



DR. ALAN W. CRAMB • IRON & STEEL SOCIETY



The newest Iron & Steel Society president has the unique experience of serving the iron and steel business both in industry and as an academic. And he credits the ISS with helping to provide him with the opportunity to make the career transition to academia.

Alan W. Cramb began his career in 1979, when he joined the former Inland Steel Company in Chicago, IL, upon earning his doctorate at the University of Pennsylvania. In 1981, he went to work at the Homer Research Laboratories of Bethlehem (PA) Steel Corporation. There, he was the supervisor of research in ladle metallurgy and continuous casting.

At the end of 1986, Cramb joined Carnegie Mellon University [CMU], Pittsburgh, PA, as an assistant professor. He became a full professor in 1995. Currently, he is the POSCO professor of Iron and Steelmaking and co-director of the Center for Iron and Steel Research in the Department of Materials Science and Engineering.

Cramb's research interests include the physical chemistry of casting processes, solidification and the processing of titanium alloys. He has written more than 100 papers and holds two patents in continuous casting. In 1985 and 1986, he received the American Iron and Steel Institute Medal and, in 1987, was awarded the ISS Robert W. Hunt Silver

Medal.

Cramb was named as an ISS Professor in 1992. In 1995, he received the Benjamin Richard Teare Award at CMU for excellence in engineering education.

I&SM: How did you come to join ISS?

CRAMB: My first manager at Inland Steel Company, Norm Mills [ISS President, 1981], ensured that everyone who worked with him was a member. Working for a future president made you aware of many aspects of the Society. Norm actively prodded you to be involved and gave you the opportunity to attend conferences and meetings.

I&SM: What were your first impressions of ISS as a new member?

CRAMB: I realized the Society was a mechanism to meet others who had similar backgrounds and similar challenges and opportunities.

When I first went to Society functions, there was as strong a social aspect to the conferences as there was technical. Perhaps 20 years ago people were sent to conferences as a "thank you" for a job well done. Now, people come because they want knowledge and to network. Conference attendance is now based upon the strength of the program. This development has changed the conferences and the Society.

I&SM: Why have you stayed a member of the Society for 20 years?

CRAMB: To gather information, gain knowledge and share in the wisdom of others. The only way that you can excel is to see what the best people think is important and to try to understand the implications of what they're doing to the industry.

I&SM: How has an ISS membership helped you?

CRAMB: One key to my success at CMU was being awarded the ISS Foundation Ferrous Metallurgy Grant in 1992. It was instrumental in my tenure package. The grant was an indication

to the university that I was supported by the industry. It was also an indication to the university that the industry was supportive of undergraduate research.

The Society helped me even more than that. While at Bethlehem, my co-workers and I were able to present and publish research. The papers earned a number of awards, recognition from the company and eventually led to [CMU professor] Dick Fruehan asking me to join CMU. Thus, my membership in the ISS has been very important to my career.

I&SM: What are your career highlights?

CRAMB: Working with talented people allows one to be successful, and all my career highlights are the outcome of successful collaborations. Thus, my career highlights have been, in chronological order, working and being influenced by Dr. Michael Byrne, [the late] Professor Geoff Belton, W. Edgar, Norm Mills, Regis Leonard, Professor Dick Fruehan and [the late] Professor Keith Brimacombe.

Winning the Ferrous Metallurgy Grant, being appointed POSCO professor and being chosen ISS president are a result of the mentoring I received from this group. And I hope to continue to collaborate with talented people in the future.

I&SM: Speaking of the Ferrous Metallurgy Grant, can you tell us how you used the funds?

CRAMB: I invested it all in undergraduates. The major initiative I had with the Ferrous Metallurgy Grant Program was to encourage more undergraduates to do research related to steel.

I&SM: Was this successful?

CRAMB: A good number of students have gone into the industry or graduate school and will end up in the industry. The great thing about the Ferrous Metallurgy Grant is that it also keeps steel Metallurgy in the curriculum. That's one of the most important benefits of the



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program. Wherever you bestow a grant, you make sure steel does not get beaten out by other metals.

I&SM: You have spent a lot of time on continuous casting research. What advancements/improvements do you see on the horizon?

CRAMB: Casting is a very interesting area at this time, especially with three strip casting developments moving to commercialization. Another interesting area is the application of high temperature microscopy to the steelmaking and casting processes and the advent of oxide metallurgy. I find oxide metallurgy fascinating. Recent work suggests that inclusions, if properly controlled, can be beneficial to the process and not detrimental.

I&SM: How important do you think research is going to be to the success of the steel industry in the future?

CRAMB: Implementation of the results of research will define which companies are going to be successful in certain markets. History shows that performing research is not enough. Many companies have done no research, but have been very good at interpreting the research of others, applying it to their operations and being successful. The issue is how to apply knowledge profitably. People who study the research currently under way in the U.S., Canadian, German and Japanese universities will understand how to radically change products and product quality. That will be a competitive advantage. It is my conviction that we are entering a new era of research. We have used the research of the 1960s and the 1970s to reach the new millennium. To proceed further, new information and knowledge will be necessary. At the university, it is clear that the students of today are significantly smarter, better educated and better equipped than those of 10 years ago. This new breed of engineers will revitalize the industry and be hungry for knowledge.

I&SM: how do you think your career

experience will affect your outlook as ISS president?

CRAMB: I can use it to understand both the industry and educational perspectives of the Society. Obviously the development of young people is very close to me. Successful professors help develop bright young people so that they can attain their academic goals.

In many ways, that's no different than being a successful manager in industry. A manager has to develop his or her own people so they're successful in their own right.

My experience suggests that one cannot be successful alone. As president, I will ensure the Society continues to be influenced by talented people and try to be as inclusive of all the different constituencies as possible.

The president has the ability to ask people to volunteer to lead specific initiatives. I had the opportunity to ask Roy Matway to head a strategic planning initiative on the future of the Society's efforts in education, Peter Glaws to chair the Ferrous Metallurgy Grant Committee and Louise Brinkmeyer to chair the Advanced Technology Committee, to name a few.

In addition, the president must ensure all constituencies are adequately represented. The president must look at all issues only from the Society's point of view. The president must know all the constituencies from the Divisions to the Local Sections to the members who support the Society.

I hope I can help the Society by bringing a viewpoint that is international and member directed. I am an immigrant to the United States [born in Scotland] with many ties to Europe, Asia, Australia and South America. I have attended Local Section meetings in Argentina and Australia and almost all the Local Section meetings in North America at one time or another.

I&SM: What do you plan to accomplish as president?

CRAMB: Accomplishments during the

time one is president are the outcome of the work initiated by others who have gone before. Thus, there will be many accomplishments of the Society during my year of presidency that should be attributed to previous presidents. For example, Harry Follwell [1994] and Keith Brimacombe [1995] started the internationalization of the Society, and I hope to continue this trend.

The Strategic Plan first initiated by John Scheel [1996] has been updated into a living document to reflect the major initiatives of the Society. In the latest rewrite, our most recent president, Mike Sullivan [1999], has given line item responsibility for the plan to the Executive Committee. I think the plan continues to be important, as it is a template of where we are going.

As to my initiatives, which hopefully will bear fruit in the future, I see a number of major issues for the Society, education and the role of the Society, the quality of our conferences, developing opportunities for increased member participation, increasing Society visibility within the industry and developing student participation within the Society. I want to share my thoughts on each of these areas.

The foundation is a key part of our Society that has four major initiatives aimed at the future growth and strength of our industry. These initiatives are the Ferrous Metallurgy Grant Program (FMGP), scholarships, student attendance and involvement in conferences, and the Young Leaders Program.

The FMGP is at the heart of the steel industry's interest in maintaining ferrous metallurgy as part of the education of a materials engineer. Scholarships promote awareness of the industry and help with the increasing cost of a university education. Student travel and involvement in conferences is an excellent way to introduce young people to the industry and allow prospective employers to meet high profile young engineers. The Young Leaders Program identifies younger



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members who are interested in becoming active in Society affairs, leading to a Society that is current and vital.

These four programs are key to achieving the Foundation's mission "to ensure the iron and steel industry of tomorrow will have a sufficient number of qualified professionals." Of course, their success depends upon the financial support of ISS members either as individuals or as companies.

As for education, it is a natural focus of a technical society. The future success of an engineer will be determined by lifelong learning. The growth of information means one has to continually keep abreast of today's technology. Information and technology transfer is a natural role of the ISS. One of our goals must be to ensure members are continually updated through out conferences, symposia and short courses.

Related to this issue is conference quality. The obligation of the Society is to ensure an environment conducive to learning and interaction. Thus, when I say I want us to have a quality conference—the quality of our presented material must be world class and the environment must be world class.

As for member participation, it is vital to continue to involve new people in the Society. In this area, our Local Sections are the key to future success. I have challenged our Membership Committee to increase membership and retention, and I will talk to our Local Sections about this issue.

Not only does the Society have to be more visible to members, but to the industry at large. It surprises me that there are people in the industry who do not realize the Society runs many programs that can help them in their careers. In addition, some people think the ISS and AIME are the same. Others do not understand the difference between the ISS, AISI, IISI and AISE. This is especially true overseas. Clearly, we must improve communications in this area.

Finally, student participation in

our Society is vital for the long-term success of our industry. In this area, the Foundation must become more visible.

I&SM: The ISS just celebrated its 25th anniversary. What should we focus on in the next 25 years?

CRAMB: The key for the next 25 years will be related to improving member services and value. We will be successful, if we can provide knowledge in a timely and efficient manner. We must embrace new technology that allows our members to have rapid access to information. This is more than presenting and publishing material. We must also be involved in easy data retrieval and efficient knowledge transfer. The initiative in computer-based services to permit efficient member interaction through the web is instrumental to this program. But, we must develop a mechanism to allow fast identification of information related to steel problems, so that once the information is identified, it can be accessed immediately.

Professionals today have to continually learn new skills, new information and change specialties. The Society has to be the place that they can turn to when they've been transferred from, for example, steelmaking to rolling and need information.

Companies are decreasing in size. They don't have their own in-house education anymore. The question is how should the Society fill that role? And how do we do it efficiently? I think that's where the education initiative has to go.

I&SM: Is there anything else you'd like to communicate to our members?

CRAMB: The president is a person that everyone should be able to talk to. The only way we can make the Society better is to ensure open communication with all members. I am the current president; Ed O'Donnell is the next president; and Ian Sadler will be the president after Ed. If you have an issue or a suggestion, feel free to contact us. *I&SM*