



AMERICAN INSTITUTE OF MINING,  
METALLURGICAL, AND PETROLEUM ENGINEERS

## ORAL HISTORY PROGRAM

**The Transformative and Rewarding Career of Madhu Ranade, “I Owe It All to My Mother”**

## **PREFACE**

The following oral history is the result of a recorded interview with Madhu Ranade conducted by Nikhil Kulkarni on March 10<sup>th</sup>, 2021. This interview is part of the AIME and Its Member Societies: AIST, SME, SPE, and TMS Oral History Project.

## **ABSTRACT**

After 43 years in the steel industry, Madhu Ranade's journey is still not finished as he adopts a new role as General Manager of Raw Materials Supply and Strategy for Steel Dynamics. Growing up in Mumbai, Ranade pursued metallurgical engineering at the prestigious Indian Institute of Technology. Following his passion, Ranade made the hard decision to leave his family in India and study abroad at the University of California, Berkeley. Throughout Ranade's career, he has transformed the steel mills of Burns and Indiana Harbor and Columbus into profitable and efficient operations. Ranade's role as a manager was the role of a leader, who encouraged innovation and creativity amongst his team. Ranade recognized his responsibility to the safety of his workers and learning the business to ensure its success. Reminiscing, Ranade attributes his rewarding life and career to the support of his mother and wife.

Readers are asked to bear in mind that they are reading a transcript of the spoken word, rather than written prose. The following transcript has been reviewed, edited, and approved by the narrator.

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## **PART 1**

### **01:00 Childhood in Central Bombay – Son of a Railway Mechanic and a Teacher**

Kulkarni:

Good afternoon, today is the 10th of March of the year 2021. This is an interview with Mr. Madhu Ranade who is a General Manager of Raw Materials Supply and Strategy for Steel Dynamics. Previously, he was also the Vice President and General Manager of the Steel Dynamics Flat Roll Group, Columbus Division for 8 years. Myself, I'm Nikhil Kulkarni. I am a product metallurgist for Steel Dynamics. This interview is being conducted as part of the American Institute for Mining, Metallurgical, and Petroleum Engineers oral history program.

Due to the pandemic, we are recording this via AIME's Zoom account, and we are going to discuss Madhu Ranade's experiences and contributions in the steel industry. Welcome, Madhu. Everyone knows Madhu. I know Madhu from my early days in Steel Dynamics, when I was a fresh metallurgist in this big plant, and Madhu was our general manager. Let's start here. Madhu, tell me about where you grew up and your schooling.

Ranade:

Yes, thank you, Nikhil, for agreeing to interview me. I want to first start by thanking AIME for this oral history project, I think it's a brilliant idea. I am humbled and honored that AIST recommended me to share my life experiences. I also want to thank Michele and the rest of the production staff for making this a reality. Going back to where I grew up and my schooling, I grew up in Central Bombay, now it's called Mumbai, where my parents had a studio apartment. Later on, we moved to suburbs when they bought a condominium there. I went to what would be considered as good schools, but the medium of instruction was always my mother tongue, which is Marathi. In the upper middle school and high school, I also learned Hindi and English as a second language. Those were good schools, I enjoyed them.

Kulkarni:

What did your parents do for a living, Madhu?

Ranade:

My dad was a mechanic for Indian Railways, and then, later, he became a foreman. One thing I remember is whenever he got together with his work friends, he used to really talk excitedly. They all were very passionate about what they were doing. While I didn't understand a single word of it, that really made an impression on me. Maybe my interest in technical things kind of started that way.

My mom first worked as a clerk in a factory, but my dad encouraged her to study further and get her bachelor's degree and then also get her education certification for a teaching degree. I still remember, I must have been maybe eight, nine, walking with my dad and my mom when she was going for her final exams for getting her teaching degree. And, it was pretty unusual at that time for somebody to go back to school after having a child, but my dad was very good about that. He supported her. She became a teacher and then finally retired as a principal of a middle school.

My dad passed away when I was 13, so my mom raised me, my younger sister, and my younger brother. It was a bit difficult because she was still working full-time, at that time. It was a difficult time financially, but we never were at want for anything. We had a pretty happy childhood.

#### **04:47 Pursuing Metallurgical Engineering – Indian Institute of Technology**

Kulkarni:

Being the eldest in the family and after your dad passed away, you felt like taking the responsibility for yourself. Is it at a very young age?

Ranade:

Yes, and as soon as I graduated from high school, my mom did support me to get my degree. At that time, either being a doctor or engineer were the two preferred choices for earning a good living. In my case, on one side I had interest in technical stuff, and, on the other side, I couldn't stand the sight of blood, so being a doctor was totally out.

While I was in my [freshman] year [of college], one of my friends, Avi, told me that there is this institution called Indian Institute of Technology, or IIT. That's the premier institution for getting an engineering degree. I was interested in it. At that time, IIT had five campuses and used to accept about 2,000 new students each year; but the acceptance was purely based on merit. There was a national examination [across India with ranking by your test score]. It was pretty selective. About 200,000 students used to apply for it. I didn't think I would be able to get in, but with some encouragement from my friends and curiosity on my part, we did sign up for the exam.

Fortunately, two of my classmates, as well as myself, we earned high enough scores to gain an entry into IIT. I was interested in chemical engineering at that time. But my scores were not high enough to study in Mumbai campus. One of my dad's friends owned a detinning operation where he used to get tinsplate and use electrolysis to remove tin and then sell sponge tin and sell scrap. I thought that was interesting. That's why I was interested in chemical engineering, but I didn't have high enough scores to get into IIT Mumbai with chemical engineering. So, I talked to one of the professors who was on the selection committee, and once he heard I am interested also in metals, he recommended metallurgical engineering.

That's how it turned out to be. Now when I look back at it, it was quite impressive, on part of my mom to allow me to attend IIT., which would have meant I would have stayed Monday through Friday on campus, and then just be home during the weekends. Some of my relatives were saying you should just go to a local institution. Stay at home, IIT would be too expensive. But I found out that IIT was a government [sponsored] institution, so fees were quite low. I was also able to get a scholarship, so I -could afford to go to IIT in that way. That turned out to be a very lucky break, and, really, due to the support my mom gave me and the brave decision she took at that time.

#### **08:51 Leaving My Family Behind to Study Abroad at the University of California, Berkeley**

Kulkarni:

Wow, that's good to know. IIT is, of course, one of the prestigious institutes of India. Still now, it's a dream for any of the engineers to be a part of it. Moving on Madhu, after graduation, what made you think about going abroad for studies, especially US; what was the idea behind it?

Ranade:

It's an interesting story. In high school, I was never one of the students that always ranked high. I used to do well in one subject each semester, but I was pretty much a B+ type of student. Same way in IIT Mumbai for the first two years when it was general engineering and science classes, I used to do fine but nothing

exceptional. It was a five-year degree program. From third year on, classes were mainly related to metallurgy, and you could take electives in which you were interested. That really got me fired up, and I did well in those last three years.

Kulkarni:

Right, so Madhu, what made you leave your family and travel this far to USA? Well, especially in the times when back in 70s, communication was probably not so easy.

Ranade:

It was a big challenge at that time. First of all, to go to the United States, the idea really came from some of my alumni and my professors. Fortunately, after about third year, I did very well in metallurgical engineering. I finished at the top of my class, and that opened a few doors. My (alumni) seniors and professors encouraged me to apply to universities abroad: in the United States, in Australia, in England, and so on. One of the big criteria for me was I couldn't afford anything on my own, so I had to have a full scholarship. I did send out the applications, and, fortunately, I was admitted to University of California, Berkeley with a scholarship and a job, which was a research assistantship. That worked out very well.

### **11:37 From Traveling Around India with My Grandpa to Moving to the USA On My Own**

Ranade:

My relatives were, again, concerned about traveling so far and living on my own - alone. I had a little bit of practice with that living in a dorm Monday through Friday on my own, but, still, this was a big jump. I had never traveled by plane. Then, when I look back at it, somehow my childhood was kind of geared towards traveling and, maybe, experiencing different cultures. When I was about 9, 10, 11, during that time, my grandfather used to take me during summer traveling. He worked for railways, and my dad worked for railways, so both of them were eligible for getting a free ticket to travel, basically anywhere in India, for three weeks.

My grandpa just used to pick a direction. He would say let's go North East, or let's go South. We used to travel as far as we could on Indian Railways to that extreme end of Indian continent. I didn't realize it at that time, but when I explain to people what India is like, I say think about all of Europe as one country. That's how India is. You travel a couple of hundred miles here and there, you run into different languages and so on. When I was traveling, I would meet with people who looked different, who spoke different languages, the food was different, the way of interacting was different. By traveling with my grandfather during that time, it seems like, somehow, I got conditioned to enjoy travel and have the confidence that I could go in different cultures and be comfortable.

For me, it was okay to come to the United States, but again, it was very brave on my mother's part to let me go and not say that, hey, now you have to take up a job and start supporting the family. That was hardship on her part, but she did value education and said, you go! That's going to be the best for you as well as all of us when you get better educated. I came to Berkeley, and, yes, as you said, communications were very difficult at that time. I remember a three-minute phone call was \$13 and that was in 1975-1976. [In today's dollars] It would be more like \$50 for three minutes, so you couldn't afford it. At the same time, we didn't have a telephone in my home in Mumbai either.

Also, leaving India, there were foreign exchange controls there. I started from India with about \$40 in my pocket. I spent about \$20 in Tokyo buying a combination tape recorder/radio. The game plan which we did for first year, year and a half, was instead of writing letters - I was not a good letter writer - I would just

record tapes, and then send them to India. That's how we managed communications until, actually, my mom and my siblings were able to come and visit me in early 1979. Somehow, we managed. It worked out.

### **15:40 Graduate School at UC Berkeley – A Rigorous Curriculum but An Enjoyable Time with Friends**

Kulkarni:

Wow, that's interesting. How was your life during graduation, during those times?

Ranade:

First, I had to learn conversational English. Throughout high school, I learned in my own mother tongue, which was Marathi. Education in IIT was in English, so I could read and write English very well, but I didn't understand the local accents and slang. Also, my professor in UC Berkeley was an Englishman. That didn't help either. What I used to do was to listen to Walter Cronkite on the evening news [on TV]. That really helped me a lot. At Berkeley, even though we were students and had a very limited budget, we found ways to enjoy ourselves. During weekends, we would pile up in somebody's car and drive to Napa Valley. At that time, Napa Valley was not very well known, but we knew we could go, take picnic food, and have free wine tasting, so there we went.

We would pile up in a car and go to Monterey, Carmel, enjoy on the beach, take sandwiches with us, and so it was fun. Also, the school was pretty rigorous. It really made you work, but because I had gone through a five-year [undergraduate engineering] program, I had the flexibility in Berkeley to take some electives. I was able to take classes in the chemical engineering department, in the business school. I learned a little bit about finance, learned about project management, learned a little bit about industrial engineering. I think it really expanded my horizons as I went forward.

All in all, my graduate school at UC Berkeley was tough. You had to work hard, but it was also very enjoyable and I had a group of friends there. Both those who came from India as well as from America, from Australia, from Canada. It was a good time.

### **18:23 Testing Out the Waters of Industry – A Desire to Apply Coursework to Real Life**

Kulkarni:

That was a pretty interesting story about your graduate life, Madhu. 1977, you graduated. How was your first professional job in the industry?

Ranade:

Yes, as I was getting ready to finish my master's degree, I was also enrolled in a PhD program at that time. So, I had completed my coursework, had done my prelims. But then I started thinking - is what I'm learning really relevant to real life, to the industry? I thought it would be a good idea to test that out by working in the industry. Also, I wanted to earn some money, live a little better, and also support my family a little bit. I started applying for jobs along with a couple of my friends. My friend, Pari, was completing his MBA, and we helped each other prepare resumes. At that time, it was on a typewriter. Can you believe that? Also, [we had to] stuff the envelopes, print the addresses, and put stamps on. Two other friends, Rajeev and Ashok, they helped as well.

Both of us sent several resumes out, and I got several kind of thanks, but no thanks-type of responses, because I was on a student visa at that time. Fortunately, one of the research directors from Inland Steel

came on UC Berkeley's campus for recruiting, and my professor, Professor Evans, knew about my interest in steel. It also helped that my capstone project in IIT Bombay, or IIT Mumbai now, was "The feasibility of a mini steel plant based on sponge iron", or direct reduced iron. Then, my research for my master's degree was on "Metallization of iron ore pellets". That fitted in nicely with this company. I interviewed with the director, and that's how I got the job. Since he was recruiting in the raw materials area, it became a natural fit. Once I had the offer, I jumped at the chance.

### **21:19 The Transition from Sunny California to Windy Chicago – Working in R&D**

Kulkarni:

From California, you moved to Midwest, is it? ~~19-~~

Ranade:

Yes, to Chicago.

Kulkarni:

How was the transformation over there from sunny California to windy, cold Chicago?

Ranade:

Well, I didn't know at that time. California had perfectly fine weather. Also, when I came for an actual site interview at Inland Steel, I found out that although the corporate office was in Chicago, the actual R&D lab and the plant were in East Chicago, Indiana. It was, I think, Labor Day weekend, and they put me up in a hotel in Chicago. I walked around downtown Chicago, went on Lake Shore Drive, saw Lake Michigan with a lot of boats and so on. It was nice, sunny, 80 degrees. So, I thought what are people talking about cold winter? I didn't really think that much about it. When the job offer came in, I said yes. The city was nice. It was close to where the plant was, and I could live there.

Kulkarni:

How was your first experience working in the R&D facilities in East Chicago?

Ranade:

It was amazing because Inland Steel was a [relatively] small company. It was a one-plant company, but it also owned iron ore mines as well as coal mines. They were just starting research in raw materials area. My boss at that time, he said, we design processing and microstructure to get specific properties in steel. Is there something like that, that is important for raw materials? Go find it. What type of processing should we be doing? What type of properties should iron ore have to make the blast furnace more efficient?

That's how my journey started, from iron ore to coal mines and coke plants. I always wanted to learn how these materials were being used in the next operation. It was kind of a natural progression going from raw materials side to iron making, then to steel making, then to rolling, and then galvanizing and so on. I just wanted to figure out what do internal and external customers want? How can we make the product, basically, better, faster, and cheaper than anyone else?

That [Raw Materials Research] group started with a blank sheet of paper. There were other people who were also hired at that time. It was a nice cohort. There was Don, there was Ruurd, Harry, Dennis, Darshan, Tom. I still remember all of them vividly. Then Pinakin joined us afterwards, and it was Ken, Howie, and



Shank. It was a really strong and effective team. We had fun together, both at work and off work as well.

### **25:28 Raw Materials Research to Plant Operations – Finding the Action and What's Important**

Kulkarni:

You were interested in knowing more about the product. Is that how you moved into operations? How did your role change over time from research to getting into operations?

Ranade:

Yes, trying to find out what was important, was one of the major criteria, or major motivation, for going into operations. But, there were also other factors as well. In order to know what makes the operations tick, you had to be there. You couldn't just work in an R&D environment and try to imagine what is needed. You have to be there. You had to know what issues operators face and what opportunities are there. You can do that only by learning in operations. That is why I moved from R&D into operating technology, and then to operations.

There is another aspect as well. When you are in R&D, you might have a terrific idea. You might have a very thoroughly investigated a proposal, but all you can do is make recommendations. Then, the management and the operators are the real decision makers on whether to do it or not. One of my other motivations to go into operations was to really make things happen. That's where the action was.

### **27:22 Noteworthy Early Career Influencers – Thought-provoking Challenges and Mentors**

Kulkarni:

Did you have any influencers or mentors during your time, initial days?

Ranade:

During the initial part of my career, lots of them. They really helped me. A couple of things I remember very vividly, my first boss, Bill DuBroff, he taught me that just having the knowledge and expertise is not enough. You have to be able to articulate how it can be translated into productivity or efficiency or cost improvements. Then, the General Superintendent of Iron Making, Sam Kapitan, insisted that before I make a single recommendation, I spend couple of months in blast furnaces, so I did that. That was very valuable.

Frank Kik who was superintendent of the giant No. 7 blast furnace, which was being constructed at that time, asked a very simple but profound question. He said, Madhu, we have this blast furnace that's going to be the largest blast furnace in North America, and we're going to use the same raw materials as we have been using for the last 25 years in furnaces that are one third of its size. Is that the right thing to do? He just asked questions, and that got the wheels turning. It challenged me.

Later on, General Manager of Steel Making said we have this joint venture coming up with Nippon Steel, where we're going to make interstitial free steels and then roll them and coat them to make galvanized steel for exposed automotive applications. But, I don't think our hot metal is of right quality to make those type of low phosphorous, low nitrogen, and interstitial free steels. Figure out how we're going to do that. That got, again, a completely different direction going.

Beni Dasgupta, who was General Manager of Research at that time, he had run electric furnace operations, as well as BOF operations. He gave me my first break in the operations, and he helped me understand that

there is as much value in helping operators recover successfully from an operating problem, and be with them side by side, as much as developing a breakthrough technology. It's when you can be there, shoulder to shoulder, with the operators when they're having a tough time and help them in their task to recover from a breakdown, you develop a camaraderie that is just invaluable.

These senior managers all took time early in my career to influence me, and that was just precious. I am really indebted to them.

### **31:23 Making Some of the Biggest Career Challenges into Opportunities**

Kulkarni:

You spoke about IF steels and you also spoke about the biggest new blast furnace, and you took them as a challenge. But, what would you term as your biggest challenge you experienced in your career?

Ranade:

There were big challenges. It might sound cliché, but there were also opportunities as well. One of the things I found out was there was nothing that was just purely a technical challenge. It was a mixture of a whole variety of things and... Let me think. First thing was that No. 7 blast furnace, that was an operation that had run quite well in the first three, four years. Then we encountered severe hearth chill, or it's called also a frozen hearth. It took about, I think, 30-35 days to recover. Then later on, we installed coal injection on that furnace, and then, if there was any equipment problem, we lost coal injection. We used to go into a hearth chill. That was unbearable, both from the tough time you have in casting the furnace at that time, as well as from a profitability standpoint for the company.

I remember sitting on a bucket on a tuyere platform at two o'clock in the morning, watching through tuyeres to see if there was slag that was coming out as the furnace was being brought on-stream slowly. When that didn't work out, basically, we had to let the metal drain out of those tuyeres. It was quite a sight. At that time, Bruce Willis was in a movie called Armageddon. The effects in the movie and what we are seeing in the operation was very similar. We had a whole group of operators who worked together night and days, and guys like Wendall Carter, Don Zuke, John Ricketts, Eric Knorr, [Keith Fodness, Jon Reimer] all helped with the furnace recovery. Later on, they successfully developed preventive and remedial practices that were used in many other operations.

### **34:27 With Strong Leadership, Converting Burns Harbor into a Profitable and Efficient Operation**

Ranade:

The other part was when I came to Burns Harbor, this was much later in 2007, the union officials told me that, "Hey Madhu, this is a world-class operation." From what I could see in terms of results, it wasn't! I asked them, why do you think this is world-class operation? Out came the answer that in 1985 or 1986, Bethlehem Steel's president had visited the plant and had told the entire union membership that Burns Harbor is a world-class plant. Well, that was 20 years ago, and in those 20 years, the world had passed Burns Harbor. It's a plant that has terrific raw material costs advantages, but those were being lost in the, I would say, deficiencies in the downstream part of the plant.

We set out to increase productivity of the steel shop, which was the bottleneck to 50 heats per day. These were 300-ton heats, so pretty big boost there. Again, terrific folks on my team, like Jim Bradley, Keith Fodness, Tim Candiano, Greg Hill, Ron Kostyo, and Dale Heinz all chipped in. They made it happen for the downstream area. We very successfully reduced scrap generation. It was driven by John Louie, Jay Koch,

Tom Muller, John Henaghan. It was a strong team. By the time we were done, in three, four years, Burns Harbor was really humming to be a very efficient and [highly] profitable operation.

Interestingly, we were looking at energy efficiency, too. And, one of my team members, Larry Fabina, worked with the entire plant, and Burns Harbor was the first plant to receive the ENERGY STAR certification. That was at Burns Harbor. It was something completely different when I came to Columbus, Mississippi. That was also interesting.

The Columbus plant was fully operational but was not profitable. So, with the leadership team's help here, we diagnosed that there were some issues in terms of scrap mix costs, in terms of product mix, product quality, and claims. And so, we went to work together on that. Once all people understood what the goal was, what the objective was, what we need to do, they really work together. Although the challenge was pretty big, within a few months, the plant was cash positive; [all due to] the fantastic team we had here: Tony Gurley, Kamallesh Mandal, Stan Davis, Mark Pole, Bill Sears, Jeff McLain, Bob Johns, Dennis [Gates], Lisa [McAlexander], and more. All these people really built a strong team, and the plant became profitable in a very short time. It also became the first minimill to make more than three million tons [in] a year. It was a challenge. It was difficult, but when you have the whole team marching in the same direction, working together, you can achieve tremendous things.

Kulkarni:

I still have that shirt with me which calls for three million tons a year for Columbus. [~~Crosstalk 00:45:41~~]

Ranade:

That's exactly right.

## **PART 2**

### **00:29 Being An Active Society Member – Networking and Giving Back to the Profession**

Kulkarni:

All right. Madhu, when did you first hear about AIME and Iron and Steel Society?

Ranade:

Oh, I first heard about AIME while I was still in graduate school. It was 1976, and my professor took a group of students to the annual meeting, which was in Las Vegas! We thought, as students, that's fantastic. It was a bicentennial year, so I remember breakfast was 76 cents. It was really fascinating. I found it terrific that you could go to a conference, and you had industry experts, academics, share their knowledge so freely. There was so much to learn. I kept on jumping from one session to the next. Then, in the evening, we would go out on the strip and enjoy the sights and sounds. It was fun.

Kulkarni:

How did you end up participating in these organizations over the years?

Ranade:

Let's see. I've been member of what was then Iron and Steel Society, and now AIST, since 1978, early in my career when I was actually, truly, a metallurgist. Now, I'm far away from it. During that time, I did present

some papers. Also, I joined the Ironmaking Program Committee to develop the program for the annual conference. I also served as a President of the Midwest Steelmakers Chapter. Along with Iron and Steel Society, I was also fortunate to attend some conferences in Europe as well as in Japan. Later on, I encouraged my team members to participate in the AIST meetings, conferences, serve on committees, because these are great networking opportunities.

On the other side, as a part of operations, I was also member of the AISI's Operating Committee. On one hand, I was meeting great researchers, great professors: Wei-kao Lu, Keith Brimacombe, Gordon Irons, Brian Thomas, Dick Fruehan, Alan Cramb, just to name a few. Then, in the Operating Committee, I was meeting very well-known operators and researchers that were applied researchers, like Fred Rorick, Dale Heinz, Joe Poveromo, [Ed O'Donnell, Eric Hauge]. It was very energizing. Throughout my career I have always encouraged people that work in the steel plant, whether they are engineers or operators or workers, to become part of this big international organization, because it really helps you. It opens your eyes.

Kulkarni:

What would you say are the benefits? I mean, you have been an active member of ISS and AIST over a long period of time. What do you think are the most important benefits of being an active member?

Ranade:

Oh, there are so many. As I mentioned, it has great networking opportunities. You get to know what's going on in your field. You meet suppliers. You hear about the latest technology. You can get to size up your competition as well, and learn what's going on in the industry. The biggest thing in my mind is, you're able to also give back to the profession by making presentations and just networking. Most importantly, you don't become obsolete. You don't become a relic of the past because you're always keeping up with what's going on in the industry.

### **05:30 Mittal Steel – Traveling the World and Learning About the Financial Side of Business**

Kulkarni:

Okay. Madhu, early in your career, you were part of Inland Steel, and it was taken over in 1998 by Mr. Mittal. Then Mittal Steel took over the International Steel Group in 2004. What was your experience through all these changes and acquisitions?

Ranade:

Initially, it was tough, but it turned out to be a valuable experience. I learned so much. Mr. Mittal gave me the opportunity to be part of his due diligence teams for acquisitions. This enabled me to travel all over the world and visit different plants, and to learn from them, as well as, when those mills were acquired, to help them improve their efficiency. I had the opportunity to travel to Germany, France, South Africa, as well as some distant places like Kazakhstan, Slovakia, Romania, Turkey, Poland. Just steel mills in places you would never think you were going to go to and be able to visit.

Being part of the Mittal Organization allows you to learn a lot about the financial side of the business, which was valuable later in my career. Then, when ISG was acquired, being part of the AIST also helped because most of the people in ISG knew me because we were colleagues in the AIST program committees or meetings. It was fairly easy to achieve the integration and achieve the synergies that were expected on hot side of the business. People from ISG, like Eric Hauge, Gary Norgren, Tom Russo, Dale Heinz, and Terry

Fedor, they accepted me readily because they knew me as a colleague and a professional. Being part of the AIST helped there, and I learned a lot from the Mittal Organization on financial side of the business.

### **08:10 Plant Manager of Burns and Indiana Harbor – Teamwork, Responsibility, and Safety**

Kulkarni:

After traveling all over the world, with acquisitions and stuff, you decided to stay back and settle down as plant managers for two big integrated steel facilities, Burns Harbor and Indiana Harbor. How was your experience over there?

Ranade:

It was a very humbling experience. These are large plants, where you have many [thousands of] people working in there. You quickly find out that, hey, you're not going to be able to know all the employees. You're not going to be able to know all the processes or products or customers. It really brings home the importance of building a really strong team and then trusting them to do their job. You can set the direction, you can develop a game plan, but then you have to let your team execute that game plan. Because that game plan is going to change as the situation develops, and they are the best judge of making adjustments as you go along. As long as everybody is working for the same goals, you can achieve the objective.

On the personal side, being general manager of these plants, I also felt a lot of responsibility to the employees. I felt these employees and their families are relying on me for their livelihood. For making these plants continue [to operate profitably] and provide the employment. Safety was always at the top of the mind. Everyone has to go back home safely, and you had to keep on thinking about ways to improve, become customer-preferred, and have operations that will remain profitable throughout the [business] cycle, so you didn't have to lay anybody off. And, all were able to keep up with their family needs. I always felt that, apart from everything in the plant, you have these large number of people really relying on you to steer the ship in the right direction.

### **11:00 Working With Unions – Keeping Up Employee Morale and Modernizing Work Practices**

Kulkarni:

Two big plants and so many employees, and they were all union employees. How was it, working with union groups?

Ranade:

The unions are different in each plant. You cannot really generalize; the union at Indiana Harbor was different from union at Burns Harbor. One thing I always felt, was that 98, 99% of people who come to work, they want to do a good, honest job and go back home safely to their families.

Now, when you have plants that have 4,000, 5,000 people, there are always 1 to 2% who are exceptions. Those 1 to 2% take most of the time of the union leadership, as well as management. I felt my job was to really focus on those 98, 99% of people who were ready to come to work, do an honest day's job, and do well. But, I couldn't let those 1 to 2% of exceptions really affect the morale of the rest of the group. Those things had to be taken care of, but you cannot spend too much time on those 1 to 2%. You had to spend majority of the time on those 98, 99% of good employees.

Working in a union environment, I always felt that it is time to discard old labels that are used for union officials. For example, historically, the lead department union official is called as a “griever”. That has such a negative connotation for everyone, right from the start. That history shapes a lot of union - management relations in the plant.

At Burns Harbor, it took a lot of time in the 2009-2010 recession to convince the union that work practices had to be modernized. Things had to change as the business dwindled to 40% of normal. Once they understood the depth of the recession and that there was no better option, the union came to party. They were very cooperative and helped change the work practices, change the bonus plans. Later on, we jointly developed a training for maintenance workers [to replace those] that were retiring, and also opened the community colleges to have that [an apprentice-type of] training program.

The union management relationship improved as commonality of goals was understood, and that really helped Burns Harbor achieve record results in 2012, but it wasn't an easy process. It's something, I think, you learn a lot, but, ultimately, you have to know that they are all people. Their families have the same goals and aspirations. It's just [that] you have to make sure you don't let those 1 to 2% exceptions, those bad apples, spoil the whole barrel.

#### **14:55 A Time for Change – Success at Columbus, Having a Conscientious, Hard Working and Creative Workforce**

Kulkarni:

You said that 2012 was a [record] profitable year for Burns Harbor, after all these struggles in the recession times of 2009-2010. After that, what made you move to a new role with Severstal North America in 2013?

Ranade:

Severstal came in with a very, very interesting proposition. They said they have this brand-new mini mill that is fully operational but not profitable. My challenge would be to make that mill profitable and do that quickly. Also, after running a five-million-ton operation at Burns Harbor for nearly seven years, it was a time for change - for me, as well as for the plant, so they could have some fresh ideas come in. I had a strong leadership team in place. The talent pipeline was good, and we had come successfully through the deep recession.

In fact, 2012 was a record year, until at least that time for Burns Harbor. I felt comfortable in moving to Columbus on one hand, knowing that this is a challenge that's going to really energize me again. On the other hand, Burns Harbor would do just fine with the leadership team that was in place and the systems that were developed and applied in the plant.

Kulkarni:

You were managing two steel mills, integrated plants. The process of a mini mill is completely different. How was that change like?

Ranade:

It was fun. It was fun. It was highly energizing. The mill had some cost issues and yes, some quality issues, and not all departments were working together. However, I noticed that the employees are terrific. They all wanted to do what is the right thing to do for the plant. The workforce is conscientious, they're well-educated, and they work hard. Most importantly, they really cared. They cared for each other, and they

cared for success of the mill. If you went to them with something, they could do better; or, ask them how you could do this better, they would come up with ideas, and they would make it happen. They would make it happen really quickly.

I loved working with them. After I oriented myself to the operations, and I believe each plant is different, so you cannot do the same things you did in one plant in the other plant. You had to evaluate what the needs are, what the people are, and then figure out what's the right approach to proceed further. We spent some time working together with the leadership team, trying to find out: what are the problems, what can be done better. Once we had that common purpose, we were able to fix the cost issues and insist on quality production. The market was also improving, and we developed the right products for that market. In a few quarters, things really turned around, and it was the success that was earned by everybody at Columbus.

### **19:03 My Family's Transition to Columbus and Steel Dynamics Acquisition of Severstal**

Kulkarni:

Now coming to personal side, Madhu, you were living in Chicago for quite a few years now. You had a family. Then moving to Columbus, Mississippi from Chicago, how was that transition?

Ranade:

Yeah. Actually, I was living in Northwest Indiana [while working at Indiana Harbor and Burns Harbor]. It's about 45 minutes from Chicago, but it's a suburban environment. I came to Columbus in Mississippi. People in Columbus are very friendly. In fact, it is known as the friendly city, and it's really true. Although I look different, I speak with a different accent, they welcomed me warmly. The local leadership invited me to join the Golden Triangle Development Trust. I was also asked to join the local community college advisory board. Also, the Rotary Club. My wife got to know ladies in the mill, as well as in the town, and develop close friendships. I enjoyed living in Columbus and didn't miss the snow.

Kulkarni:

Yeah, for sure. I can understand. In 2014, Steel Dynamics acquired Severstal North America, another transition for you. How was that transition like?

Ranade:

It came as a surprise. When I took the job at Columbus, I never thought that the owners of the Columbus Operation were going to sell it so quickly. For whatever reason, that was the decision, and there was a lot of fear and uncertainty among the workforce [at Columbus]. Fortunately, I had some experience in acquisitions, by being on the other side, the side of the acquirer, from Mittal Steel, later on, ArcelorMittal; so, I thought I could help.

Columbus team navigated through that very well, through the [transition] time period. When SDI was successful in acquiring Columbus, that's the best thing that has happened to this plant and all employees, including me. SDI brought a really good compensation system which ties everybody's motivation together. You not only have bonuses, but you also have stock that is given and profit sharing that is given to each-and-every employee in the plant. It's not restricted to only top management, which is very, very unusual in the business.

That's why everybody is willing to try new things and also help each other. For the plant, help is available whenever you need it, either from other plants or from corporate. But, largely, you run your own business.

Of course, capital investment and sales are coordinated, but it's basically a highly decentralized organization. In the plant itself, there are only three management levels, and there is no corporate bureaucracy that can take up your time unnecessarily.

Also, SDI is very solid financially, so it can afford investments in the mill, in the people, in the customers, and communities. In 2018, we at Columbus, the team, developed a series of interwoven projects to go with the company's strategy to move Columbus to more enriched product mix with more value-added products. We called it "Vision 2020". It's almost complete now. As our CEO, Mark Millett mentions, it's going to result in higher highs as well as higher lows in the business cycle for Columbus, making the plant always solidly profitable.

#### **24:22 Satisfaction From My Teams' Successes and Recognitions in the Steel Industry**

Kulkarni:

Okay. After nearly eight years of Columbus, in Columbus as a general manager and vice president, you're moving into a new role now. Can you first tell about any recognitions you received in the industry, over the period of time you have been in steel industry?

Ranade:

Early in my career, I was honored to receive peer recognition in the form of J.E. Johnson Award as well as T. L. Joseph Award from the Iron and Steel Society. On the outside, I was also quite active in the American Heart Association. For their fundraising program, I was the Executive Director for Industry in Northwest Indiana. I've also served on the board for the WIC program in Hammond.

In terms of recognition, my professional satisfaction really comes from the team's successes. When ideas are not just ideas, but they are implemented, and they get results. People benefit from it. Customers benefit from it. Shareholders benefit from it. It is that.

There are events, early in my career, like fluxed pellets, coal injection, at the big furnace exceeding 10,000 tons per day, increasing throughput and reducing scrap at Burns Harbor. Believe it or not, at one point, that plant used to be proud that they never purchased scrap from outside, because there was enough scrap generated internally. I just didn't think that was right. That got fixed, as again people understood what was happening and what was the impact of it. The scrap reduction effort, yield improvement effort helped there. Development of high-strength products from the CHTL line there, or transition of Columbus to more value-added products and being a very profitable plant in the stable of Steel Dynamics, those are the things that the team does while I'm here. I get more satisfaction from those [team accomplishments].

#### **27:15 Embracing a New Role – Applying My 43 Years of Learning in the Steel Industry**

Kulkarni:

Now, your new role, you will be General Manager for Raw Materials Supply and Strategy. Can you elaborate, what are you going to do now in this new role?

Ranade:

Moving from Columbus is bittersweet. I really love the plant. I really love the people here. It's going to be difficult, but I'm also excited about this new direction. In this new role, we will be evaluating and securing raw materials for Columbus, as well as the new plant that is being built in Sinton; also, to some extent, for



Butler with pig iron and hot briquetted iron. Amongst the three plants, it's going to be a one-billion-dollar-a-year business.

It's going to be very important from cost perspective, as well as being able to make high-quality products by reducing impurities that come in through scrap. It's got to be done right technically, operationally, logistically, and commercially. I have people like Kamalesh Mandal and Sanjeev Badola, who are really experts in their area. So, it's going to be fabulous. I will also help all the plants in a variety of ways, using what I've learned in my 43 years in the industry so far. It's going to be a pretty active task.

### **29:15 My Wife Karen and Her Strong Support Throughout My Career**

Kulkarni:

Okay. Overall, 43 years in the industry. How was your family life during your professional career, Madhu?

Ranade:

Yeah. I met my wife in Chicago. She's from Boston. After getting to know each other for about a year, we got married. Again, my mom supported me, and Karen is a really strong support for me throughout my career. Without her, I would not have been able to devote as much time as I did to work and as much energy I used in the business side of things.

We have two kids. They are married now and both are smart. They are caring and have done very well in their careers. When they were growing up, I did always make time to attend their ball games, their plays, their graduations, and other activities they were involved in. We were able to take vacations; travel in the U.S., as well as travel abroad. I hope both Brian and Erica think they have had a good childhood.

Kulkarni:

Okay. Coming back to Karen, how was it? We are from Indian society, Indian heritage, and we go with this arranged marriage situation most of the time. How was it convincing your mom, Madhu, during that time?

Ranade:

Oh, boy. Yes. Typically, parents have a big role to play in India on the selection of partners for their off springs. My mom started in that fashion, too. In fact, when she came to U.S. in 1979, she had a portfolio of girls who she had pre-screened for seeing if I was interested in any of them. By that time, I had met Karen. I introduced Karen to my mom, and they liked each other. They got to know each other much better. In fact, we had a road trip to visit one of my friends in Buffalo, New York. I remember there were five of us traveling in a car on that long trip. You get to know each other quite well.

Karen likes interacting with different cultures. She really, immediately, took liking to my sister. In fact, Karen used to be a social worker at that time. My sister liked it so much that she followed in her footsteps and got her MSW degree in India and [worked as a social worker]. Recently, she has started her own firm, helping people with adoptions. It all worked out, but, yes, it was off the beaten path, so as to say.

### **33:11 A Rewarding Life and Reminiscing Past Projects**

Kulkarni:

Yeah. I agree. Okay. Switching gears now. If you look back into your all 43 years of illustrious career, is there anything you think you wanted to do differently, or change anything?

Ranade:

I don't think I will change anything. I mean, I don't have any regrets. I am very happy with how my life has turned out. How my family's life has turned out. I feel I've been able to help people at Indiana Harbor, at Burns Harbor, at Columbus. It's been very rewarding in that fashion.

Sometimes, I do wonder about what some of the things we worked on, and they didn't go forward for whatever reason. One of the things we had worked on, when I was at Inland Steel, was a project for replacing coke ovens and blast furnaces that were very old, as well as BOF vessels, with two DC electric [arc] furnaces, which were going to use some hot metal, [that is] liquid pig iron from No. 7 blast furnace, as well as use some DRI and HBI from Mr. Mittal's plant in Mexico [and Trinidad]. Then use scrap and balance between the three [components] based on the cost side and the product need side. That didn't go forward because of the dot-com bust. The economy tanked, and the timing just wasn't right. We had also looked at building a third galvanizing line for the joint venture with Nippon Steel. Again, that didn't come to pass.

In Burns Harbor, we had developed a series of integrated projects. We called it the "Footprint". Again, because of the financial situation, they weren't able to go forward. Then, when I look at Columbus, all those three things have happened. We have two [DC] electric furnaces that are running with a mix of pig iron, with HBI and scrap. We have built a third galvanizing line just recently, and we completed this whole strategy to take Columbus to more upmarket, with more value-added products. Columbus is set up pretty well. I don't know how those [earlier]things would have turned out, if they had happened at that time. But, I got a second chance with that at Columbus!

### **36:28 Advice to Engineering Students – Learn Beyond Your Field**

Kulkarni:

Okay. Moving on now. What would be your advice to engineering students? How about those who recently joined the steel industry?

Ranade:

I can share what my thoughts are, but each person is unique. Different things work for different people, so there is no one single recipe. Everybody has to find out what works best for them. Find their own way, so as to speak.

Just in terms of what I learned, I would say, for the students, learn not only what's in your field, but take classes in other disciplines as well. If you are studying metallurgical engineering, learn something about mechanical or chemical engineering. Learn about [business and] personal finance. Also, subjects in humanities. That will really bring a deeper understanding of how things come together. If you're training to become an industrial mechanic, learn a bit about what electricians do, what automation technicians do. Definitely, definitely sign up for an internship or a co-op program.

### **38:03 Advice to New Managers – Work As A Team, Encourage Creativity and Innovation**

Kulkarni:

What would be your advice to managers, or newly promoted managers?

Ranade:

Newly promoted managers, I would say, you're there to make your team successful. It's not about you. It's about what the team is going to make happen for the company, for the shareholders, and all the stakeholders in the plant.

Surround yourself with smart people and be accessible and available to your team members. You can accomplish a lot by asking people rather than ordering them around. Let your team use their own creativity and innovation. You can give them guidance; you can give them the direction. You can work out a strategy, but let them contribute to it. Let them design the nuts and bolts, details of it.

If they come up with an idea, don't tweak it too much because then it will no longer be their own idea. If somebody thinks it's their own idea, they are going to move mountains to make it successful. If you think it has a pretty good chance, let them go at it. You will be amazed the type of results people can accomplish.

Also, help and mentor others. Learn other facets of the business. Not just your own operation, but learn about what finance does, what sales does, what logistics does, to broaden your horizons. That's what will prepare you for moving up in your career. When you're in management, you also have to look outside of your plant. Look at the community, look at your profession. What can you give back? Execute your day-to-day work well, but also think about future. Plan ahead for your team, so they will always be prepared, and they won't be surprised when something comes along. That will make your company successful for tomorrow.

The big thing to realize is, when you are a manager, you are really a leader. You're not ordering people around. You're setting direction, but you're letting people do their thing. You're going to train them, you're going to provide them the right tools, right processes, but then let them loose. Let them do their thing. If there are any issues, you deal with them, but you'll be surprised how well people do when they have that empowerment. They really become engaged in the business.

#### **41:25 A Thanks to My Mom, Wife, Friends, and Mentors**

Kulkarni:

Okay. That's good to know. Is there anything else you would like to discuss, Madhu?

Ranade:

I feel incredibly lucky and privileged to have the experiences I have had so far. I just owe everything to my mom, her name is Shalini, for constantly supporting me, despite the hardships she had to endure. Also, to my wife, Karen, who stood, steadfastly, by me and took a major role in raising our children.

I owe a lot to my education in IIT, in UC Berkeley, which opened the doors for me. My friends who helped me at a crucial juncture in my life. I have learned tremendously from every manager I worked for. I'm grateful to Mr. Mittal, Mr. Mordashov, and Mr. Millett. Surprisingly, I think M is, kind of a lucky letter for Madhu. [I am grateful to my teams at Indiana Harbor, Burns Harbor, and Columbus who always went above and beyond.

Also, to AIST and AISI and other organizations, including the local community organizations who helped me by sharing their knowledge, their expertise, and providing a fresh perspective which I wasn't necessarily aware of. Going forward, I'll continue to contribute to the company and to the profession and the people. Work is not really work. It is always invigorating and real fun.

Kulkarni:

Okay. That was pretty good, Madhu. I'd like to say here that you've certainly had an interesting life. I'm really privileged, and I enjoyed and I had the pleasure to interview you. Many thanks, again, for sharing your background, your life stories from your childhood, your accomplishments with AIME for its oral history program. Thanks a lot, Madhu.

Ranade:

Thank you, Nikhil and thank you, Michele.