



5,743 ATTENDEES





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A Retrospective

by Sam Kusic, News Editor

Should you find yourself doubting the viability of American steelmaking, perhaps you'll find some relief in the recent words of Lourenco Goncalves, chairman and chief executive officer of Cleveland-Cliffs Inc.

As he put it during the AISTech 2018 Town Hall Forum: "The U.S. is a powerhouse in manufacturing, and we will continue to be a powerhouse in manufacturing. If your reason for not believing in the steel industry is that you believe manufacturing is moving outside of the United States, you are wrong. The steel industry has a prominent place in a very vibrant economy."

Need further affirmation? Then how about this statement from Mark Millett, chief executive of Steel Dynamics Inc.:

"Never in the last 30 years has it been more positive on a global perspective."

Or how about the words of United States Steel Corporation executive vice president James E. Bruno:

"We're on the verge of a potential renaissance. There's a lot of innovation that's going to come from the steel industry."

And if you were paying attention in between debates over cheesesteak sandwiches and Rocky Balboa references, you very likely would have heard other similar comments on

the sidelines at AISTech 2018, AIST's annual conference and exposition which was held in Philadelphia in May.

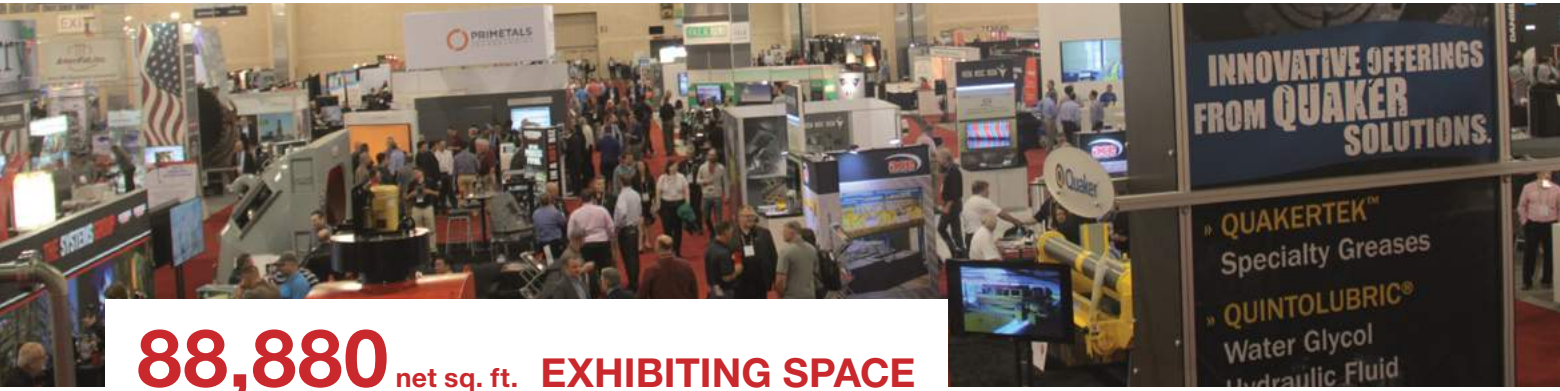
If there was one key thing to take away from AIST's once-a-year celebration of steel technology, it's that the industry, both here in the U.S. and abroad, is in a much better position, even just

a year or so removed from the worst down cycle since the Great Recession.

Consider: Prices are at some of their highest levels in years. Steel demand in most regions of the world is forecast to rise. And steelmakers are investing in new plants, equipment and digital technology.

The optimism at this year's conference was palpable, said AIST executive director Ron Ashburn.

"Through the last down cycle, from which we are not more than two years removed, some industry participants were seriously questioning their ability to continue as a going concern. But this year, as I walked the floor of the exhibition hall and spoke with members, the mood was strikingly different. Optimism abounded, not only about the future



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of steel as a material, but as a profitable industry especially here in North America,” he said.

This was the 15th installment of the show, and it drew 5,743 attendees, some from as far away as places like South Korea and Australia. For participants, it was a chance to connect with industry colleagues, expand their own knowledge and hear directly from industry leaders about the state of the business.

Of the things they heard during the week, one was that the automotive sector appears to have an increasing appetite for advanced high-strength

steels. In delivering the William T. Hogan, S.J. Lecture, AK Steel chief executive Roger Newport said that interest was evident during the North American International Auto Show.

“Steel — yes, steel — was a huge part of the buzz throughout the show. Members of the media, car enthusiasts and the automakers themselves talked about the benefits of performance and value of advanced high-strength steels. And even auto advertising touted steel’s benefits over other materials, like aluminum,” Newport said.

Newport said that these steels, which offer high strength and increased elongation in tandem, will allow the industry to offer a high-value, lightweight material for future vehicles.

Following the speech, Newport was asked during a press conference whether he thought steel had won the lightweighting material contest. He wasn’t ready to declare victory, but he suggested that steel has the advantage and is leading the race, owing to not only its value proposition, but to its relatively low environmental impact.

“Over the past three years, the amount of advanced high-strength steel used each year in automotive applications has been 10% higher than forecasted,” he said.

He added: “If you’re truly trying to improve the environment, life cycle emissions are what you need to look at. Steel really provides the best value to the automakers and provides them the most flexibility.”

Automakers would seem to agree. In the past year, more than 60 steel-intensive vehicles have debuted at auto shows in North America. But this is just the beginning, and it likely will be a few more years before steels see widespread commercialization, Colorado School of Mines professor and metallurgist John Speer told attendees.

Speer delivered the J. Keith Brimacombe Memorial Lecture to open AISTech 2018 and said that companies such as AK Steel and United States Steel Corporation are indeed investing in future production of those steels. However, challenges remain, he said.

“We’re not finished yet with the process development that we need to really enable these steels,” he said.

Among those challenges, he said, is weld cracking associated with galvanizing-zinc penetration at the grain boundaries.

“This problem is being investigated, but we need more process development or more product development to desensitize the steel to liquid-metal embrittlement.”

Speer also spoke to product and process development in broader terms, arguing that the two are intimately connected.

“They’re really inseparable,” he said “You can’t create a new product without the process development that goes with it and the capital investment (needed to) implement that process commercially.”

Although auto steel continues to be a major focal point, it was but a narrow slice of the technical discussions during the event. There were 472 papers presented this year, covering the full spectrum of the steel manufacturing process.

Conference planning committee chairman William Bennett, sales manager for heat transfer equipment manufacturer Melter S.A. de C.V., said he was impressed by the overall quality of this year’s papers.

He added that many of the papers reflected a significant trend in the industry — applying new technology to older systems.

“This is important. I feel as the new generation comes into the industry, they need to have tools they are familiar with in place to do their jobs. They will understand it better, and it will simplify the process.”

Papers presented at the conference also reflected the digital transformation of the industry, which is occurring at an exceedingly faster pace.

“Within the steel environment, we’re now deploying an array of new tools and techniques including smart sensors, robots, drones, lasers, condition monitoring, predictive maintenance, machine learning and microstructure visualization, all coupled with neural networks moving big data with the connectivity of the internet,” 2017–2018 AIST president Randy Skagen said during the President’s Award Breakfast.

“We’re rapidly acquiring the knowledge to curtail most technical problems before they arise... helping us produce steel faster and at lower cost. We have seen the future, and it is now.”

Randy Skagen
2017–2018 AIST president





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550 BRIMACOMBE MEMORIAL LECTURE ATTENDEES



1,450 TOWN HALL FORUM ATTENDEES



“We’re rapidly acquiring the knowledge to curtail most technical problems before they arise... helping us produce steel faster and at lower-cost. We have seen the future, and it is now,” he said.

Indeed, a recent report by the World Economic Forum estimates that within the next 10 years, digitalization could drive US\$320 billion in value to the mining and metals industry, reduce carbon emissions by 610 million metric tons and save 1,000 lives.

With the Trump administration’s Section 232 tariffs having taken effect, international trade policy also took center stage, particularly during the annual Town Hall Forum panel discussion.

On the panel this year were Cleveland-Cliffs Inc. chairman and chief executive Lourenco Goncalves; Steel Dynamics Inc. chief executive Mark Millett; James Bruno, senior vice president for automotive solutions at United States Steel Corporation; and B. Thad Solomon, vice president and general manager of Nucor-Yamato Steel Co.

Panelists agreed that the Section 232 tariffs have contributed to the current wave of optimism that has swept over the industry.

“We are finally getting some of these key issues out on the table. The stance of the administration on trade, along with common-sense regulation and the tax bill, has created some optimism in the general economy,” said Solomon.

They also agreed that as controversial as the move was, it was a necessary step to take.

Goncalves said 232 is balancing the playing field, particularly with respect to China.

“We can’t compete against three things, mostly present in China: absurdly low wages; no controls over pollution, which creates shortcuts unacceptable in the developed world; and subsidies that encourage overproduction.”

Critics have argued that the action needlessly angers close U.S. allies and will likely spark a trade war that drives up prices for consumers and affects demand for products made here and exported overseas.

But Millett said they are worrying about that which has already occurred.

“We’ve been in a trade war for years. I don’t want to be melodramatic, but we are at war with China. And we need, unfortunately, constraints like 232,” he said.

“The import situation of recent years has disallowed the industry to earn its cost of capital. It has devastated the industry. Section 232 action is a necessary evil. 232 is probably not the right structure long term, but there needs to be some structure, and the administration has had the courage to take China and the rest of the world on,” he said.

He said that every economy that has emerged since World War II has been export-based, and every one of those economies has grown on the backs of Europe and the United States.

“One has to wonder how long can those two economies support a growing world?”



James E. Bruno



Lourenco Goncalves



Mark Millett



B. Thad Solomon

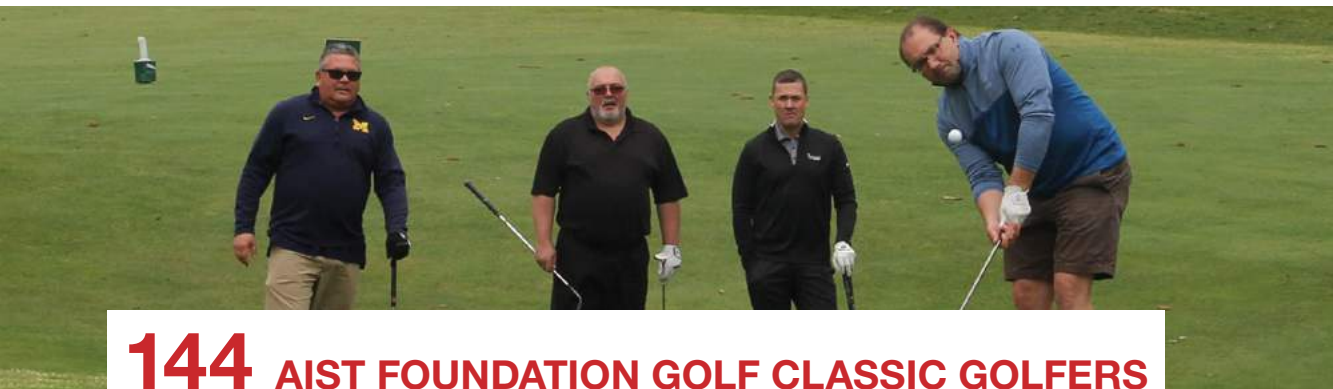




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39 COUNTRIES REPRESENTED

Millett also said the industry has yet to really benefit from the trade action, arguing that the favorable conditions being seen in the market are being driven by underlying demand.

“The health today is demand,” he said. The great thing about 232 is that it should give the present climate some legs. 232 will prevent the cycles that we saw in the fall of ’14, ’15 and ’16. 232 should shield us from that this time around.”

Steel Manufacturers Association president Philip K. Bell also defended the decision, saying during a press conference that the U.S. maintains one of the most open steel markets in the world.

“Steel from all over the world somehow finds its way to our North American shores. So what we have to look at is that despite a series of successful anti-dumping and countervailing duty cases, despite global forums on excess steel capacity, and despite bilateral and multi-lateral talks, imports continue to flood the U.S. market. So the 232 is necessary in addition to all these other things to stem the tide of unfairly traded steel.”

Although international trade was front and center during the conference, another issue wasn’t far from the minds of those in attendance — recruiting the next generation of industry leaders.

And during the University-Industry Roundtable discussion, AIST Kent D. Peaslee Junior Faculty Award winner Bryan Webler said the industry has its work cut out for it. He said that in his experience, steel as a career choice isn’t on students’ radar, at least not initially.

“Most incoming undergraduates have had little exposure to the variety of steel types, processing and applications that are out there — all of that is just lumped together as ‘steel.’ Through research and internship experiences, they start to see the details and the challenges and they can start to

see career options,” said Webler, who teaches at Carnegie Mellon University.

He said that to recruit the next generation, it will be critical for the industry to continue offering students opportunities to learn, such as through internships and research support.

“I think an emphasis on future challenges would also help — what new types of steel are we going to need for the future and how will we make these steels? If we keep exposing students to the details and the challenges of the industry, we’ll see many of them respond and see the steel industry as having viable career options.”

“Anyone who doesn’t think this is a modern, tech-driven industry just hasn’t seen it.”

**Philip K. Bell, president
Steel Manufacturers Association**

Of course, the week wasn’t all strictly business.

Continuing a long-standing tradition, one lucky attendee left the conference as the new owner of a shiny, new Chevrolet™ Colorado pickup truck built from the ground up with advanced high-strength steel.

This year’s winner was Robert Zinck, president of Massasoit Tool Co., a supplier of customized rollers, shafts and other components to the coil and rolling mill markets.

Although his company has been represented in the past, this was the first year he attended.

“It was a valuable trip and worth the time,” he said. “When I learned that I won the truck, I thought, ‘I’ve never won anything before, but this is a great place to start. Thank you AIST!’” ♦

Visit AISTech.org to watch the Town Hall Forum Webcast or view the event highlight videos. See page 48 for more details.

AISTech[®]2018



Town Hall Forum Webcast

Watch leading industry executives debate global steel concerns and opportunities.

2018 AIST Town Hall Forum Panelists



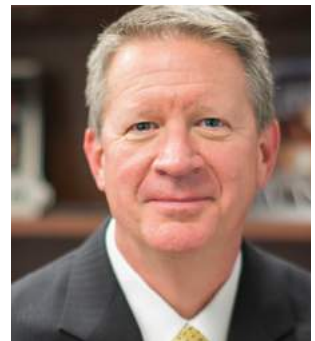
James E. Bruno
senior vice president —
Automotive Solutions



Lourenco Goncalves
chairman, president and
chief executive officer



Mark Millett
president and chief
executive officer



B. Thad Solomon
vice president and
general manager



Topics addressed include:

- Does the imposition of the steel tariff mark the beginning of a meaningful attempt to address global capacity? Or will it yield unintended consequences for the industry and the broader economy?
- Who, if anyone, should be exempt?
- How could the tariff potentially alter market dynamics?
- What forces are impelling capital investment?
- How will new automotive technologies impact steel demand?
- In an economy near or at full employment, which strategies are bearing fruit in terms of maintaining a skilled and talented workforce?

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