Q & A With Ray Shook, Executive Director, American Welding Society

Ray Shook joined the American Welding Society in November 2002 as Executive Director. Having spent 33 years in the welding industry, Mr. Shook has a broad background encompassing financial management, strategic planning, organizational development and analysis, contracts administration, product development and promotion, business development and marketing, as well as extensive senior management experience. Most notably, Mr. Shook served for more than 20 years with the Hobart Brothers Company, a leading manufacturer of welding products. During his tenure at Hobart, Mr. Shook held several roles of increasing responsibility, which included serving as President of the Hobart Institute of Welding Technology. The Hobart Institute of Welding Technology is the world's largest training institution with over 85,000 graduates.

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Q: How have the goals of AWS changed since its inception in 1919?
A: The goal of the American Welding Society (AWS) has always been focused on leading the way in supporting welding education and technology development. While that is an unwavering initiative, the ways in which we continue to reach that goal do change. For example, while the welding technology environment changes, the needs of our members and the industry changes. That is why we continuously analyze the current state of the industry, put on more interesting and diverse conferences and seminars, and take on new strategic initiatives. In one such example, we are working to launch our welder workforce development campaign to

help relieve the growing shortage of skilled welders. Coupled with that, it is one of AWS' primary goals to advance the image of welding and advocate welding as a career. To that end, we are developing promotional materials slated for students, parents, and teachers to help advocate the industry's diverse career paths. We also continuously create new products and distribute more in-depth and current information on various industry topics, such as health and safety. We make an effort to stay one step ahead of the industry so our members can stay competitive.

Q: AWS describes its mission as "to advance the science, technology, and application of welding, allied joining and cutting processes…" In what ways does AWS fulfill this?

A: Keeping our members on the cutting edge of the industry is paramount at AWS and our mission speaks to this in every way. That is why our publications and reference materials are among the industry's most widely consulted. AWS' Welding Journal is a major monthly magazine dedicated to the welding and manufacturing industries, and Inspection Trends is our quarterly magazine tailored to materials inspection and testing professionals. Both cover new technology, trends and safety. AWS also publishes books, charts, procedures and software materials, and more than 160 AWS-developed codes, recommended practices, and guides produced under strict American National Standards Institute (ANSI) procedures, including one of the world's most consulted codes, D1.1 Structural Welding Code– Steel. AWS also offers a number of widely recognized certification programs to assist the industry in identifying qualified welding personnel and to provide opportunities for welding professionals. The premier AWS certification is the Certified Welding Inspector (CWI) program. In addition, we provide quality educational opportunities through a variety of welding conferences and seminars that present new technology and topical subjects for the welding industry.

Q: What issues does AWS see as the most critical challenges for manufacturers utilizing welding technology? How, as an organization, has AWS responded?

A: The most critical issue impacting today's manufacturing industry is a welder shortage that is expected to intensify as baby boomers age and the need for skilled labor grows. Studies show that there are more than 500,000 welders employed in the U.S., and the need for these skilled workers is becoming stronger, as nearly all construction and manufacturing companies require some form of welding. According to AWS and other industry research, the average age of a welder is in the mid-fifties, with many approaching 60 years old. It is estimated that more than half of the industry's highly trained workforce is nearing retirement, creating a potential shortage of more than 200,000 skilled welders by 2010. Compounding the problem is the fact that high schools, universities and vocational institutions across the country are struggling to recruit younger talent to meet the burgeoning demand for welders. In addition, welding programs are shutting down due to lack of local support and resources. AWS is concerned about the welding personnel shortage and is working with schools, policy makers, associations and the media to bring attention to the matter and improve the image of welding. In fact, the AWS Foundation has established a Welder Workforce Development Program, which was founded on contributions by AWS founder Ron Pierce and his wife Joyce, as well as a $1 million endowment by Miller Electric and Hobart Brothers Company in North America. In concert with this program, AWS in 2006 inaugurated the Welding for the Strength of America Capital Campaign to add financial support to assist with the

critical shortage of welders in the United States workforce. The effort has dual goals: 1) establish additional scholarships to support entry-level students and those already involved in the welding profession, and 2) build a fund to support the American Welding Society Welder Workforce Development Program. The capital campaign success will determine the financial support that we have to actively address this crisis in our industry. While the two efforts are directly related, each has a different approach. One provides scholarship and other financial assistance to student welders, while the other is planned to provide additional training to support the need for more advanced skills due to the sophistication of welding processes. In addition, AWS' directors and chapter advisors are available to offer information and advice to students interested in a career in welding. AWS' Foundation provides funding for local and regional scholarships. Last, AWS' Image of Welding Program promotes the image of welding through awards and provides career information and advice to students while encouraging companies and schools to partner in support of welding programs and recruiting events.

Q: What types of technological innovations in welding/joining/cutting have been most revolutionary in the past several years? What types of future technology will best respond to the needs of the welding industry?

A: There are a number of emerging technologies in welding, as well as new applications for existing technologies. One particularly notable process that has found wide application in recent years is a form of friction welding called Friction Stir Welding. This process uses a probe that rotates (or "stirs") the metal surfaces, creating enough frictional heat to fuse them. The heat-affected zone remains small enough for precision joining without significant distortion. Friction Stir is especially effective on aluminum alloys, resulting in high-quality welds without porosity or cracks. Laser Beam Welding and surfacing has also found wider application, and the newer, high-powered lasers can join relatively thick steel plates in a single pass. This process is seeing many new applications in the automobile and aircraft industries. Explosion Welding is also seeing wider use. This solid-state process uses high-volume impact from controlled detonation to join materials at essentially ambient temperature. It can fuse large surface areas with a single explosion and is particularly effective for joining thin-to-thick metals, and for joining thicker dissimilar materials. Also finding many new applications is a metal coating technique called Thermal Spraying, as well as Plasma Arc Cutting, where the cut is made by an extremely hot, high-velocity plasma jet. Future welding applications under development include processes for joining ceramics and composite materials of several types, such as carbon fibers. The quest for development of lighter and stronger materials, especially in the transportation field, will require innovative methods of joining.

Q: What type of a role does training and education play in the advancement of the welding trade? Where should this training initiative come from and why?

A: Training and education play the most critical role in the welding industry. While AWS offers several industry certifications and publishes many standards and guides, we heavily rely on educational institutions for local training and classroom instruction. The industry is constantly changing due to advancements in technology and it is up to the educational institutions, companies and AWS to train according to industry standards. AWS works hard to keep its members informed of new guidelines, rules and innovations.

Q: What are some of the biggest misconceptions AWS sees associated with the welding trade?
A: The welding industry's image. One of the major factors contributing to the shortage of skilled welders is the stereotypes that have stigmatized the welding industry, which invoke the image of an unpleasant job with little prospect for advancement and salary growth. But that couldn't be more false. The industry continues to take on a new shape along with the advancement of technology and now manufacturing careers are often carried out in extremely clean and organized environments. As manufacturing needs become more advanced to carry out highly technical projects, the careers themselves become more advanced, with greater emphasis placed on computer skills, and math and science aptitude. A career in welding can be extremely lucrative and exciting, and can lead to a variety of employment opportunities, such as researcher, technologist, engineer, inspector, teacher, salesperson, business owner and more. It is also important to note that many welding careers are office-bound, such as being an executive at a manufacturing company. Getting this more accurate picture of manufacturing careers across to parents and youth is one of the most difficult challenges today, and one of AWS' most important endeavors.
Q: What type of advice would you give to a plant manager struggling to find qualified welders? Are there options for those who can't or don't want to invest in automation?
A: Get involved. That is the best advice we most often give manufacturers looking for talent. The key to keeping the welding industry alive is to continue recruiting young people who can help it to grow. The best way for us to ensure that happens is for educational institutions to continue their programs. But with funding often tight, schools usually need additional assistance from local manufacturers, who can help more than anyone and have a great influence on students. Whether it is donating goods, providing plant tours, or donating money to buy new materials, manufacturers should get involved and lend a hand to their local schools. It is only to their benefit as the students who graduate from those programs will eventually work in the local shops and manufacturing facilities. It can be an indirect investment for manufacturers and a new future for students. For more information on AWS, visit www.aws.org. *[1]*

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