Oral History of Brad S. Mattson

Interviewed by:
Craig Addison

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Craig Addison: How did you get into the semiconductor business?

Brad S. Mattson: It was actually a mistake. I was training to be an airline pilot and in order to build up flying hours I took a job at Applied Materials. I had just got out of college, and with no experience the only job I could get was repairing systems. I worked at Applied as a field service engineer installing and repairing systems while I was building up my time to become an airline pilot. I just never escaped the industry after that. Mike McNeilly [Applied's founder] was still there when I joined. Bob Graham had just joined and Jim Morgan came on the year I started. I joined at a pretty exciting time. It went from about 200 people and $15 million in sales at that time, to where it is today.

Addison: Did you have an engineering background?

Mattson: In support of becoming a pilot I had taken aeronautical engineering and so I did have a general engineering background. Aeronautics teaches you a systems approach to equipment. Airplanes are actually very complicated systems with hydraulics, electronics, mechanical systems, etc. So my background, surprisingly or serendipitously, prepared me quite well for systems thinking—which is really a requirement to be successful in the semiconductor equipment area.

Addison: How old were you when joined Applied?

Mattson: I was right out of school, so about 21.

Addison: How long did you stay and what areas did you become involved in?

Mattson: After about a year I had moved up the ranks in the field service area and was doing specialized "tiger team" work that involved designing systems in the field in addition to the repair work. I found out that we couldn't get a lot of things fixed in the field because the root cause in many cases were design flaws. Everyone told me that if you wanted to influence the design of the systems you had to go into marketing. So I moved into marketing, working for Marty Hammond. He had just been brought in to turn around the marketing organization at Applied. I worked for Marty for several years, moving up the ranks until I was a director of marketing. Then I left. I had stayed about 4 or 5 years at Applied.

Addison: What were some of the highlights during your time at Applied?

Mattson: There were so many exciting things happening at Applied in those times it's kind of a blur. I was associated mostly with the CVD business. I worked with a lot of different CVD technologies including plasma enhanced CVD (PECVD), atmospheric CVD (ACVD), and low pressure CVD (LPCVD). At the end, what was the most interesting and exciting was not CVD but the new etching product Applied introduced. You see we were pretty much a bipolar company because EPI was our strength and that's the dominant bipolar technology. But CMOS, not bipolar, was the future and we needed equipment for CMOS technology. Etching was a key technology for CMOS, so we brought out this new etching product. It was going to be the future for Applied as we didn't have a big product for CMOS.

We hired Dan Maydan from Bell Labs and developed the Hexode reactor which was a very exciting new etch technology. I was the first product manager for this etcher, and was in charge of introducing it to the market. It really did change the nature of Applied's product line and in fact the future of Applied Materials. It was the start of a whole new era. I traveled around the world with Dan (Maydan), Sass (Somekh), and David Wang introducing the hexode etcher. My best memory was going to Japan. Japan was a real powerhouse at the time. It was a lot of fun going around making technical presentations with Dan Mayden. Bell Labs was highly respected in Japan. So you'd introduce Dan and his work at Bell Labs and everyone would listen very carefully. You could get an audience to see anybody because of Dan and his work at Bell Labs.

Addison: Can you talk more about the etcher.

Mattson: It was a very interesting product because the etcher went against everything a traditional "market survey" would say you had to do. Back then a single wafer, load-locked, cassette-to-cassette etcher is what most everyone said you had to have in order to be successful. And this was not load locked, it was not single wafer, and it was not cassette-to-cassette. It was none of those things. And it beat the pants off everybody in the industry because of what it did on the wafer. It was a fun marketing challenge, from the point of view of not doing what everybody said you should do, but doing what was right…and winning. People sometimes forget what real marketing is all about and that was a lesson…it was exciting to be part of that.

Addison: Who was the competition (in etch) at the time?

Mattson: It was a grab bag of companies as there were about 50 players in the market, but the historical people in etching who were still the largest competitors were Tegal, Lam Research, Drytek, and LFE. With all the new entries though the market for etch was quite a mess.

Addison: Do you remember the first customer order for the etcher?

Mattson: We sent the first one to Bell Labs [which is where the original technology for the etcher came]. We had a major push to get about 10 or 15 units in the field, and we were placing them all over the place. Our strategy was to seed the market by putting just one at each important company. For example, in talking to Motorola they wanted to buy 10 of them, but we said they could maybe buy one or two because we had to have one for everyone else. We were in a very enviable position because everybody wanted them, and we controlled the selling process. Unfortunately, we were limited by our shipping capability. It is unusual to have meetings with customers where they are pushing very hard to get your product and you can't supply them as much as they want.

Addison: Why did you decide to leave Applied?

Mattson: The main reason was I was topped out at Applied in terms of promotion. They had a policy back then of mostly hiring outside for senior positions rather than promoting from within. So I really couldn't go much further after I was made Director. I ended up leaving to take a vice president position at LFE. They [LFE] used to be one of the top three companies in etching but had dropped down to twentieth or

something. They were in trouble in the business. I was born and raised in Massachusetts [where LFE was based], so moving back to their headquarters was a little bit like going back to my roots.

Addison: Did you approach LFE?

Mattson: No, a headhunter who knew me and LFE recruited me for the job. The experience at LFE was fairly successful from my perspective. They had low profitability on 20 different product lines and we reduced it down to about five lines that were all profitable. Then we introduced new technology. We did a lot of neat stuff. But in the end the management at LFE was pretty bad and there wasn't anything we could do to turn it around. This division at LFE, the plasma systems group, was controlled by LFE corporate. They were into 15 different kinds of business and they didn't understand the semiconductor industry very well. That's usually a prescription for disaster. There aren't too many conglomerates that have been successful long term in the semiconductor industry. I remember my last meeting at LFE. The top guy said, you don't have to worry about 6-inch wafers, they're never going to use 6-inch wafers. There's no economic reason to go beyond 5-inch wafers. It was crazy. With management like that I had to leave.

A key thing [about my experience at LFE] though is it motivated me to start Novellus. My analysis for the reason for not succeeding [at LFE] was that I couldn't get the funding from corporate. They just didn't understand the business. But the marketing, the engineering, the technology, everything that has to do with the fundamentals of business was done well. So I said, hey, I think I can do this. If I just had the responsibility for the financing at LFE we would have made it. But once you have financing as well as all the other responsibilities you basically have a start up. I actually wrote the business plan for Novellus while I was still in Massachusetts.

Addison: What did you think your chances were for success with a startup?

Mattson: I looked around and at that time, in the early 80s, semiconductor equipment was a high-flying business. It seemed like you couldn't go wrong. To me it was simple math. You'd create a business with shares of stock for something like a penny a share. If you succeed, you go public and you make $10 a share. But…if you failed, what you'd do is sell the company for $1 or $2 a share to a General Signal, or Perkin-Elmer, or any of those conglomerates who wanted to have their name associated with semiconductor equipment. You see, they were looking to get a better multiple on their stock by adding a semiconductor firm to their portfolio. Like, you couldn't fail. This was a no-brainer. I thought I could do at least as well as those people out there who were failing and still getting 100 or 200 to one on their seed investment.

So I figured the risks were very low. What I didn't know was that all that was changing. In the late 70s and early 80s, everybody survived even if they didn't do a good job. Beginning in the mid 80s, we had a big downturn, and after that a lot of people weren't surviving. I had the right logic but the timing wasn't right.

Addison: Did you shop your business plan around looking for funding?

Mattson: By the time I had completed my business plan they started having the layoffs in 1983-84. As a result nobody was interested. I went out and started the company, funded it myself, and built the first two

prototype systems. In 1984 I had processed an 8-inch wafer using a new CVD process…I was depositing at a rate at least 10 times faster than the previous technology and was achieving one percent uniformity on an 8-inch wafer. People could typically do three percent uniformity on a 6-inch wafer. This new process was far more uniform, on a larger wafer and a lot faster.

I went back out with the business plan with the proof (an 8 inch wafer in my hand) and showed them to everybody who would listen…and nobody cared. After about the 50th presentation I ran across some people from Monsanto. Monsanto made wafers for a living. They -- as opposed to the venture capitalists -- really understood. They also had a longer-term perspective. They said, "this is really great, we have to fund this." So they helped me get funding. That's the reason Novellus got really started. I don't know if I would have ever raised money in that downturn without Monsanto's help.

Addison: Did Monsanto put up the money itself?

Mattson: Monsanto worked through a group called Gateway Mid America Partners in St. Louis [Missouri]. Gateway led the deal because Monsanto didn't want to be the lead financer. But they [Monsanto] pushed them to look at the deal, and Monsanto put in half the money as well.

Addison: When did Novellus get started?

Mattson: It was founded in Q1 or Q2 of 1984, the official incorporation. We didn't raise money till 1985. I think it was a $1 million we raised in the first round.

Addison: What about employees?

Mattson: While I was working in my "garage shop" with only my own financing, I hired just one employee, John Simmons, whom I had worked with at LFE. Later, I hired my brother, Steve Mattson. It was kind of minimum wage or no wage for everyone. It was that way until we raised money.

Addison: Where did you get the CVD technology?

Mattson: It came from my previous experience working as a field service engineer. I did process development while I was in field service. Then at LFE I managed the application lab and was heavily involved in process work there. While working with the lab I often had ideas on new things we could do. At Novellus I just developed some ideas like I had before and then built the systems and developed the processes.

Addison: Can you talk about the early days at Novellus?

Mattson: After the first round of financing we hired a small band of people. We called them the "dirty dozen". We heard Applied [Materials] was going to get into the CVD business, so then it was a race. When Applied throws money at something they can do almost anything. It was our "dirty dozen" against Applied. We first built a manual batch system. When that worked I challenged the group. I said what we have to do is finish our automated system by SEMICON West. This was in January 1986. I said if you do

this we are going to take you and all your families to Hawaii. That's the good news. The bad news is that you don't get a day off between now and May (SEMICON West).

It's one of those things you do in a start up. You work very hard…we would give Tuesdays and Thursday nights off so everyone could go home to their families. Otherwise we worked all the time. We did a lot of family things to try and balance it out, and we actually made it. We showed our first system at SEMICON West [1986]. We had only spent $1 million building this advanced tool. We beat Applied Materials by over year. It was exciting, and it was the most fun team building, product development I've ever been involved in.

Addison: Did everybody go to Hawaii?

Mattson: Yes, we did. But it was down to the last minute meeting the show deadline. We had to transfer 25 wafers automatically at spec without failure; just one cassette. I remember it was Saturday night, and the show was starting Monday. That night everybody had been working so many hours that they all went home to sleep. They called me -- I had gone home to sleep earlier -- and said they hadn't made it yet, but that they were going to leave. I said "no way" and drove down there at midnight. We worked all night trying to isolate a vibration problem that caused the wafers to fall off the robot paddle.

Sometime Sunday morning I found the problem was coming from the vacuum pump, and we constructed a home-made vibration isolation bellows on a lathe right there at work. We installed it and it worked. At the last minute we did what was needed to meet the specs so we could all go to Hawaii.

Addison: What was the reaction to the system at SEMICON West?

Mattson: We hadn't done much marketing so there wasn't a huge reaction. SEMI has a points system to determine who gets booth space and where. We didn't have any points so we couldn't get good booth space. We didn't make too much of a splash. But for the people who knew about CVD, it made an impact.

Addison: When did you get the first customer order?

Mattson: What happened after the show was pretty interesting. A lot of things changed. Applied [Materials] started talking to us. There was this big discussion over whether Applied would acquire us or not. In fact, we really had closed a deal with Applied. I had been negotiating with Bob Graham. He had previously left Applied to go into venture capital. Then he came back [to Applied] and his responsibility was mergers and acquisitions. We were basically his first deal. [Jim] Morgan [Applied's CEO] brought Graham back in and he wanted to buy Novellus. It was a tough negotiation. When he went into the venture field he had talked to us and found out about our technology. When he came back into Applied he already had the inside story, and he really wanted to do the deal. But I basically said, "we're not for sale". Then he said, name a price. Since he didn't seem like he'd go away I just though of a ridiculous price. I said, okay, $12 million. We had only eight months ago closed our first round of financing with a valuation of $2 million. In eight months you just can't go from $2 to $12 million, but I just said $12 million anyhow. I wasn't negotiating because I really didn't care. He said, well forget it, that's stupid, and he walked out. I said fine, we weren't for sale anyway. You came to us. [Graham] called a half hour later and said you've got a deal.

They did the due diligence and were supposed to do the deal, but it was killed for internal political reasons. We passed the due diligence; we had a great tool. Everything was fine. There was an internal conflict at Applied because Dan Maydan was building a CVD tool for Applied. Then Bob [Graham] wanted to buy us, a CVD company. There were some heated internal discussions, to put it kindly. I think Bob ended up losing out in that debate, and that's how we ended up hiring him. Bob Graham came to Novellus because he had the rug pulled out from under his feet at Applied. So it wasn't too hard to recruit him. And Everet Van derVen also came as he was on Bob's team at Applied. It was kind of a package deal.

Addison: How did you find out the deal was off?

Mattson: I think someone called me. It might have been Bob Graham or Dennis Hunter, who was on Bob's team. That was pretty tough for us because we had been led down the road. Bob had previously told me the deal was done. He was -- at least in the past -- a very powerful man at Applied. If he said the deal was done it was done. We needed money and we hadn't gone out looking for money because we had signed a letter of intent with Applied. When they backed out we had to scramble to raise money. The good news was that within a month or two we had three people willing to be a lead investor for a $5 million deal. I think the success of what we did with our technology, and the fact that Applied wanted to buy us resulted in a lot of good publicity. We had no problem raising money very quickly. It was very much different from the first round where we talked to everyone in the world and couldn't get anybody [interested].

Addison: Were you that disappointed when the deal fell through?

Mattson: Yes, I was disappointed because we were moving down that path, and it was risky because we had no back up plan. Under the terms of the letter of intent I wasn't allowed to arrange another source of financing. We'd managed to develop an entire product on a million dollars, but we were thin. That's not a lot of money and we didn't have much left. In the end it worked out fine. We raised the money, and we weren't interested in selling anyway.

Addison: How much time elapsed from when the deal was on until it was off?

Mattson: From May to end of June or July– just a couple of months.

Addison: Can you talk about Bob Graham coming over to Novellus?

Mattson: I can't remember who approached who – I probably approached him. I said, hey do you want to do this deal? I have always believed that the company that has the most management talent on their team is going to be successful, and I looked at this as an opportunity to get some really strong management talent.

It was the beginning of a long, tough period. I had worked for Bob before and I'd seen him politically, and typically you didn't want to be his enemy. When he first came to Applied, people ended up leaving, retired or whatever all over the place. And he's extremely competitive. I met with him before we finished the deal

[to hire him], and I said, you are extremely competitive, can you focus that competitiveness not on me but on the outside, at the competition, not at me as the internal competitor. Of course he said yes.

It would be natural for him to focus on me though because I'm the founder [of the company]. As it turns out it wasn't possible for him to do what he said. He felt he had to not only beat the competition but he had to beat me and…he could not share power. He could not work really as a team mate to anyone. I ended up leaving. It was a problem with other people he hired in the company, and with future replacements too. He went from president to president to president. Some of them were extremely vocal about their opinion of him. In the end they got Rick [Hill]. Rick basically told the board that Bob's got to be gone or this won't happen. It was the only way. I saw right away after a year that it would be difficult for Bob to grow Novellus beyond about 200 people with his style. And that's what happened. It didn't really grow much beyond that until they were able to move him aside. He's a brilliant, a brilliant salesman, and a good marketing guy. Has a lot of strengths. But not necessarily the strength for building a team.

Stage one of a company is the founding, stage two is growth. To get to stage three where you really are a significant player, it's all the management team. In my discussions at that time, we were getting ready to go public. I was a 30 year old relatively inexperienced young man versus Bob Graham. He was the right guy to take the company public.

Addison: What was going through your mind when you thought it was time to move on?

Mattson: It was extremely tough. Obviously I have never given birth before, but I felt it was like what you would feel if you had baby and then lost it. You create something, that doesn't exist before, you bring it to life, you nurture it, grow it, and then to end up leaving…a very, very emotional thing. But I couldn't stay there and watch what was happening. I talked about the "dirty dozen" and how it was founded on team work. Those people were going to be fired, or let go or whatever. The whole concept of team was really being destroyed. As painful as it was to leave, it was too painful to stay and watch.

Addison: You still had ownership in the company, so did you sell out?

Mattson: I had a relatively large percentage at the time, I can't remember if it was 10 or 20 percent, something like that. I couldn't really sell it because the company wasn't public. Later on when it went public I didn't sell all of [my shares], but I used some of them to finance Mattson Technology.

Addison: What about the establishment of Mattson Technology. Did you have that in your mind immediately?

Mattson: No, not at all. It's a funny story. The reason I hired Bob Graham was that I wanted to start a family. And my wife told me that there's no way she was going to have an absentee father. She said, "So as long as you are doing this start up, I know how many hours it takes and it's ridiculous, so no kids." That was one of the main motivations to hire Bob, not only to bring management talent to a company, but to be able to back off and make sure that if I was going to back off and spend more time with the family, that the company didn't suffer as a result. We needed to get somebody strong. Although integrating with Bob wasn't successful, a year later I had my first daughter, so that was kind of neat. I was really trying to balance my life, spend time at home. It was kind of a mini-retirement. So I took at least a year off while my

daughter was young, and spent a lot of time with her. We added a second child to the family about a year and a half later, a son.

Addison: And Mattson Technology?

Mattson: That didn't happen for a while. While growing the family, I was investing on the side. I was involved in three different companies as an investor. Different companies had different opportunities, and that's how Mattson [Technology] came to be. I saw an opportunity to do something very, very unique and I got excited enough about that to say, OK, I want to be involved in this company personally.

Addison: Were you working with other people on this, or by yourself?

Mattson: There were really two or three people looking at ideas. As I was helping them formulate the ideas on how to build the company, and we developed some hardware designs that were on paper at least really exciting. Kind of like the ideas we had at Novellus which were exciting in the processing area. These new hardware ideas led to the development of Mattson [Technology].

Addison: When was this?

Mattson: Mostly in 1989.

Addison: What about the business plan, and the funding?

Mattson: Essentially the exciting idea was how to do these high technology processes very quickly and very inexpensively. It was a very high speed platform. We said, boy this is neat not only for our first product, the stripper we were building, but it would be neat for a whole series of products. So we built all new robotics and software. We did some stuff no one has ever done before, processing with up to 200 wafer hour throughput. No one had done that before in a single wafer system. I was able to get four or five people I knew to put money in. This company was more self-funded than Novellus, but a lot of it was possible because of the wealth generated by Novellus. These investors were people who had Novellus stock, or were former Novellus employees. We did the initial funding with these four or five people.

Addison: Who were the people?

Mattson: The key person was Ralph Martin. He was the No. 1 guy. Another early investor and employee was Tom Martin (unrelated). They are both retired now. [Editor's Note: Both were part of the Novellus "dirty dozen" team].

Addison: Was it a typical start up in a garage?

Mattson: Yes, only it was a slightly bigger garage. Novellus was a 1,000 square foot warehouse with no heating or air conditioning. This one was a little bit larger, but not that much bigger. We used a lot of the same techniques of not spending a lot of money, doing it inexpensively, keeping the costs down until we really had our product developed. It was an upscale garage.

Addison: What about your first customer orders, and promoting the product at SEMICON West?

Mattson: We developed the product quickly, but then we had some infant mortality problems…it was slow. The first customer was AMD. We worked with AMD for maybe six months with some very tough process technology issues. We had a slow start, and the timing was really tough. At that time, about 1991-92, the Japanese bubble economy had burst, and we were involved in the gulf war. No one was spending. It was a really tough time to find customers. But we were having our own technical problems as well. We had to revise the product. We worked with AMD to get the technology right, and built a second version of it…then our sales started to grow quite quickly. We were able to take the company public in the upturn of 1993.

Addison: Was this platform unique in any way?

Mattson: Yes, I tell you what it was like. Technically, I came from the CVD area with Novellus. That kind of equipment was the Cadillac or Mercedes category, the high performance, high quality end. The stripping area was more like the Volkswagon category, or maybe now a Ford Escort. It was the low end. You wouldn't spend a lot of money on it. It was the entry level product. People would say no one's going to spend a lot of money on strip when they're spending $400K or $500K for a CVD tool. They'd spend only $80K or $100K for a stripping tool.

But the technologies were fairly similar, they were both plasma processes. You had to use basically the same hardware to generate the plasma. We thought that stripping needed to use more sophisticated processes, the same high end technologies used in other plasma fields, such as CVD or etch. But no one was willing to pay for it. What we had to figure out how to do was to implement a very high end process, similar to CVD or etch, in the stripping world with it's low cost and high throughput requirements. It was a paradigm shift.

We were going to build a really high quality tool, and we were going to sell it for a lot more than other strippers. But to justify that we had to make it very high speed. Whereas before single wafer strippers were doing 30 to 50 wafers an hour, we came out with a 150 wafers an hour system. Not only did the process have to be faster, but we had to invent new robotics because with standard robots you couldn't even get the wafers in and out of the process chamber that fast. So, building on some of the stuff we'd done at Novellus, we designed a new vacuum load lock with new robotics. But we had to do it a lot less expensively.

We figured out how to do this very high tech, high end thing, and do it very fast and very cheaply. That's why I got so excited about it. If the design we came up with worked with strip, we could port that same technology over to CVD, RTP and other technologies that would use a vacuum.

Addison: Did competitors follow this approach?

Mattson: That did happen over time. It was amazing the impact we had on the market. I think before we entered the strip market there were only two types of equipment; batch systems, like 50 or 25 wafers at a time, and single wafer tools. Today I don't think you'll find any single wafer tools. Everyone has a platform like Mattson, and they'll have at least two chambers, if not three or four chambers. All the batch systems

are just about dead. We completely changed the architecture of the market because no one could compete with us without changing their architecture. Then, when we went into CVD, it was interesting. Novellus responded and built a whole new system. Even Applied copied our design in CVD, so it was quite a compliment.

Addison: Was there any way to protect it through patents?

Mattson: It was not easy to protect, we did what we could. Applied made enough differences in theirs, even if we had patented it they would have got around it. What they did was copy the concept, not the details of how we did it.

Addison: In your view, was Mattson more successful than Novellus?

Mattson: It was not as successful as a business, but probably more successful in the market. What happened at Novellus is they succeeded but never really achieved their full destiny, they are still No. 2 in CVD behind Applied. Mattson went all the way to No. 1 in strip and I think they are No. 2 today, but if they are it's only by a small amount. We [Mattson Technology] got distracted going into CVD, and RTP and we basically diversified too much. But if we hadn't got distracted we would clearly still be No. 1 and dominate in that sector. Novellus never got to No. 1 and dominated the CVD sector. From a marketing perspective Mattson met or exceeded Novellus achievements, but from a business perspective the strip market is only one fifth the size of the CVD market so Novellus is far more successful as a business.

Strip is a smaller market and not as profitable. We tried to change the gross margin though, and we did. We made it more profitable. We created a price umbrella in strip and [that] helped our competitors, like Gasonics, to become more profitable. But it couldn't compete with the profitability that's possible in CVD because of the higher prices. As a business we [Matton] were never as successful as Novellus, not even close, but in the market we did quite well.

Addison: What were the events leading up to your departure from Mattson Technology?

Mattson: That's a long story. Even going back to Novellus, I'd been looking at starting a family. I mentioned I'd invested in three different companies and I got excited about that one…so I wanted to run with it. But really I just wanted to get it grown and take it public. Starting from when we went public, I started looking for a president and it was a long hard road finding a replacement. The industry started consolidating during that period and everyone believed you had to work at Applied or Novellus or KLA or you don't have much chance. So it was hard recruiting a good executive for the size company we were. But it finally worked out, even though it took way too many years.

Addison: You served as the president and CEO at Mattson Technology up until when?

Mattson: Until a couple of years ago [2001]. About a year after the merger where we bought Steag's Semiconductor group. We were having a hard time integrating that company. It was quite a challenge. I had been wanting to spend more time with my family. The kids were approaching high school and I still hadn't spent enough time with them. It was quite a challenge with the time required at work and my wanting to spend more time with my family.

Addison: Were there any acquisitions at Mattson prior to Steag?

Mattson: We did a very small one in the EPI area, a company called Concept Systems Design. As the industry was consolidating it looked like we should either be acquired or acquire. We had to grow. Even though we were growing much faster than the industry rate, almost double the industry rate, you still needed to be bigger because Applied was also growing faster than the industry growth rate. We looked at acquisitions as a faster way to achieve critical mass.

Addison: How many acquisitions did you do?

Mattson: Only two really, the EPI one and then when we purchased Steag. The Steag deal was actually a three way deal. We acquired Steag semiconductor group. At the same time we acquired CFM [Technologies]. To add to the complexity, Steag had several divisions that were completely autonomous. They had a copper deposition company, a wet bench company, and an RTP company. And the RTP company was actually two companies, Steag and the old AG Associates. They were all separate entities, so in that acquisition we didn't just acquire one company. We ended up acquiring five independent companies.

Addison: It must have been difficult to integrate all those companies.

Mattson: It was one of the worst business situations you can imagine. It's hard enough integrating two companies, but when you add in the fact that they are in different countries with different languages, that makes it even harder. They also all had independent accounting systems so you couldn't even integrate the finances and get an accurate accounting. How do you run a business without accounting? They even had a sales and marketing company that was independent of the manufacturing companies. We had to merge all them. So you had all these things working against you, and on top of that we had a downturn! The industry had just had 80 percent growth the year before we merged. Our company, Mattson Technology, had grown 110 percent. We had just gone through this horrendous growth. What was to be the industry's worst downturn started almost the day we signed the deal. So coming through incredible growth, starting a horrendously difficult acquisition of multiple companies in different counties, and then the worst downturn in our industry's history hit. No, it wasn't very fun.

Addison: What have you done since leaving Mattson Technology?

Mattson: Basically I'm retired. I've been on different boards, but my main involvement in the industry has been as a director of SEMI. Personally I have been remodeling a home and spending time with my family as I intended. I have really enjoyed it. I haven't missed the industry very much. Part of it might be that we had two or three miserable years in the industry. There hasn't been a lot to envy out there. My peer group out there has been laying people off, handling customer cancellations and other difficult activities. So it's been a good time to be away.

Addison: Will you come back to the industry with another start up?

Mattson: It's possible. Even with this period I've been spending with my family, I have looked at deals. But nothing has panned out and I don't have a strong desire to do something, but if something comes

along it could happen. If I see an opportunity like I saw with Novellus, or I saw with Mattson where you could bring out a new technology and help people, yeah it might make sense.

Addison: How did you become involved with SEMI?

Mattson: I can't remember exactly how it started. I went to the Trade Partners' [ITPC] Conference early when it first started. I met some key people there. In fact, based on those relationships developed, I ended up hiring one of the executives to run Mattson Japan. Through my involvement in the trade partners' conference, I ended up on the planning committee for ITPC and ended meeting more of SEMI's management. So from that [involvement] and various other SEMI events, I was asked [by Stan Myers, SEMI president and CEO] if I wanted to join the board.

Addison: Do you have any memorable moments from the SEMICON shows?

Mattson: The most memorable thing goes back to the days when I was at Applied, [when] the shows were at the San Mateo fairgrounds. The shows back then were a lot more fun. They had "streakers" coming through, they hired women scantily clothed. It was like a circus show. They had a beer tent so that after the show you'd go to the beer tent and socialize with everybody and trade stories and have a few beers. It was a little wild in those days. When we moved up to the Moscone Center [in San Francisco] it became more professional, more formal. Larger, more successful. Maybe not quite as much fun, but very interesting. Those early days though were kind of neat.

The first show where I brought out Novellus was great. We had a race car theme. We did a little trick where we handed out this scorecard on a racing format with all the specifications like speed, throughput, cost, everything, with our names and our competitor's names. We'd give them to the customer and say fill in the numbers and go to the competitor's booths and fill in the numbers with them. Because we were so blatantly better, we could be pretty audacious. That got around. A lot of people had those cards and went over to Applied and others to embarrass them in terms of what their capabilities were versus our capabilities. That was a fun show because we were the new kid on the block and tried a few crazy ideas. We had nothing to lose. For the limited number of people who knew about CVD, we made a good splash. In general, though, we didn't make a big splash at the show. But we made a dent anyhow in our own little way.

END OF INTERVIEW

