

*Canadian Federation
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The unified voice of Earth Science in Canada | La voix unifiée des sciences de la terre au Canada

Citation for CFES 2012 Mentorship Medal for Dr. Otto van Breemen by Dr. Mike Villeneuve

Good morning everyone.

It is my distinct honour to be here today to make the citation for the Canadian Federation of Earth Sciences Mentorship Medal, for 2012, being awarded to someone that has not only been a mentor to me, but also a colleague and friend for over 25 years - Otto van Breemen.

First, a bit of background: Otto was born to Dutch parents that were forced to leave Indonesia after the Second World War, coming to Alberta where Otto grew up. He obtained his BSc (Geology) and MSc (Geochemistry) at the University of Alberta, the latter under the supervision of Bud Baadsgaard. For his MSc, Otto had his first taste of radiogenic isotope geochemistry: His thesis was one of the earliest forays into thermal diffusion of isotopes. It involved collecting a pristine igneous rock from the Yellowknife area, followed by Rb-Sr isotopic analysis of the major minerals from a 10 cm cube of adamellite before and after heating to 1000°C.

In 1965, he went on to do a Ph.D. in Geochronology at the University of Leeds, under supervision of Martin Dodson. This involved Rb-Sr analysis of rocks from the Limpopo belt in Africa.

After his PhD (1968), Otto went to the Scottish Universities Research and Reactor Center (SURRC), East Kilbride, Scotland, where he worked with and eventually took over from Bob Pidgeon as head of the Thermal Ionization laboratories. This was the early 70's, a time when geochronology, and in particular, U-Pb geochronology was being wrested away from the physicists and chemists and being put to use in the new geological revolution. Plate tectonics was the paradigm and geochronology was the key proving ground of the theory.

Otto joined the GSC in 1981, with the objective of revitalizing the Geochronology Laboratory so that it could be used to bring the geology of Canada, and in particular, the Precambrian geology of Canada into a modern mobilistic framework. It is worth noting that Otto's first hire as head of Geochronology was his chief rival for the job – Chris Roddick – a bold, yet unsurprising move from someone who always put the good of the lab ahead of his own personal glory.



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Mentorship:

It was at SURRC that Otto took on Jonathan Patchett as a PhD student and where Otto first displayed his extraordinary gift for mentorship. In Jon Patchett's words:

"Otto's guidance was steady, but not explicitly perceptible to me until after the work was done. This type of mentorship enables students and other younger scientists to grow, and I have valued it tremendously, more and more with the passage of time. I was present when the then-unknown Alex Halliday was first hired at East Kilbride, and I believe I observed the same gentle encouragement from Otto to a younger colleague..."

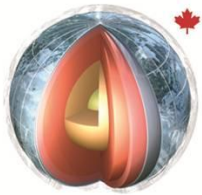
This "steady but imperceptible guidance" is the first recurrent theme of Otto's life and career and is what truly makes him inspirational. And the list of people who have been touched by Otto reads like a Who's Who of radiogenic isotope geochemistry: Randy Parrish, Jim Mortensen, Richard Stern, Bill Davis, Yuri Amelin, Keith Sircombe, Bernard Bingen, Frank Dudas, Ernst Hegner, Ross Stevenson, Mike Hamilton, Natasha Wodicka, Hamish Sandeman, Kevin Ansdell, Mary Lou Bevier, Vicki McNicoll and multitudinous others (undoubtedly some have been inadvertently left off this list). Some were abundantly conscious of his steadying hand, others perhaps not (or perhaps not until later), but whether they knew it or not, Otto was a constant guide, mentor and protector of scientific integrity and careers, allowing everyone to flourish and grow into today's leaders.

Integrity is another recurrent theme that comes with Otto. Every issue, every discussion, every idea was approached with unparalleled integrity. His importance to incubating the scientific careers of the many just listed was underpinned by a soft-spoken manner that always told the truth – as free from personal bias as possible. Regardless of the relationship, whether a discussion was mutually enjoyable or a difficult one, everyone knew that it was uncoloured by the personal agendas.

Bernard Bingen describes a typical relationship with Otto:

*"When I was at the Geological Survey of Canada in 1995, my attempts of reintegration into academia in Belgium were evolving into an impasse. **Rather than judging the situation**, Otto was engaged in helping me construct a competitive publication record. He really took the time and effort to edit in detail and finalize my manuscripts... I sincerely think that Otto has an exemplary work ethic, integrity and generosity. In our relation, he placed the promotion of my scientific career as the most important priority."*

Lastly insight, both personal and scientific, represents the penultimate theme that defines Otto. On the science front, he has published over 108 refereed journal papers, on top of 65 GSC Current Research and Open Files. He is cited 30 and 60 times per year by other researchers, and his most cited paper has over 120 total citations. He was one of the first to utilize monazite for U-Pb dating (van Breemen, O.,



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Aftalion, M., Bowes, S.R., Dudek, A., Misar, Z., Povondra, P. and Vrana, S., 1982. Geochronological studies of the Bohemian massif, Czechoslovakia, and their significance in the evolution of Central Europe. *Transactions of the Royal Society of Edinburgh: Earth Sciences*, v. 73, p. 89-108.). He also recognized that it can easily grow in the prograde metamorphic path and that its closure temperature was much higher than the then-current paradigm of 700°C (Bingen, B. and van Breemen, O., 1998. U-Pb monazite ages in amphibolite – to-granulite facies orthogneiss reflect hydrous breakdown reactions. *Sveconorwegian Province of SW Norway. Contributions to Mineralogy and Petrology*, v. 132, p. 336-353).

On the subject of personal integrity, Otto would be a truly dangerous man, if he had an ego. Over time, I came to realize that Otto knew me better than I knew myself.

Otto's self-effacing manner and willingness to let his mentees take the limelight has made it easy to overlook him for accolades. His desire to put organization first (rather than person) meant that the GSC lab was rarely known as "Otto's Lab" And while it was true that contributions came from many, no one can argue Otto's Lab somehow magically managed to foster and direct the many large, strong, young, energetic, vociferous scientists (and their egos) that worked and existed in close quarters to produce some of the finest science generated in the last 50 years.

The CFES/FCST mentorship medal was created in 2008 to recognize the sustained and inspirational mentorship of colleagues and employees including peers, graduate students, undergraduate students and technicians. The medal was set up in honour of Paul F. Williams, a geologist known for scientific and mentoring excellence, candour and integrity.

Otto certainly exemplifies these qualities and it is with great pleasure and great honour that I cite him for this honour.