



## meet a member

### Margaret Hyland Achieves a First in Aluminum Research

Lynne Robinson



Margaret Hyland

Margaret Hyland journeyed far to stand at the podium on November 10, 2015, as the first female recipient of the prestigious Pickering Medal. The honor is conferred annually by the Royal Society of New Zealand for innovative research that has led to commercial success.

In a measurement of miles, Hyland could not have traveled further from her native Toronto, Canada, when she moved to New Zealand to take on a postdoctoral position at the University of Auckland's then-new Research Centre for Surface and Materials Science. Her supervisor and mentor at the time was Barry Welch, now professor emeritus at the university and a 2015 TMS Fellow. She credits Welch with starting her on the research path in aluminum reduction technology that eventually led to her recognition as a Pickering Medalist. Educated as a research chemist, Hyland notes that Welch was also instrumental in influencing her to transition to engineering and applied work. "Barry was on the stage at the Royal Society of New Zealand

Awards Dinner and presented the medal to me, so there's a beautiful symmetry there," Hyland said.

Hyland is deputy dean, Faculty of Engineering, at the University of Auckland, as well as professor in the Chemical and Materials Engineering Department. She was also a founding principle investigator for the university's Light Metals Research Centre (LMRC) and serves as its associate director. "We established the center to consolidate the research activity in light metals that had been going on for some years at the University of Auckland," Hyland explained. "It raised the profile of the university's light metals research and gave us the critical mass to expand our educational offerings, our research programs, and our consulting activities."

The Royal Society specifically recognized Hyland's pioneering work on fluoride capture in aluminum smelting and on the mechanisms of fluoride generation from reduction cells. The guide that her LMRC team published in 2011 on fluoride emissions management was cited as a touchstone reference for enabling aluminum smelters worldwide to reduce fluoride emissions through cost-effective operation and maintenance practices.

"I'm passionate about the research for a number of reasons," said Hyland. "The capture of fluoride on alumina is a really interesting scientific question—and we are still learning more about how it occurs and how to optimize it. It is also immensely satisfying to see your research actually do some good."

Hyland is quick to note that the Pickering Medal honor extends far beyond her to a number of other contributors. "There have been a whole team of people involved—Ph.D. students, my colleagues at the LMRC, and academic collaborators," she said. "Most importantly, I am grateful to the aluminum companies who granted us



Hyland receives the Pickering Medal from her long-time friend and mentor, Barry Welch.

access to smelters and supported our work.”

One team member in particular that Hyland singles out is her husband, James Metson. Metson is the University of Auckland’s Faculty of Science deputy dean and a founder, along with Welch, of the Light Metals Research Centre. The couple met at the University of Western Ontario where Hyland earned her Ph.D. in chemistry. They later moved to Metson’s native New Zealand to pursue their careers and raise their children.

“Jim and I have always worked as a partnership and shared the raising of our two children, Abby and Sam,” Hyland said. “I used to worry about how our kids would turn out—they grew up thinking of aluminum smelting conferences as great family holidays. To our relief, they have become delightfully well-balanced, well-grounded adults.”

Despite full schedules, the couple made time to actively volunteer for TMS in areas such as publishing and conference organizing. Hyland is currently chair of the TMS Aluminum Committee and editor of the *Light Metals 2015* proceedings. She is also a co-organizer for a new TMS course, Control of Potline Scrubber & Fugitive Emissions for Aluminum Smelters, scheduled for May 8–15 in Abu Dhabi, United Arab Emirates.

Hyland acknowledges that her status as the first woman to receive the Pickering Medal underscores that female engineers are still few and far between in the aluminum

industry. In advancing the inclusion of women in this and other science and engineering professions, she offers this advice: “Be true to your own values and way of working. As women, we often have a different approach to problem solving, different ways of working, and a different style of leadership that is usually more collaborative and less confrontational. That style is now being recognized as a more effective way of working and leading.”



Hyland celebrates at the Royal Society of New Zealand awards ceremony with her husband, James Metson (right) and their son, Sam.

## Michelle Dickinson Sweeps New Zealand Communication Prizes



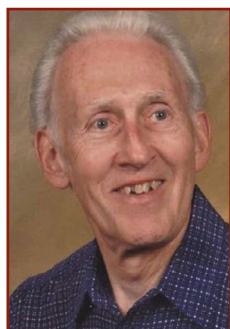
Sharing the stage with Margaret Hyland at the 2015 Royal Society of New Zealand award program was Michelle Dickinson, who received the society’s Callaghan Medal recognizing outstanding contributions to science communication. A senior lecturer at the University of New Zealand, Dickinson was cited for her passion and dedication to communicating the value of science, particularly to young people. She also recently received the Prime Minister’s Prize for Science Communication and the New Zealand

Association of Scientists Science Communicators Award. The Callaghan Medal completes her sweep of major New Zealand science communication awards. To read more about Dickinson’s science outreach as her alter ego, Nanogirl, turn to the July 2015 *JOM* article, “Michelle Dickinson Makes Science Stereotypes Go Up in Smoke.”

## member news

### Remembering a Member

*TMS offers condolences to the families, friends, and colleagues of the following members who recently passed away:*



#### **Harry Waldron Weart**

A TMS member since 1953, Harry Waldron Weart passed away on August 18, 2015. Weart received a degree in metallurgy from Rensselaer Polytechnic Institute in 1951. He then went on to earn both his master’s degree and Ph.D. from the University of Wisconsin-Madison. Weart worked as the chair of the Metallurgy Department at the

University of Missouri-Rolla (now the Missouri Institute of Science and Technology) from 1964 to 1992.



#### **John F. “Jack” Smith**

John F. “Jack” Smith, professor emeritus at Iowa State University (ISU) and associate scientist at Ames Laboratory, passed away on September 26, 2016. He had been a TMS member since 1978. In 1948, he began teaching metallurgy at ISU and worked as a senior scientist at Ames Laboratory. From 1966 to 1970, Smith served as the chair

of ISU’s Department of Metallurgy, retiring from both the university and Ames in 1988.