



## Oral History of Kenneth (Ken) Levy

Interviewed by:  
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Recorded: February 25, 2004



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CHM Reference number: X6196.2011

**Craig Addison:** Our guest today is Mr. Ken Levy, the chairman of KLA-Tencor. Thank you very much for joining us Ken.

**Kenneth (Ken) Levy:** Oh, you're welcome. It's a pleasure to be here.

**Addison:** Could we start off with your early days, going back to your youth, your interests, family, where you grew up and so forth.

**Levy:** I grew up in New York City and I went to a science high school when I was in New York City, Stuyvesant High School. It's a school I'm quite proud of because today it's known as the best public high school in the United States. But of course while I was in school it was the years of Sputnik and all of us young people were interested in math and science. It was a very exciting time for everyone. When I finished high school I went into engineering school at CCNY [City College of New York], which is another great institution because at that time the university was absolutely free to young people who lived in New York City. It was a wonderful transition and it gave lots and lots of people an opportunity to get a very good education which they may not have been able to do. It's a shame today that with the budget constraints in the world that so many of what used to be free universities are making it more difficult for students to get a good education. Be that as it may...once I got out, I was an electrical engineering student. I worked my way out of school. I was at Bell Laboratories while I was going to school, as a technical aid, which was a wonderful way to go through school because you know why you are learning certain things. You get to do them at work, you get to practice at work, and you get to go to school at the same time.

When I graduated from CCNY, I got an offer to work for a very interesting company, which was Link Aviation. At that time in the early 60s Link Aviation was the preeminent manufacturer of flight simulators. It was founded by a wonderful gentleman, Ed Link, who built...these little blue boxes [that you can see in museums today]. On these little blue boxes they trained most of the pilots for World War II. They [Link] invented the whole field of flight simulation, and training pilots without actually having to go into an airplane. One of the wonderful things about a flight simulator of course is that you can train emergency procedures that you wouldn't dare train in the real aircraft. You can train the pilot to come down with engines, you can put it into a tailspin, you can cause a fire in the airplane.

So I went to work for Link Aviation. At that time they had just decided they would simulate everything digitally rather than the old analog fashion and I went to work in the visual flight simulation section. In that area we did some really wonderful work. We did the Apollo flight simulator, we did the lunar excursion module and we did the F4 landing and take off simulator. Up until that time all simulation was fundamentally instrument simulation. A pilot would look and he'd see a bunch of instruments and he would fly this little plane. We were trying to give the pilot or the astronaut a full visual experience. Now of course today, with all the games that you see for \$50, any youngster can go out and buy a game and be a pilot. But at that time the technology was not available to do that. Those were very, very difficult tasks to do. What was interesting about flight simulation is that I got the opportunity to work in very many disciplines at the same time. These were visual simulators, so we had large optical systems, we had a large electro mechanical system, high speed electronics, and programming. It was at the beginnings of programming. At the same time they [Link] had a wonderful program where you could do you graduate

work while you were working and I took advantage of that. Having worked there for a number of years gave me a very broad systems capability where I got to work in lots of different disciplines.

And that brought me into the semiconductor world, which is a strange way to get into the semiconductor world. Two of the senior managers at Link Aviation left to go to Boston in the late 60s to form a peripherals company. Computer peripherals at that time seemed like a very good business. What they did was they formed this company called Computervision, but they recognized that it would take a long time to get positive cash flow from building a computer peripheral company. So they thought an easy way to make money was to start a division working in semiconductor capital equipment. That's what I went there to do. I headed their business unit aimed at semiconductor capital equipment, and as a matter of fact our first product was an automated photo mask aligner, which was the granddaddy of today's steppers. Up until that time everybody in the semiconductor industry would stare through microscopes and they would try and get the mask and the wafer lined up, and we developed a technology under my direction, to take the person out of the loop and do this automatically. Today it doesn't seem very difficult, but at that time it was quite a difficult task. While the rest of the company was building computer peripherals and computer aided engineering devices, or CAE systems, I was working in the semiconductor capital equipment industry.

We had at Computervision a lot of technology and electronics and optics but we didn't have the mechanical technology we needed to do the job, so we used a subcontractor for the mechanical technology. At that time we had automated the Kulicke & Soffa mask-to-wafer aligner, and I was introduced by a customer of ours to a very small company on the west coast called Cobilt, who made a superior mask to wafer machine. And [the customer] suggested they really liked our electronics systems and they liked the optical systems and the automation, but they really liked the mechanics from this small company, Cobilt. So after studying the situation for a while, ultimately what happened was that Computervision purchased Cobilt, and that's how I moved to the West Coast. I came out from Boston to California to run this very small company. At that time I think the company probably had 15 or 20 people in it. It was probably selling less than a \$1 million a year in product.

**Addison:** Did you have any feeling about the semiconductor industry at the flight simulator company, or even when you went to Computervision, did you know it was a great industry and you wanted to be a part of it?

**Levy:** I knew nothing about the semiconductor industry until I started to work in it -- besides the fact that I was an electrical engineer and I used semiconductors. At that time, integrated circuits were just coming into their own. Sometimes circumstance is really wonderful, it gets you into interesting areas.

**Addison:** Let's talk a little bit more about the story of Computervision. Two guys from Link left to establish Computervision, and they asked you to join?

**Levy:** They asked me to join. I joined at the founding of the company, and that was 1969. I moved from Binghamton, New York to Boston, two very cold places, so it was easy when I got to California to say this is a much better place.

**Addison:** To clarify, when you first went to work for Computervision, was there the idea of getting into the capital equipment business?

**Levy:** They had in their business plan that they'd like to get into capital equipment, and the way they entered it was to hire me and say, please help us get into this, we have an idea. We think this is a good opportunity, and this will provide the cash generation engine for the company while we develop our other business.

**Addison:** It seems like a very unusual combination, computer peripherals and semiconductor capital equipment.

**Levy:** It is a very unusual combination. Today no one would fund a company to do that. It shows the lack of maturity of the venture capital industry of the time that they would fund a thing like that. Today someone with that business plan would never get funded. People would say you need to focus. On the other hand, some wonderful technologies and great businesses were developed at Computervision. It went on to be one of the high flyers of the early 1970s and for a time, was one of the best performing stocks on the New York Stock Exchange. It was a great success.

[When] Computervision went public...I was in California at the time. That was a wonderful time. When I got to California and got immersed into semiconductors I thought, what a wonderful happenstance this was. At that time, the early 70s, most of the semiconductor industry here was in Mountain View near the old Fairchild building. It was still small enough for everyone to know everyone. If you were out here in California you knew everybody in the semiconductor industry. I got the opportunity to spend time with Bob Noyce and Gordon Moore, and Andy Grove. They were all accessible at that time because we were a very small group.

**Addison:** Can you talk about the relationship between the device makers and the equipment makers.

**Levy:** Sure. It changed greatly over the years. In the early 70s the two largest semiconductor manufacturers in the United States, of course, in the world were IBM and Texas Instruments. Both of those organizations had large capital equipment design groups. They thought that capital equipment, designing their own capital equipment, was a competitive advantage. They viewed the design, the processes as their competitive advantage. No question about it. When I went to IBM to try and sell them mask-to-wafer aligners, they had a big group and said they didn't need any help from the outside. They were ahead of the world and they were going to do it themselves. Texas Instruments likewise, they had their own automation programs and had what they called their automated front-end and it was very difficult to break into these companies with equipment. The notable exception to that was National Semiconductor, because when Charlie Sporck went over to National [from Fairchild] he told them that they were not to design any equipment, they were to buy all their equipment. And while they had a pretty good sized equipment group [at National], all the equipment group did was to modify and work with the manufacturers to make that better.

The equipment industry...started out making tools. The semiconductor manufacturer would specify, we have a new process and we need this, why don't you go off and do that. Over the years that relationship has changed tremendously. The reason it changed [is that] as the manufacturing process got more and

more complex and the cost of capital went up, [the semiconductor manufacturer] recognized that they couldn't get the scale of economies for designing their own equipment. So they started to outsource more and more and of course as they started to outsource the capital equipment manufacturers gained more and more expertise. I think that's true, by the way, of all industries. It starts out that when an industry is very young, the first pioneers in the industry have to be vertically integrated because there is no place to get the skills that they need outside of themselves. As the industry matures, they outsource more and more.

Of course the very big change for the semiconductor industry was in the early 80s, with the advent of Sematech. The United States manufacturers recognized at that time they were under a worldwide assault from Japan, and somehow they had to get better and more efficient at what they were doing. With the advent of Sematech -- if there was ever an end to doing equipment for themselves, or if there was an end to the very adversarial relationship between the semiconductor device manufacturer and the equipment manufacturer -- it was that. At that point everyone realized that either we learned to cooperate with one another and we learn to do what we did best, or we would all wither on the vine. So once Sematech was formed, we found a somewhat different relationship between the semiconductor manufacturer and the equipment manufacturer, which was one where the semiconductor manufacturer was much more willing to share its future plans. Prior to that no device maker would tell you what their plans were for the next few years, so as an equipment manufacturer it was very, very difficult to try and figure out what you should be designing. Of course, we would all use our own marketing people and our own internal people to try and ferret this information out but it was hard to come by. With the advent of Sematech, [the industry] started to do long range technical forecasting, then it became somewhat easier. Then we all had a basis for discussion with one another.

And that takes us to the present period of time where much of the process and many of the things the semiconductor manufacturer used to believe was their expertise is now the expertise of the equipment manufacturer. The semiconductor manufacturer recognizes that what they have to focus on is the design of their circuits, and that's where they make their contribution -- the [circuit] design, and running the factories. But the design of the equipment or the process or how you make the process or what chemicals you use is now completely outsourced to the equipment manufacturer. The equipment manufacturer's role...has gone from the early 60s where fundamentally equipment manufacturing was a big machine shop, to today where the equipment manufacturers are fully integrated groups on design of the process, design of the equipment, and use of the equipment. We count [that] as part of our expertise. That also accounts for the different skill levels we have today. If one were to look at earlier equipment manufacturers you'd find that there were a few engineers and a lot of technicians, and of course a lot of machinists and manufacturing people. Today, if KLA-Tencor's workforce is a good indication, it's some of the most highly educated, most technical people you can find. As a matter of fact, having worked at Bell Labs in the early 60s, there's no question in my mind that the staff here at KLA-Tencor in terms of education and terms of technical expertise rivals that of what Bell Labs put together in their heyday as being the technical leader in the world.

**Addison:** How did KLA Instruments come about?

**Levy:** I'll tell you what the genesis was for KLA, then KLA-Tencor. When I came to California, we had bought this little company called Cobilt. It was a wonderful period of time to be involved in the industry. It

still is a wonderful time to be involved in the industry. But this was kind of like the frontier of the industry. There was so much work that could be done. Semiconductor manufacturing plants were so rudimentary at the time, that if you put together a number of smart people, and you had enough funding, you could make terrific progress. You could make great contributions to the semiconductor industry and there were always some people who were willing to accept the next invention. It was a period of time when one would say...it was kind of like the Wild West; a bunch of cowboys and each person having their own idea.

At Cobilt, first we did the automated mask and wafer aligner, which became a standard throughout the industry. We sold them all over the world. Then we were looking for places to grow and we did the first automatic wafer prober, which didn't need any human beings to do the alignment and do the set up. So we pioneered in that. Then we did wafer track, fully automated wafer tracks including coater/developers, bake ovens...we pioneered in that area as well.

**Addison:** What about the technology for these products, was it built it from the ground up, was there anything to base it on?

**Levy:** No, it was all internally developed. We developed all the technology. We went out, we found people we needed to do that. As I said, we had 15 people at Cobilt when we bought it, I guess within a few years we were up to about 350 people and we were growing that business at a very high rate and introducing new product after new product at a very high speed. One of the other projects we had was a projection mask aligner which competed with the Perkin Elmer mask aligner at the time. We were doing a huge amount of research and development at the time.

**Addison:** Was Cobilt one of the largest dedicated equipment makers at that time?

**Levy:** It was getting there. Cobilt was a good-sized equipment company. I think at the time GCA was larger. There were a few good sized companies. People were casting about trying to figure out how much you should put under the one roof. But everybody was so busy. Everybody was inventing new products at a very high rate. And then, the oil crisis came. All of a sudden there were long gas lines in the United States. One couldn't get oil. OPEC shut down its pipelines. And the nation changed from going full bore and...selling all the semiconductors you could, to nobody wanting anything because we were busy trying to figure out how to fill our cars with gasoline. Stocks were plummeting. And people were less and less interested in high tech. With that as a backdrop, Computervision had to make a decision about which one of its product lines... they were going to concentrate on, and they decided the future of the company was in computer aided engineering. At that time I was president of the Cobilt division. I was on the board of Computervision. I guess I had gotten the entrepreneurial spirit while I was out here in California, and it was clear that I wanted to be associated with a growing business and not one that was going to be second to the main line of business. And with that I left Computervision with the idea of founding a new company.

I had an advantage of course, because since we made wafer aligners, all of our customers were telling us that the wafer aligners were causing too much mask damage. I had concluded that the masks weren't any good before they got to the wafer aligner, but nobody knew that because there was no way to ever check them. They were too hard to check. That was product knowledge that I took from my days at Cobilt, that there was really a need for an automatic photomask inspection system. So I left Computervision [and] it

took me about a year to put the business plan together and to raise the money to form KLA. For the people who started business recently, there is a well developed venture capital network and it's rather easy today. In the mid-70s it wasn't. There was another problem. The Dow Jones [average] at that time was selling at 500. The Dow was selling at 7X earnings, the PE multiple was 7X earnings. So if you wanted to start a new business in that environment you had to show how the investor was going to make a very, very good return in an environment where public companies were selling for 7X earnings. I remember having to go from venture capitalist to venture capitalist trying to convince them that we would get a great return for them if we could get 5X earnings for our company when we sold it. And it took me almost a year...I visited every venture capitalist in the country trying to raise money and eventually only found two that would give us any money. One was an industrial company, EG&G out of Boston. Another one was a public venture firm, Continental Capital. And between the two of them we raised the fantastic sum of \$600,000 to start KLA.

**Addison:** What was the reason that nobody wanted to invest, was it the oil crisis, or because the excitement had gone out of the semiconductor industry?

**Levy:** It was because there was no money in technology. No one was making any money in technology. There was no excitement in the semiconductor industry. At that time people believed the semiconductor industry had a death wish because it kept lowering its prices every year. It sold semiconductors for less and less money and how could anybody make money in a business where you lowered your prices and you delivered more value every year. There was a great debate on that. Even worse than the semiconductor company was a semiconductor capital equipment company because it was known it was a very cyclical business and if your customers weren't making any money, how could you make any money? Of course there are always those people who, when it's raining, buy sun tan lotion because it's inexpensive and they know they are going to use it some day. So for somebody starting to raise money for a new business you have to find those people who believe that the world will change. We were fortunate and we found a couple of people who believed it.

When we produced the first automated photomask inspection system it was an instant success. It was a tremendous success. All the photomask shops wanted to buy them, all the large semiconductor companies knew they had a problem with their photomask quality and wanted to buy them. We had some difficulty in the early times delivering the technology in a reliable fashion so that it was production worthy, and we struggled with that for a few years. But ultimately we did that. It was an excellent marketing call on our part about the need for this product. We developed some very good technology, we had a bunch of good technologists on board and the technology was right on. And it was so good that of course, four years later, in 1980 KLA went public. For the early investors in KLA who had enough faith in us to believe and invest their money, they made well over a 100 times on their money in four years. It was an extraordinary investment for them. And it was an extraordinary investment for all the original people at KLA. We all were very, very proud of our accomplishment. We took the technology that we had developed for automated photomask inspection and we built on that, and a few years later we came out with the first automated wafer inspection system, which was the next leg of our business strategy. Again, that was extremely successful. [When] the product initially came out, we were overbooked for a year and a half. We couldn't deliver them fast enough and we spent the next years perfecting the technology, building on the technology, perfecting the technology.

So the strategy we used in the early days of KLA, which was a really great strategy, was to invent new markets. Own 100 percent of the market, build the market as it went. As competitors would come in we would still have the dominant share because we had the most knowledge about the customers, we had the most knowledge about the technology. And it's a strategy that some almost 30 years later we still adhere to; which is to be early in the manufacture of equipment and invent new technologies for the semiconductor manufacturer to improve his yields, improve his process. We've been running that now for lots and lots of years and it's been a very successful strategy for us.

**Addison:** What about the cycles, were you lucky with new products in the boom years, or were you recession proof?

**Levy:** In the early days, the first six or seven years, our company was growing so fast because of the new products. The same cyclical nature we've had for years and years continued to go on, but in the early days our growth was so high that all that happened was that when the semiconductor industry turned down, it just lowered our growth rate, it didn't turn our growth rate negative. And we were able to do that while we were small and these new products were growing rapidly. Later we had to learn a different skill, and the different skill was how to manage businesses through cycles. And of course that's true of many companies as they mature, they have to learn other skills and we've developed that skill. I think KLA-Tencor is one of the few companies that has been able to ride through cycles and remain profitable through the cycles and it has to do with the management philosophy, it has to do with how much variable expense you carry and how much fixed expense and how determined you are and also the value of the product you deliver. So if you deliver enough value, even when the cycles are turning down, you can still sell some and you can make some money on that. As the company has gone from a very small company, a start up to one of the largest in the capital equipment business today, we've had to learn a lot of different skills about managing cycles. Cycles still remain today one of the biggest problems in the industry and in the semiconductor capital equipment industry the cycles are so violent, the ratio from peak to trough of sales is so great that it taxes the ability of the management to figure out how to run businesses in those environments. But I think that the very best companies learn how to do that. They learn how to run their businesses through cycles. Even when the cycles are negative you have to continue developing new products because they have to be there when the industry turns back up and you have to learn how to do that without damaging your balance sheet. The good people have learned how to do that, and I think we have learned how to do that as well.

**Addison:** Can you talk about the founding team at KLA, such as Bob Anderson.

**Levy:** Bob Anderson and I founded the company. I was the marketing engineering type, Bob was the chief financial officer at Computervision and that's how we met. I had no experience in raising money and managing the balance sheet. And we had instant mutual respect for one another's capabilities. And we worked together for more than 15 years as we built the company and it was a great 15 years. We brought on another fellow who had worked for me at Cobilt. His name was Paul Sandland. Paul was the engineer's engineer. The best engineer I have ever had the opportunity to work with. You could explain to Paul, gee this is where the market is going. I want you to build a team and find a technology that'll do that, and Paul would go out and do that. In the early times he built the optical groups within KLA, he built electron beam technology within the company. He built very high speed electronics capability. He was a really terrific person involved in the company. That was the original few people.



Then of course as the company developed...neither Bob nor I knew anything about manufacturing. So we were trying to manufacture these pieces of equipment and they wouldn't come out of the manufacturing cycle on time or on cost. I had met through a friend of mine a fellow who was a superb operations person, and [my friend] said you really ought to go and talk to this fellow. So I went and I bought him lunch and I said I have this manufacturing problem and he said; well, why don't you try this. I tried that and it worked really well. Two months later I came back and said I've got another problem, let's have lunch. So we had lunch again and he gave me another piece of advice. And we did that about four times. So I went to him and I said, you know, these lunches are too expensive, you have to come join the company and you have to come and run operations for us and you can make a great contribution, and I can save all this money on lunch. And he said yes, and that fellow's name is Ken Schroeder and he's the CEO [of KLA-Tencor] today. Probably the best, best hire that I ever made in my whole life and it happened because I was too cheap to buy somebody a couple more lunches. So sometimes being frugal really works for you. [laughs]

**Addison:** Where did Ken Schroeder get his manufacturing experience from?

**Levy:** Ken started his career at Hewlett Packard in manufacturing engineering on their computer line. Then he moved to Spectra Physics where he ran operations, then after that ran their laser products division as a general manager.

**Addison:** So when you were buying him lunch, he was at Spectra Physics?

**Levy:** Yes, when I was buying him lunch he was at Spectra Physics. Years later of course I met Herb Dwight who was the CEO of Spectra Physics at the time. He was pleased that one of his graduates had done so well but he was aggravated at me that I had stolen one of his very best people. So the people in our industry, especially semiconductor capital equipment, come from all walks of life. Ken [Schroeder] could make a big contribution in semiconductor capital equipment because he had been an equipment manufacturer, he had been a computer equipment manufacturer, he'd been a laser equipment manufacturer. So the technologies that we were using and the skill sets that he needed here weren't so different than anyplace else. Of course the market was different and we all learned. We learn by doing.

**Addison:** On the topic of hiring people at other companies, was Cobilt upset, or were there any lawsuits when you went off to start KLA?

**Levy:** No. First of all, nothing I did at KLA was competitive with what they were doing. I like to think that they didn't like to lose me, but there was no competition, nor did I take any of their intellectual property. Nor did we hire very many people [from Cobilt], probably a couple of people over the period of time. And ultimately of course, I was very proud of the accomplishments and the products we had built at Cobilt. If one looks at those, many of those products are still around today. When Computervision decided to get out of the semiconductor capital equipment business, they sold the proper products off to Tokyo Electron. And of course Tokyo Electron used those products, that initial proper, to become the world's largest proper manufacturer. And Tokyo Electron, who was Cobilt's distributor in Japan at the time, also bought the coater/developer line and of course using that, they are the world's largest coater/developer supplier.

The one failure was...the lithography side, [which] was sold to Applied Materials. And the only thing that's left from that is the building that they bought. They [Applied] went into that business for a year or two and

fundamentally closed it down. But a lot of the things that were done over there and a lot of the people that were trained over there wound up in different parts of the industry and have done very well. So I was really proud of the accomplishments, the things we had done [at Cobilt]. So it's not lost. Although companies go away, the people never go away and the products never go away, and the advances they make don't go away.

**Addison:** So the Cobilt products were sold off and it was closed down?

**Levy:** Yes, and a few years later... Computervision was purchased [when] their business had a downturn, and they were purchased by another computer manufacturer and they're no longer around either. So I'm sorry to see that happen. But as a founder of a company it gives you more resolve to put the right things in place so that your company never goes away. So I looked at that, and said they did a lot of things that were right but probably did a lot of things that were wrong too. Let's see if we can avoid that and let's see if we can build a company that lasts for a century. That would be great if we could make that happen.

**Addison:** The prober and coater/developer products now with (TEL) Tokyo Electron, you personally had a hands on involvement in those?

**Levy:** Yes, we built them. Tokyo Electron was the distributor for them and they took them over. When I go back and talk to the TEL people, we always reminisce about the days and how this gave them a giant start in the equipment manufacturing side of the business.

**Addison:** Let's move on to the merger of KLA with Tencor. What was the thinking behind that, who approached whom and how did it pan out?

**Levy:** We had been studying it...at KLA we were studying the way the industry was moving. And we were looking to see how we could broaden our product line to provide a more full set of solutions for our customers. We had our eye not only on being an inspection company, but what we wanted to do was to be the yield management company for the industry. To do that you needed a lot of pieces, and we were building these pieces at a pretty high rate at KLA. On the other hand, there was another company, Tencor, that was founded by Karel Urbanek. And Karel and I had become pretty good friends because we were both on the SEMI board together and we both had lots of opportunities to chat and we would talk about maybe somebody it would be worth putting these companies together. And we probably had chats over a number of years. Then unfortunately Karel passed away [in 1991], and the company [Tencor] was headed by Jon Tomkpins. We had early chats with him about merging the two companies. They never quite worked out.

Tencor then bought Prometrix which was a film thickness measuring company and ultimately the Tencor company went public. But we kept studying that issue and still [thought] it would make sense. Our own internal engineers kept telling us, don't worry about it, we can develop all of those products. But of course we were so busy doing what we had to do that we would never get to develop all the products that Tencor had developed. And besides, Tencor was very, very good at what they did. We were good at one segment, at one set of technologies, at image processing. They were very good at laser technologies. It was foolish to think that we could duplicate what they had done. So over the period of time we got back to talking. I talked to Jon Tompkins and we said, gee, wouldn't it be a good idea to put these two companies

together. As you can imagine there's always a matter of price and management structure and lots of issues that, in addition to it being a good idea, keep people from coming together. But both Jon [Tompkins] and I were committed to the fact that we wanted to have a large company and we wanted to win in this market place, so we put the two companies together. We worked really hard as a team. I was really proud of all the management people involved because, invariably, in a merger people are worried about what will happen to their own careers, what their job will be [and] are there other people who don't like them [because] they are very comfortable in their own environment. But we got by all of that. Jon and I had made a pact that said we would do everything we could to make this thing work. I hope I upheld my end of the bargain. I know Jon upheld his end of the bargain.

So we would be like the Bobbsey Twins. People would see us together all the time, eating, drinking together, walking the halls together, so there was no question between any of the employees of either company that the heads of these two companies were committed, that this was going to work. And we used lots of consultants on the outside to solve problems for us, that we needed to be solved. Ultimately, I don't know of a better merger that has taken place in our industry, or maybe any industry. Of the things I am proud of that's one of the things I am most proud of. That was a new set of skills we had to learn. We both knew how to build companies. The question was could you put two companies together and make them work. Ultimately, when we put them together we had a full complement of products for our customers. We had distribution and service all around the world -- one of the best distribution and service forces around the world. I think that this merger is an example of how, if you do things right, it can be good for everybody. It was surely good for customers because we have a better set of solutions for them. It was surely good for our investors because the equity in our companies has outperformed most of the other companies out there. And it was surely good for most of the employees. It was not great for a few of the employees because their jobs were eliminated. But when I look back, those people whose jobs were eliminated, I look around the industry and they have great positions in other companies and are making great contributions. So I'm really pleased about that and I think that worked out very, very well.

**Addison:** What about the cultures of the two companies, how different were they?

**Levy:** There were similarities, and there were differences, as any place. There were things that were helpful. We served the same industry, we understood the customers the same. We were physically not far away from one another so that we could interact closely together on a frequent basis. Of course, there were some differences. The two companies were founded by two different people and had taken different paths. So the question is; are the people committed to merge the cultures? And we had different policies in different areas and we would get together and work them through long into the night and we'd say, what we are going to wind up with, we are not going to wind up with the KLA policy, we are not going to wind up with the Tencor policy, we are going to wind up with the KLA-Tencor policy. It might be similar to one, it might be similar to the other. It may have no similarities at all. But what I learned from that [experience] is that there are lots of different ways to succeed. There is not a single thing that you do that makes it work. It is mostly the goodwill of the people.

**Addison:** Can you talk about your involvement with SEMI.

**Levy:** My involvement with SEMI is one of the best things... I look back on it as one of the best things I've done and one of the most enjoyable things I've done. And I hope that I have made some good

contributions along the way. I initially got involved with SEMI [through] Bill Reed [former SEMI president]. I had met Bill, we had chatted for a while. I used to go to the SEMI functions. They used to have more local functions because at that time of course most of the industry was right here. And I don't know what happened, but I got a telephone call one day, from Jim Morgan [of Applied Materials]. He said, you should consider coming on the SEMI board and I'd like to interview you for the board.

**Addison:** So Jim was chairman of SEMI at the time?

**Levy:** Yes, he was the chairman. I didn't know Jim very well at that time. I went down. I thought this was going to be a rather perfunctory interview. He would say, gee would you like to join, and I'd say, yeah I guess I would, tell me a little more about it. But Jim really thought this was an interview. He said what about this, what's your feeling about this, what's your feeling about that. But anyway, I guess I passed that interview because they asked me to come on to the board. At that time the SEMI board was a very small board. It was all Americans and the issue we were facing at that time [was] were we truly an international organization, or did we exist only for our U.S. members. Although we had a few Japanese members, it wasn't clear. The industry was being torn apart. There were lots of problems between the United States and Japan, trade wars. And we hammered that out. And we came to the conclusion amongst all of us that we truly did want to be an international organization. That's what we were going to do...but we all had questions in our mind. The only person I know who didn't have questions in his mind was Bill Reed. He knew where he was trying to push everybody to. Bill was a wonderful person, he never commanded, he never gave you his opinion. He would just ask enough questions until you came around to his opinion. He had a unique skill as an individual to get people to follow but when they followed him they thought it was their idea in the first place. Bill was one of my best experiences. He became over the years a friend and an advisor and [was] just a superb person.

Once we decided that we really wanted to be an international organization, I was very concerned about what we were doing besides saying we wanted to be an international organization. I didn't know enough people in Japan and I was busy trying to figure out for KLA at that time how we were going to get more business out of Japan. It was out of those problems and out of that decision that we wanted to be international that I came up with the idea of having a trade partner's conference. [Editor's note: Now called the International Trade Partners Conference, or ITPC]. One of the most wonderful things about SEMI at that time was that it was small...and I woke up one day and I said, we ought to do that. And it didn't take long for everybody to say, yeah that's not a bad idea, let's go do that. And of course today [ITPC] has become a very unique, very nice association and I think that all of us in the United States and in Japan have a lot more association and a lot more friends because of that conference.

**Addison:** What was your inspiration for the trade partners idea, did it just pop into your head?

**Levy:** It just was that we wanted to be international but we didn't know the people. The Americans didn't know how to do business in Japan, the Japanese didn't know how to do business in the United States. So we said let's have a conference where we'll teach one another. And we decided on Hawaii [as the location] because Hawaii was halfway between, it was a rather neutral territory. And I'll always remember the Japanese when we showed up for the first evening dinner or cocktail party. They all came in their suits and their ties and everything. And I had my next great inspiration. I put up a big sign there and it said "No ties are permitted. No jackets are permitted. You must wear Hawaiian shirt". I didn't realize it, but I

really should have got a commission from the hotel because the next day there was a line of over 100 people at the Hawaiian shirt store in the hotel and they were all wearing Hawaiian shirts and they were all so proud of themselves because they had never been any place without a tie on before, and it was just one of these unique, terrific experiences.

The other thing that we did in the early days of SEMI is start the data gathering services. SEMI prior to that did not gather any market data. It was a trade association that didn't gather market data. Fred Van Veen [of Teradyne], who was on the board at the time, came to me...and Fred knew that we needed to gather data. But for some reason Fred didn't stand up and say this is what we ought to do. So he came to me on the side -- and I guess I was a new kid on the block and I was bold enough to suggest things -- and Fred said, Ken we really ought to collect data. He said why don't you tell everybody we ought to collect data. I was still foolish enough at that time, and I said you know, we really ought to collect data, and everybody said, oh, okay. So Fred was another one of these great institutions that SEMI had from the early days.

And then as the institution grew, it changed from all Americans, to a truly international organization. We [thought we] should have people from other countries on the board. And we argued about that, and there was a revelation, and finally we had the first Japanese board member, then the first European board member. I am so pleased with SEMI as an organization. There are very few trade associations of any sort that have done so much to promote international goodwill and international business as SEMI, and I think it is truly a unique organization and people who have been associated with it should really be proud of the accomplishments, well beyond the accomplishments of helping our member companies sell or service their products. I think that during the difficult, difficult trade problems between the United States and Japan and during the very difficult trade problems that we had at one point with Korea, where SEMI interceded, and helped put oil on those troubled waters, this organization has done a superb, superb job.

Of course, someday people will have forgotten all about that. Because you look at a trade association by what it does. It runs shows and it helps its members sell things. But I think much more important was the accomplishment in internationalizing an industry. And if you look at the semiconductor industry today, the capital equipment industry and the materials industry, it is truly an international business. The people from country to country deal with one another as easily in our business as the people from California deal with people from Nevada in some other businesses. I think this is a unique industry. As I said at the beginning of this interview, I didn't know much about the semiconductor industry when I joined, but in looking back over my career, I say, gee how fortunate I was to have gotten involved in it because there are very few industries that one can get involved, where the industry grew as much as it did, where it became truly international and it gave me an opportunity to study cultures all around the world, to travel all around the world, talk to customers everywhere, and make friends in every place. I look at other people I know in other industries and we talk about how many friends you have in Japan, how many Korean friends you have, how many Chinese friends we have etc. And it's clear that this industry is unique in the ability to meet people from all over the world, to do business together and create something good for the rest of society. I think that the people who work in this industry are pretty fortunate.

END OF INTERVIEW