which you could do, as opposed to being drafted. So I did that, and after that enrolled in the University of Michigan and swam and dived all four years at the University of Michigan, which was terrific, a great school, and I really enjoyed the campus.

WEISS: What did you study as an undergraduate and what did you think might be available for you for a career choice when you got out?

MOORE: I had no idea what I wanted to do. I don't think anybody really does as an undergraduate. I took a variety of courses; I got a Bachelor of Arts degree. I spent a lot of time in computer systems, but a variety of different areas. And again, had no idea what I wanted to do when I graduated.

But I did know that I wanted to graduate as soon as possible. I never did get used to the winters in Ann Arbor, Michigan, coming from the Southwest.

WEISS: From the University of Michigan you came back to Phoenix in '71 with your business degree, and then you entered a management-training course at Farmers Insurance, which was a company that your grandfather, I believe, had founded in 1928?

MOORE: My grandfather was on the founding team of Farmers Insurance, 1928, so that's long before I was born. But after graduating from school there were not a lot of jobs available back then. I took a job, as I say, with the company store. At that time Farmers was still a pretty big company, and started with Farmers doing a variety of things. But really my true passion was aviation, and everything related to aviation. And it was during that period also that I started an aviation company called Firebird Aviation. And that was a commercial operation in Phoenix that I also operated.

WEISS: What kind of planes were they, for businesspeople or --?

MOORE: We provided avionics installation, airframe repair. It was a lot of the things that I saw and got involved with in the Air Force.

WEISS: And were you starting your stunt flying at that point?

MOORE: Almost. I had a normal straight and level airplanes that I flew. But in no time at all gravitated to the more exotic area of aviation. And I wouldn't call it stunt flying, it would be aerobatic flying, as opposed to the movie stunt flying.

WEISS: Yes. Pardon me. Then you founded another company, Moore Kent?

MOORE: Right.

WEISS: Where was that in *[crosstalk]*?

MOORE: That was also in Phoenix, and it was an underwriting company that did a lot of contract work for large insurance carriers I had that operation going, along with Firebird Aviation. It was the best of both worlds. I got the chance to be in the tech world through avionics and the aviation sector, and also make a real living in the other area.

WEISS: We didn't queue that plane to be the background noise during this interview. It seemed like we could have.

Moore Kent? Who was Kent, may I ask?

MOORE: He was one of my partners. He is deceased.

WEISS: And did you stay in touch with Ron Reedy the whole time?

MOORE: Absolutely. We were in communication a lot. We vacationed together. When he was in Phoenix visiting his parents we would get together. I had a boat in San Diego I kept at Harbor Island, and we would go diving, scuba diving off my boat. We stayed in close contact throughout those years. He was truly my closest friend.

WEISS: Ron Reedy was managing the U.S. Naval Electronics Lab. What did you know about semiconductor industry at the time?

MOORE: My knowledge is more at the systems level where the actual boxes – what the boxes did as opposed to the chip level. So we made a pretty good match. Later in life Ron became the branch head of the microelectronics lab in San Diego, then called Naval Ocean Systems Center, now called SPAWAR. We stayed in touch over the years. I continued to encourage him to find a technology at the navy lab that we could commercialize and then start a company together, which is something we always wanted to do.

WEISS: At that point I guess Ron had met a civilian scientist at Naval Systems and Mark Burgener and they had gone separately and gotten their PhDs at UCSD but while working full-time. How did you get Peregrine Semiconductor? Because you then became responsible for all the startup, financing and everything else. How did that all come about?

MOORE: Well they really had to come to me because they didn't have any money. They were civilian scientists living hand to mouth in a very expensive area, Point Loma. They came to me and they said, "You know, I think we have something that can be commercialized. If you are still interested I think we can start a company." And this was at the end of the Eighties when the Cold War was ending. The Berlin Wall came down. And tech transfer was starting to occur more vigorously with the Department of Defense.

We got together and discussed the technology they had been working on the Navy Lab. We all agreed we could start a company if we could get the technology access. We incorporated, founded a company and then they took a vote on where the company would be located. I was outvoted because they both lived in San Diego and I lived in Phoenix. So we started the company in San Diego, which was the best place to be anyway.

WEISS: Who were the key players in semiconductor industry in San Diego at that time in the late 1980s?

MOORE: Qualcomm was not then a key player. They had another business at the time. You had Northern Telecom. You had Applied Microcircuits. Burroughs also had a small semiconductor fab that later became Unisys out of Rancho Bernardo. And then you had TRW, which also had a fab, a semiconductor fab here. There were a variety of companies here that had semiconductor operations. Those have long

since gone away. And now obviously Qualcomm is one of the predominant players here.

WEISS: How did this compare with the Silicon Valley at that time? Did you ever consider relocating or expanding to the Silicon Valley once you got going as Peregrine?

MOORE: You know, we thought about that. And that might have been something that could have accelerated us a little faster because Silicon Valley had a lot of semiconductor companies at the time. It was a thought. But at the same time we liked San Diego, we believed there were plenty of assets here at the time to support it. We had a handful of semiconductor companies here. There was a lot of talent here in San Diego from the schools. And we also saw the Department of Defense kind of winding down a little bit. We know there'd be great talent coming out of the DOD companies and the contractors.

WEISS: So you become the chief financial officer and take on responsibilities for marketing and business development and human resources. Since Ron Reedy and Mark Burgener had been at UCSD did you look there first with faculty and staff and graduate students? Or where did you get your talent from?

MOORE: We did as a matter of fact. One of the things that Ron and Mark did very well when they were at the Navy Lab was hire interns out of the schools, bring them on early and often. And so we did that. There were three of us that started the company: myself, Dr. Reedy and Dr. Burgener.

WEISS: Where were you located in the early days of Peregrine?

MOORE: Our first location was a small office on Point Loma for about eight, nine months. There were just four of us: it was a one-room office with desks.

We then moved to a larger facility, which would accommodate a dozen or more staff. And ironically that facility was also on Point Loma, on Cannon Street, right next to the post office. It was the original home of Cubic, where Walt Zable founded his company many, many years ago.

WEISS: In that space you began bringing in interns, graduate students? Who were your initial people that started working with you as the company grew?

MOORE: Well we did not have a lot of capital back then because it was all my capital. We then reached out to some graduate students at UCSD. We knew some professors there. And the first employee that we had outside the founders was Georgia Lundquist, our office manager, bookkeeper, controller, HR, insurance. She did a lot of the back office elements of the organization. Later in life, years later, became Mrs. Georgia Moore.

But our first hires were interns out of UCSD. And employees number six and number seven at Peregrine we probably hired in the 1992 timeframe – are still working at Peregrine today and are major contributors to the company.

WEISS: Describe your initial vision for Peregrine.

MOORE: Initial vision for Peregrine was to leverage the technology that had been developed at the Navy Lab, a semiconductor technology, a process technology that would enable us to do a higher level of integration of chips. In other words having a single chip, have both RF analog and digital components on one chip. Much like what Intel did in the early days with their microprocessors where they converged a lot of different elements on the motherboard of a computer into a single chip. We saw our technology as an integration strategy of integrating RF, radio frequency chips, with digital chips.

WEISS: How did it evolve as the company got larger? What other product areas – you went through so many – did you go into after that chip?

MOORE: We stayed in that area of integrating RF with digital. We had some early partnerships with Intel and Xilinx, both publicly-traded chip companies which provided some engineering funding for our own effort, and ultimately found certain product areas where our technology really gave us an advantage in certain types of chip categories having to do with radio frequency chips.

WEISS: Let us talk, then, a little bit about the patents. Because for Peregrine the patent process was not so easy. They went back and revived an older patent. It was not a totally new technology but this silicon whole-based. Explain that a little bit please.

MOORE: While Mark and Ron were working at the Navy Lab they discovered a foundational patent that have been awarded to HP, Hewlett Packard, and to Cal

Tech, the university up in Pasadena. And it had to do with the basic development of a process technology called "silicon on insulator."

Our research showed that was a core patent that it could yield other patents, and it was a patent that would give us an opportunity to show investors that we did have some reasonable intellectual property protection right after founding the company.

Investors don't really care whether you invented the technology or you buy a patent, as long as you've got some protection. And so we approached Hewlett Packard and Cal Tech and this was back when you could do these things. We actually purchased the patents from Cal Tech and HP. In fact I wrote a check for $30,000 to Cal Tech for their 50 percent interest of the patent.

We had a meeting with HP a couple months later. We were willing to pay HP for their other half, however in the end they provided us their half pro bono. That was the good old days.

WEISS: Did Peregrine work with UCSD, CONNECT or any other offices of Technology and Transfer into this process? Or did you know a lot about the whole patenting process?

MOORE: No, we had no need for that.

WEISS: What did you learn from that patenting experience that helped Peregrine evolve over the years?

MOORE: Well that led to helping us understand what types of patents we needed to file for, what provided real protection versus patents that really didn't add up to much protection at all. The whole key in filing for patents, if you can only file for a few, which are expensive, is to file for the important ones that could be blocking patents to prevent others from entering your space. And those are hard to find.

WEISS: When you refer to the good old days, as you speak with young entrepreneurs today and startups in the incubators and accelerators do you have any advice now regarding how to deal with the patenting?

MOORE: Let us go back to HP and the good old days. That was at the time when David Packard and Bob Hewlett still influenced the company. They were a company that really cared about the greater good, about growing the ecosystem, not about the

bottom line with what Wall Street was looking for. They loved to meet entrepreneurs. They liked to help start other companies. And they enabled other companies to start. So if you could trace back the beginnings of a lot of companies in the Silicon Valley it goes back to HP and those great companies that helped them get going where they encouraged entrepreneurs to start companies, as opposed to blocking them from starting companies. So those are the good old days.

Now it's very difficult because everyone wants to protect their patents, they don't embrace entrepreneurism, they are typically very unhappy when the core team leaves the mother ship to start their own company. That attitude is really something that has hurt innovation in general because it leaves you just a handful of companies versus many, many companies. Those were the good old days.

WEISS: When did this change occur approximately? Was there a particular part of decade or year when that happened?

MOORE: I think that changed in the 2000 timeframe when the dot-com bubble blew up and the investors and the investment bankers and Wall Street became very, very focused on earnings, on revenues, and less on innovation.

WEISS: How about the manufacturing? How much was done with Peregrine here in San Diego and when was there any kind of offshore development?

MOORE: That was always very challenging for Peregrine manufacturing because we had a different process technology. It was like going to a bakery that only made one type of pie. And now you ask that bakery to make a lemon meringue pie. They don't have the equipment to do it. Semiconductor processes are very regimented. It is basically kind of a cookie cutter operation as opposed to different batches of different types of technology. So they like to have a standard technology that they build for a lot of companies.

That was challenging for Peregrine, so we spent a great deal of time finding manufacturing partners, and those partners ultimately ended up being in Asia.

WEISS: Korea? Japan?

MOORE: Our first offshore partner was Japan, followed by Korea, followed by Taiwan.

WEISS: And the company has been sold; what about today? What's being done today with Peregrine?

MOORE: The manufacturing is some in Japan, some in Korea, some in Taiwan.

WEISS: Manufacturing has maintained those bases?

MOORE: Yes.

WEISS: You got into other high tech ventures, especially Silicon Wave. Tell me about that with the pioneer in Bluetooth. How has this revolutionized the wireless industry?

MOORE: I left Peregrine in 1998-99 timeframe. Peregrine had operated for a number of years purely on private capital, not venture capital, all angel money. And it was eighteen million and a half dollars of angel money that I raised from my friends and family. Some of Ron's family invested, but it was basically friends and family that supported Peregrine's capital needs in the early years. But friends and family eventually run out of money, unless you are a member of the Buffett family or the Gates family.

Peregrine had to seek outside capital, venture capital, and as venture capital moved in they elected to start to change out the management team, which is their prerogative. And the handwriting was on the wall for a number of the founders that may not be asked to stay. This happens all the time. It happens in baseball; it happens in high tech.

So I left Peregrine, took about six months off to decompress and got bored and founded a company called Silicon Wave, which ultimately raised capital, built a team, and we introduced the world's first Bluetooth chip, which now is in billions of devices around the planet.

WEISS: Eventually it was sold to Qualcomm. What was your relationship in the late Nineties with Irwin Jacobs and Andy Viterbi?

MOORE: No relationship. We knew each other, they knew about Peregrine, they knew about Silicon Wave. No formal relationship. I do remember an early meeting we had with Andy Viterbi at Peregrine's hole in the wall office many years ago, and he thought we were crazy. He was partially right.

WEISS: Who were the other major technology companies at the time in San Diego?

MOORE: Well in the Nineties you had Qualcomm growing quickly. You also had a company up in Carlsbad that was really coming out of the ground and becoming very important. That's ViaSat. So I would say that ViaSat and Qualcomm started to really evolve as the anchors for tech in San Diego and to this day it is those two companies that are the tech anchors for the entire region which is sad to say because there should be more than those.

WEISS: Let's talk about incentives with the San Diego city government, country government, City of Carlsbad. What relationship is there, if any, in providing incentives to businesses to grow and flourish then?

MOORE: Zero at the emerging company level. They're very big on providing incentives to relocate your company from Texas or some other location. They will roll out the red carpet to lure a 300 or 400, 500-person company to San Diego, but that's basically just transplanting one company to a different location. They have zero influence in helping the emerging companies. That really will build the ecosystem, much like ViaSat and Qualcomm did. I know that's unpopular to say, but I've said it to Kevin Faulconer and I've said it to all the city council people: Sherry Lightner. It is just one of those missions they just aren't capable of doing, quite honestly.

WEISS: How does this differ with the Silicon Valley?

MOORE: Way different. There's no city support for emerging companies but they have got this ecosystem up there that is magical. Silicon Valley is like no other place in the universe. And there will never be another Silicon Valley, and the rest of the country has to get over that and accept it. There can be great innovation cluster, but it won't be of the scale of the Silicon Valley. Up there all the stars lined up. The banking industry for the West Coast was San Francisco. The venture capital growth was in San Francisco. The early companies that came in tech in the valley: HP, Shockley Semiconductor, Varian – these are early companies that made their home in the Silicon Valley from Bell Labs. They all gravitated there.

The schools like Stanford and Cal started to be very entrepreneurial. So you had this perfect ecosystem that developed in the Silicon Valley, this perfect melting pot. You

had an epic population that was very tech oriented. You had the multinationals that saw the Silicon Valley as to where they put their footprint if they came to the U.S. So all those things just lined up perfectly. And to this day it still exists. And that's how the Silicon Valley has survived all the mood swings, all the ups and downs of the cycles. The dot-com bust, the financial meltdown, it hit the Silicon Valley but they bounced back like a rubber band really fast.

WEISS: In the 2000s you went on to found other companies here, trying to drive the entrepreneurial spirit: Supply.com, e-Fire, Hallo, Talk and Touch, Georg!a Now, Optical River – tell me about any of those companies?

MOORE: The bottom line is I founded ten companies and six of them failed. And you get a lot of experience from the failures. The investors you have lose all their money. But four of them made it, had some outcomes. So in baseball that's pretty good numbers, you know, 400. However, it's the experiences you get from doing that, it's what gave me – it galvanized me, formed my mental attitude that led ultimately to Admiral Davis and I founding EvoNexus. If we hadn't had those experiences, he in the military and with some startups, we wouldn't have started EvoNexus. But we realized that San Diego was handicapped in a lot of ways, and there are a lot of things that were broken here as far as emerging companies. And we believe the quickest way to turn around San Diego, the entire innovation economy was to form an incubator that was unique in all the country, totally pro bono, taking nothing from the entrepreneur, but being supported by the corporations, not government.

WEISS: Before we move on to the specifics in EvoNexus, the company you founded with Admiral Davis in 2001-02 was e-Fire. What did that do?

MOORE: That was a dot-com idea. It was an idea where we would provide basically the eBay for fire and safety services. That was a very fragmented industry. It was a place where the fire departments and the first responders and the police departments go to buy stuff and the vendors could sell stuff. It was a marketplace for a very fragmented supply side and a buy side. And we gained some funding from some VCs. But right after we got our venture funding everything blew up, including 9/11.

WEISS: Which among the four companies actually succeeded? You mentioned the ten that you started.

MOORE: Peregrine, Silicon Wave, Moore Kent and Firebird Aviation.

WEISS: So before you started EvoNexus there was, CommNexus which was a trade organization? And you became its CEO in 2006? What did that do?

MOORE: That organization was started originally as a San Diego Telecom Council by folks like Marco Thompson, Joe Markee, Vicki Marion, a number of entrepreneurs here started a high tech association to really showcase San Diego as a center of telecom because we were growing telecom companies here, be it Qualcomm, General Instruments, Nokia, Ericsson. We had a lot of telecom activity here. So they started an organization called the San Diego Telecom Council. That evolved to a new name called CommNexus because it became more than just telecom. It was convergence of communications, not just telecom. And then ultimately under the organization's name, CommNexus, after I was asked to leave the organization Admiral Davis and I formed an incubator called EvoNexus under the organization CommNexus – I know that seems a little confusing, a program of CommNexus.

That became such a brand and so recognizable that we changed the name of the entire organization and now we call it EvoNexus, the name we give in the incubator.

WEISS: Before we talk a little bit about how the EvoNexus, by the middle 2000s, 2006, where are the key hubs in the Greater San Diego region at that point?

MOORE: Key hubs?

WEISS: For the different clusters of biotech, telecom, I mean there's Sorrento Valley, there's the plateau, just --

MOORE: Right, the life science venture was typically up in the mesa near UCSD. You had some life science occurring over in Sorrento Valley area. Also in the UTC area. But it was spread out. You had a few things going on up in North County.

In high tech it was really I would say clustered in Sorrento Valley, Mira Mesa, around Qualcomm and Motorola and General Instruments and Ericsson. So that whole area there is where the high tech cluster kind of populated first. Then it started to spread out from there.

WEISS: Where are we today in terms of San Diego County?

MOORE: The tech sector is spread all over. So we have tech companies, high tech companies over at Kearny Mesa area by – off the 163. We have tech companies that are in UTC now, Sorrento Valley, Del Mar, Carlsbad. So tech is kind of spread all over.

Biotech has done much the same. Less biotech now is in Sorrento Valley than there used to be – that's my perception, and more has moved to UTC area and the mesa by UCSD.

WEISS: With all the convergence of technology is software actually a separate entity anymore? Or is that so integrated?

MOORE: It's integrated.

WEISS: When did software become not a separate part of this whole system?

MOORE: I think when desktop software went away, shrink wrap software you buy off the shelf. And that finally went away, which was about, what, 10 years ago, 12 years ago. That was all kind of merged with the rest of the sectors.

WEISS: When you and Admiral Davis did a recent interview with Patrick Henry of Quest Fusions and interviewed you – seemed to really feel that he got to the heart of the matter. I just wanted to touch on a couple of key points from that. You talk about the genesis of EvoNexus. He says EvoNexus is unique as a non-profit incubator. Is that worldwide?

MOORE: I don't know about worldwide but it's unique as far as we can see, at least in our regions of the Southwest, California. There may be some others in parts of the country. But there's some unique parts about EvoNexus. It's corporate supported, with no strings attached. So it's sponsored by the big tech companies, the life science companies. It's also underwritten the by the Irvine Company, which is unique. It also maintains a totally pro bono status, meaning that the startups that enter EvoNexus pay nothing for their entry, pay nothing while they're here. They owe us nothing when they leave. So we have no equity, no fees. We take nothing from the startup, which is unique.

Other incubators, I would say 80-90 percent of all the incubators in the country what they call for-profit incubators, which means that they take equity in the startups that they incubate. Or fees.

WEISS: And so when you started EvoNexus you mentioned, at least in this interview with Patrick Henry that it was really the impetus of the meltdown of the financial markets at that time, was one of your incentives for starting the company? Talk me through a little bit of that please.

MOORE: It was. It was in 2008-2009, the Lehman Brothers failed. Bear Stearns was sold for salvage. The mortgage crisis, the banking crisis. It was at a worldwide level. Venture capital dried up immediately. Angel money dried up immediately for startups. There were layoffs occurring in many, many companies that wasn't something that involved thousands and thousands of employees but there were layoffs that were occurring. In addition, the layoffs that we saw, we saw companies losing really high quality talent for the first time that we've seen. Normally layoffs are reduction in force basically to kind of clean house and improve the team, like baseball. Let's get a stronger lineup, right? So they go to the draft, they go to the farm system and they improve the team, right?

Tech companies are the same way. They're always looking to build up their capabilities. So we saw some layoffs occurring. But this time around we saw layoffs of extremely talented people. So we knew that these talented people would start companies if they could find capital. We knew that the companies that were also cutting back were cutting back on their R&D budgets as well. So innovation was going to slow at the large companies.

We saw it as an opportunity which was kind of diametrically opposed to people's logic. This was a great time to start a company is when things are bad. Because when things are tough other startups are having trouble raising money so you don't face competition there like you would when money's flowing, as well as the large companies cutting back on their research and development. So you don't face the competition from the large companies as seriously.

I am always that person that looks at history. And if you look at history, you look at companies that have been formed during tough times and that have succeeded, it's companies like Cisco, who – Cisco was launched at a very tough time. Google was – raised their capital, I don't know, it much have been a year or two before the world came to an end with the dot-com bubble.

But they survived that and became what they became. Apple survived a lot of near-death experiences during tough times. So I think some of the great companies are

formed when times are tough because it has this element of forcing the entrepreneurs to man up to do things that are different. It creates the mentality of dedication, work ethic, of toughness. And to be a startup CEO, to be a founder of a company you've got to give 100 percent.

WEISS: To get into EvoNexus it's not easy though. You accept less than 1 in 10 applicants? And you have 52 companies participating in 2016?

MOORE: It goes back and forth. We have anywhere from 45 to 55 companies in incubation at any one time. We've incubated over 125 or 130 companies total. We admit less than 1 in 10 that apply, so the vetting process is very rigorous. We have an amazing selection committee, all volunteers, different domain experts that volunteer their time to make sure that we admit the best of the best.

WEISS: When a company applies and get accepted they get the pro bono rent and they get mentoring and what else do they do and can they be released from the – if they're not successful can they be kicked out essentially?

MOORE: They can be kicked out. So when they're admitted we put together an operational plan with them to establish what they're going to do while they're in incubation. It's kind of like your kids going to college: you've got to pass certain courses and you can't be on a five-year plan, you're on a four-year plan. So we establish the milestones that lead to their ultimate graduation, leaving the incubator. And the milestones vary. Some companies can go through, develop their software and raise capital and be in and out in nine months, ten months. Other companies we admit, medical device companies, genomics companies, semiconductor companies, they take a full two years to incubate because what they're doing takes longer.

So based on the company and their milestones determines how long they're here. But all the while they're here we're measuring their milestones, we're seeing how they're doing, we're trying to help them in every way we can from all the mentoring, advisors, board seats, helping them recruit good team members, helping them with their strategy on IP, product development, introduction to strategic partners, capital introductions, it's a situation where if you're an entrepreneur, you get into EvoNexus. If you fail at EvoNexus you need to just look into the mirror to figure out why you failed. Because we give you everything you need to succeed.

Now we have had companies come in where they're well-intentioned and the science just doesn't work. And we can't change that. So there are those that come in and it just doesn't work. Or the market suddenly disappears. It's out of their control.

WEISS: In the interview with Patrick Henry you cited a few examples that you seemed very excited about. One was technology for the operating room and the other one was a nanomedical device for Lyme disease and that they seemed to bring together biotech, all telecommunications technology. Could you just outline a few of those success stories? Or another one if that's not appealing.

MOORE: I think what I like most about EvoNexus as opposed to other incubators is most other incubators incubate what I call Web 2.0 companies. And we're not afraid to incubate a really hard science company that may take two years, whereas if they apply to an incubator up in the Bay Area that are software incubators they wouldn't even be admitted. So some of the things I am proudest of are companies that come to us that we doing hard science, important products that really matter. They may not make the news and be a $3 billion acquisition by Facebook, but what they do produce really matters. It saves lives, it improves the quality of life. It creates a successful company, and some of those that we've had really are what get me up in the morning and make me excited to come to work along with all the other volunteers and the Admiral.

The two companies you mentioned: Crisi Medical Systems developed a wireless device, it's in the operating room that helps to prevent medical errors during an operation when they're injecting very sensitive drugs into your system during the operation. The anesthesiologist literally has your fate in his hands. The surgeon's doing the work, obviously, but you have an anesthesiologist that's tracking literally your physical well-being in real time. He's the one that says, "We have a problem here," because he's watching all the vital signs, right? And the surgeon's busy doing his work.

So there's a device that now sits in the operating room that prevents medical errors during the operation having to do with injectable meds, courtesy of Crisi who incubated at EvoNexus. And that product is now being launched by Becton Dickinson, a Fortune 500 health care company.

The other one you mentioned, Nano Medical, is taking a very new substance called graphene, which was invented by two Nobel Prize-winning scientists years ago, and

developed circuits, chips that exist on top of the graphene layer where you can now take a drop of blood, drop it on top of the chip, the circuit itself. It does certain measurements, and that chip can detect certain diseases. Instead of a lab test, you send away a blood test to a laboratory, that blood test is now done on top of a chip. Transformational science.

It is in the early stages; their first proof of concept was detecting Lyme disease, which is a very nasty disease in the Northeast. So these are great companies that come through EvoNexus, they don't make the newspapers because Facebook or Google didn't buy them for a gazillion dollars. But at the end of the day they matter. And they're San Diego-based.

WEISS: With your interest in flying and the emergence of drone technology are there any incubators working in drone, or devices that are integrating with drones?

MOORE: There's a lot of opportunity there for drone technology and sensors but it's still super early. They've got to sort out the whole airspace with the FAA. The drone area is just so nascent it's just too early. There's opportunity there, I'll tell you that. With my farming and ranching background I think that's where you're going to see the biggest impact of drone technology on a commercial level is in remote areas, patrolling fields, patrolling assets, sensors that can improve water conversation, crop yields, things like that. That'll happen first. I just don't envision drones flying around San Diego delivering packages like you saw with Amazon. I just don't see that near term. It may be in 10-15 years but not now.

WEISS: How about any binational or cross border convergence with projects that are going on in Mexico? Has there been any --?

MOORE: Mexico's a great location for manufacturing. It's getting a better and better technical workforce down there. There is some innovation occurring in the border areas. But it's not enough to move the needle, quite honestly. It's an important partnership, both Mexicali, Calexico and Tijuana in our region. We have important operations down there with many of our companies. Mexico allows us to not to have to go to China for It's an important partnership, both Mexicali, Calexico and Tijuana in our region. We have important operations down there with many of our companies.

Mexico allows us to not to have to go to China for certain things, or Asia for manufacturing. So I think that's going to be a huge advantage. I, for one, would rather have a manufacturing plant in Tijuana than I would in Xingjian or Guangdong, China if we could get the right quality of manufacturing and talent.

WEISS: Some of the original military influence of the Navy and Air Force here – I mean there's a new excitement about space now, and some deep sea mining. Have any of your incubator companies looked toward space-related technologies or ocean technologies?

MOORE: No. We haven't seen much. We've seen some startups with some ideas in that area. They just haven't made the cut; 1 in 10 make the cut. And we've seen some startups in those areas. There's a couple coming our way that I know about. One of them is very excited about, it'll be I hope it applies to EvoNexus for the next round. It's a space venture. But I had to sign an NDA with the startup. I can't even talk about it. That's how secretive they are.

WEISS: And keeping talent here in San Diego I mean you mentioned it's a problem because Silicon Valley is still such a draw. So what do you think now with the success of EvoNexus over these years, how do you keep talent here?

MOORE: Well EvoNexus is pivotal to keeping talent here because when you graduate with your degree at UCSD or SDSU or USD and you're in engineering especially you're getting recruited immediately to the Valley. They have people come down here just like baseball scouts. And they love taking our best and brightest and moving them to the Valley. They love coming in and stealing employees right out of the company's backyard. So that's the barbarians at our gate is what happens up there. We've got to keep them here.

And the only way we can keep them here is to show this young talent that they don't have to find a job at a Qualcomm or a ViaSat or a Becton Dickinson or CareFusion. They also have an option to work for a startup. So for San Diego to have a healthy ecosystem we have to have the healthy startup ecosystem, which the Valley has, Silicon Valley has an amazing startup ecosystem, all the way up to big public companies. So if you don't want to work for a startup you can go to work for a big public company, or anything in between.

We have a problem only having two Fortune 500 companies in San Diego, sadly – two: Qualcomm and Sempra Energy. And then if you look at the market cap and the valuations of those it drops way down to the smaller midmarket companies, right? That's what we've got to fix. And that's what EvoNexus' mission is to fix the bottom of the food chain. Kind of like in the ocean: I'm a scuba diver. When the reef dies everything else is impacted, even the top of the food chain, the pelagics, the sharks. So our job at EvoNexus is to create a healthy reef with the smaller fish, the bottom of the food chain that can move up. I know that sounds a little silly but it's what it is.

WEISS: You certainly have the overview and expertise, then, and the analogy I think would be understandable to people. And then last year you also opened an Irvine location and you've had a long-term relationship with the Irvine Company, separate entity. But first maybe tell what the Irvine Company's done for you and then why Irvine.

MOORE: The Irvine location is in Irvine, provided by the Irvine Company, and one of the things that we've determined over the last few years is L.A. and Orange County suffer from the same thing San Diego does. No venture money, startups have a rough time there. The ecosystem they have there is similar to our ecosystem: great schools but not a lot coming out of the schools to start companies. So it's really an underserved market. And helping San Diego's ecosystem is great, but the greater need is all of Southern California.

The corporations that support EvoNexus, including the Irvine Company, want to impact all of Southern California. It's not just San Diego. And the opportunity up there is massive.

WEISS: So you were awarded Technology Man of the Year by former mayor Jerry Sanders at United Cerebral Palsy. I see you're involved in other charities. You devote countless hours to EvoNexus. You still find time to serve and to fly. What else is important to you?

MOORE: I know there's a lot on my plate right now, more and more. But I, along with the Admiral, feel great. We're both productive, we're both senior citizens, and we have no plan on retiring.

WEISS: So is there any next big discovery that you wish somebody would bring do you in an incubator project?

MOORE: If I could pick a couple things it would be a wearable that really gives you true health care measurements. We all have these smart watches, Apple watches, Samsung watches, Fitbit but they don't do much. It's your pulse rate and they count your steps and some things like that. But I think the science of a true wearable that can give you real time medical information is important so that after a certain period of time you're downloading your trends and you're going, "Holy crap. I'd better see my cardiologist. My blood pressure's up. There's a couple of factors here that trouble me right now. Maybe I'd better go see somebody," not have your first heart attack, as an example, So that whole area of wearables and diagnostics has got a long ways to do, and that's going to be transformational: health care and IT.

WEISS: One last question now. Silicon Valley's been scrutinized for its lack of diversity: women, people of color to a certain point, and leadership. It looks to me like the group of advisors that you've assembled here in EvoNexus is really dynamic group. Can you talk to me about how to encourage more of that within the corporate environment here?

MOORE: I don't think it's so much a diversity issue, it's just finding the young people to pursue hard science, quite honestly. I don't care what ethnicity they are, whether they are male or they are female, that's not the problem. It's having these bright young people come out of high school with great SAT scores think they want to go into engineering and go, "Well that's hard," and move into liberal arts and go into other things. So we need more of those young students that are great in STEM in high school to pursue that in college and graduate school. We're losing too many of those. And that's the problem here; it's not diversity.

WEISS: Part of the EvoNexus activities includes the Sigs in these events and how do those differ and what's the difference between an incubator and an accelerator?

MOORE: Accelerator is typically four months. It's kind of like charm school: you go four months, they shape you up, and mentor you for four months, kind of boot camp-ish and then you're off. Well if you're a medical device company you're not going to get very far in four months. You've got a much longer road to success there. So we're an incubator that believes that some companies just need longer than others, need more resources than others. So as opposed to an accelerator where you're four months in, you're out. That's where we add the most value.

WEISS: And you are giving talks at Rady you participate in panels at these Sigs; how, if people want to find out more about how these Sigs operate and are these unique to EvoNexus?

MOORE: Not really, but we use them as a platform to spread the word about startups. And our objective here is to try to encourage the community of great talent here, whether you're in life science or tech, that it's okay to start a company, that there's support out there for you to do that. It's not as scary as you might think. And that we as an organization will do everything we can, if you enter EvoNexus, to make you successful.

WEISS: Anything else you'd like to add?

MOORE: No. I want to thank you for doing your homework on the organization. It was a very good interview. Certainly it rivals Patrick Henry's interview. But there are other people you should talk to about the early stage innovation economy and how they view how essential it is. I would encourage you to interview Marco Thompson. He's a UCSD grad, a magna – number one in his class in engineering, founder of companies, annual investor. Just a terrific, terrific representative of the ecosystem. You might want to talk to Steve Hart. He's also a UCSD grad, co-founded of ViaSat. You should maybe spend some time with Dr. Ron Reedy, also a UCSD grad. Terrific overview of the ecosystem and Silicon Valley and what's different. These people are very insightful, and they're risk takers. They're risk takers.

It's great to interview guys like Andy Viterbi and Irwin who are – Irwin's a god – he is a god, no question about it. But there are lots of other people here that don't get the publicity Irwin gets – and deservedly so Irwin, but that really are in the last ten years immersed in what needs to be done to grow the innovation economy.

WEISS: Thank you very much. We appreciate your time today.

END INTERVIEW

Recommended Citation:

Moore, Rory. Interview conducted by Helen Weiss, April 19, 2016.
The San Diego Technology Archive (SDTA), UC San Diego Library, La Jolla, CA.

The San Diego Technology Archive (SDTA), an initiative of the UC San Diego Library**,** documents the history, formation, and evolution of the companies that formed the San Diego region's high-tech cluster, beginning in 1965. The SDTA captures the vision, strategic thinking, and recollections of key technology and business founders, entrepreneurs, academics, venture capitalists, early employees, and service providers, many of whom figured prominently in the development of San Diego's dynamic technology cluster. As these individuals articulate and comment on their contributions, innovations, and entrepreneurial trajectories, a rich living history emerges about the extraordinarily synergistic academic and commercial collaborations that distinguish the San Diego technology community.