

# Engineering's Professional Obligation

by Leon H. Grant, Coreslab Structures (Conn.) Inc.

In their professional lives, engineers must be accountable for how they perform their key responsibilities every day, on every project they undertake. For students in engineering schools throughout Canada, this duty is brought home to them by the Ritual of the Calling of an Engineer, also known as the Iron Ring Ceremony, which is held during their senior year.

This ritual, which uses a text by Rudyard Kipling, began in 1922 and remains in place today. It was conceived by seven past-presidents of the Engineering Institute of Canada, led by Professor H.E.T. Haultain of the University of Toronto, who asked Kipling to write the wording.<sup>1</sup> Their plan was to

create a standard of ethics that could be reinforced through a ceremony, culminating with the presentation of a metal ring to each graduate to emphasize the standard's importance. The seven officials presided over the ceremony as the Corporation of the Seven Wardens.

## The Ritual Explained

In his notes, Kipling explained the purpose of the ceremony. "The Ritual of the Calling of an Engineer has been instituted with the simple end of directing the young engineer toward a consciousness of his profession and its social significance and indicating to the more experienced engineer their responsibilities in welcoming and

supporting the newer engineers when they are ready to enter the profession."<sup>1</sup>

Each year, one of the Corporation's 27 "camps" will oversee the ritual for each of the 43 universities granting engineering degrees in Canada; rituals are held at different times and can be performed in a variety of ways. Universities may give notice of the invitation-only ceremony, but participation in the ritual may not be used for advertising purposes.

At the ceremony, the students repeat an oath, known as the Obligation, which expresses their intention to uphold the engineer's duties and responsibilities. Following the oath, an "iron" ring (made of iron or stainless steel) is placed on the little finger of the engineer's working hand. The ceremony certificate explains that the ring shall serve "as a reminder to yourself and to others that you have taken this Obligation." The ring is to be worn on the engineer's working hand because it is intended to come into contact with drawings or documents being prepared.

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The program was created following a tragic bridge accident in Quebec in 1907 (see the sidebar for more information). Errors made in the design and construction of that bridge harmed the engineering profession's reputation, and the seven wardens hoped that the oath and ceremony would demonstrate

## Quebec Bridge Disaster Inspires Ceremony

The Iron Ring Ceremony came about as a response to the Quebec Bridge disaster on August 29, 1907, in which a steel bridge under construction over the St. Lawrence River collapsed, killing 75 of the 86 workers constructing the cantilevered segment. Some were crushed, some were killed by the fall, and others drowned.

The bridge, designed by Theodore Cooper, was intended to be an engineering marvel—the largest structure of its kind and the longest bridge in the world. To help economize, Cooper extended the bridge's spans. Government engineers thought the design was unsafe, but Cooper's plan won out.

When deflection issues began to arise, their significance wasn't understood. Then, when Cooper finally wired the contractors at the site to halt work until the deflection issues were considered, his instructions were ignored. Ultimately, two bottom chords buckled, plunging the structure into the water below.

After the disaster, engineers would visit the site to be reminded of the results of human

error and the importance of not stretching designs beyond physical capabilities. Cooper took much of the blame, while the bridge company was criticized for putting profits over safety.

Fifteen years later, the seven past-presidents of the Engineering Institute of Canada, formed the idea of the Iron Ring Ceremony.

Leon Grant's Iron Ring adorns the little finger of his working hand, 46 years after he participated in the Ritual of the Calling of an Engineer. All Photos: Leon H. Grant.



the high standards that all engineers strive to achieve.

## The Lasting Impact of the Obligation

I took part in the Iron Ring Ceremony prior to my graduation from the University of New Brunswick in 1973, and its significance sticks with me to this day. The university's five-year engineering program was taught by full professors who had served in World War II or received their PhDs following the war. They had executed astonishing designs under the worst stress imaginable, and it was deeply moving to realize that they saw this ritual—a reminder of the need for professionalism—as an integral part of their instruction.

Before the ceremony occurred, our professors had already impressed upon us the responsibility and privileges of the

title of Professional Engineer. They were educators, mentors, and consultants to industry, legal, and engineering firms. During our fifth-year engineering law and ethics program, we were exposed to a variety of successes and failures in the engineering profession. The failures included the Quebec Bridge disaster that was the catalyst for the ceremony.

In March of our senior year, we were invited to the Iron Ring Ceremony. It included a first-class dinner, presentations by senior practicing engineers, and a ceremony attended only by those who had taken the Obligation or were graduating engineers. This ceremony represented the first official meeting of the entire class since we had separated into specific disciplines after our first year.

Afterward, we felt that we had taken the first step of our engineering career.


Even though most of us had job offers and would be receiving a diploma in May, the ceremony was the event that made it clear we were now entering a profession with privileges and responsibilities like no other.

The ceremony also reinforced to us that we must practice only within our competence, learn from the engineers who preceded us, and mentor those following us for life. It also was stressed that we must respect our peers without prejudice.

The certificate from the Iron Ring Ceremony is framed and has remained on my office wall since 1973. It includes the text of the Obligation we recited and serves as a reminder of our responsibility to uphold high standards of professionalism. I have no doubt that it is also prominent in many other engineers' offices across the country.

The standards represented by the Iron Ring and the Obligation drive engineers to strive to be the best, review every detail, and work closely with others on the construction team to ensure their designs meet the high standards expected of every engineer.

## Reference

1. The Calling of an Engineer. n.d. <http://www.ironring.ca>. Accessed November 15, 2019. 

## The Engineer's Obligation

The Obligation that engineers pledge during the Iron Ring Ceremony is printed on the certificate each engineer receives after its conclusion. It reads:

I, (engineer's name), in the presence of these my betters and my equals in the Calling, bind myself upon my Honour and Cold Iron, that, to the best of my knowledge and power, I will not henceforward suffer or pass, or be privy to the passing of, Bad Workmanship or Faulty Material in aught that concerns my works before men as an Engineer, or in my dealings with my own Soul before my Maker.

My Time I will not refuse; My Thought I will not grudge; My Care I will not deny towards the honour, use, stability and perfection of any works to which I may be called to set my hand.

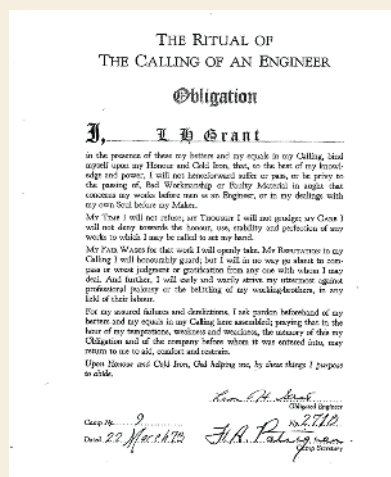
My Fair Wages for that work I will openly take. My Reputation in my Calling I will honourably guard; but I will in no way go about to compass or wrest judgment or gratification from any one with whom I may deal. And further, I will early and warily strive my uttermost against professional jealousy

Each engineer who undertakes the Ritual of the Calling of an Engineer receives a certificate that includes the Obligation and is signed by the "obligated engineer" and the camp secretary overseeing that university's program.

or the belittling of my working-brothers, in any field of their labour.

For my assured failures and derelictions, I ask pardon beforehand of my betters and my equals in my Calling here assembled; praying that in the hour of my temptations, weakness and weariness, the memory of this my Obligation and of the company before whom it was entered into, may return to me to aid, comfort and restrain.

*Upon Honour and Cold Iron, God helping me, by these things I purpose to abide.*



## EDITOR'S NOTE

*A Perspective article in the Fall 2017 issue of ASPIRE® described a similar ring ceremony performed in the United States as part of a broader discussion of the need to instill a sense of ethics in young engineers. In addition to describing the Canadian ceremony (for more information, see reference 1), this current article shares the lasting impression and significance of the ceremony for an individual engineer. It is important that those of us who are engineers be frequently reminded and continually aware of our solemn responsibilities as engineers.*