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Presentation of the 2014 Roebling Medal of the Mineralogical Society of America to Bernard J. Wood

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It is my pleasure to introduce this year's Roebling Medalist, Professor Bernard Wood from the University of Oxford. Bernie is known internationally for his pioneering work in many fields of petrology and geochemistry, from geothermometry of coexisting pyroxenes in igneous and metamorphic rocks to the formation and constitution of Earth's core. His work on the redox state of Earth's mantle is the definitive study and involves approaches that he has since extended to Mars.

Bernie is a Londoner, attending William Ellis School on the edge of Hampstead Heath in the early 1960s. On leaving school he eschewed university in favor of the bright lights of the North Thames Gas Board. Sadly, his skills with a burette and flask did not cut the mustard in the heady world of domestic gas supply and he took up higher education as a student at the Northern Polytechnic, now assimilated into London Metropolitan University. Graduating with some distinction in Geology and Chemistry he went on to complete a Masters in Geochemistry at the University of Leeds and a Ph.D. in Physics with Roger Strens at Newcastle University on crystal field theory applied to minerals. He subsequently secured post-doctoral fellowships at the University of Manchester (1973) and the Geophysical Laboratory (1975), eventually becoming Lecture in Geology in Manchester in 1978. Driven by a desire to work in the "real world" he left in 1980 for a position at Rockwell Hanford Laboratories in Richland (Washington), a destiny he only eluded by becoming, briefly, John Holloway's post-doc at Arizona State University. Bernie joined the faculty of Northwestern University in 1982, serving as Chair from 1985, a fate afforded him through the office that he occupied on arrival. In 1989 he moved to the University of Bristol, where our paths first crossed, thence to Macquarie University (2005) and finally the University of Oxford (2007).

Bernie's research output numbers over 200 papers and four textbooks. It is through the first of these that I first became aware of him. The seminal slim, red tome *Elementary Thermodynamics for Geologists* (1977), pioneered the application of equilibrium thermodynamics to the Earth sciences. This quintessential triumph of content over typesetting inspired many a young geology student seeking to unravel the temperature and pressure conditions of geological processes. I was one such. Bernie's clarity of writing rendered a difficult subject so tangible that I was tempted to think anyone could have a go. Effortless pedagogy has been a hallmark of Bernie's teaching throughout his career. Armed only with chalk and a certain wit, Bernie could charm even the most callow Bristol student into thinking that thermodynamics was the very best thing about geology.

When I came to Bristol in 1989, I was keen to meet the author of such an inspirational text. I was not disappointed. Immediately impressed by his subversive wit and intellectual acuity, I tried to get him interested in some of the work I was engaged in. At the second or third try (Bernie had little appetite for quenched mafic inclusions) we hit upon trace element partitioning, which he had dabbled in several years earlier, and we began a very fruitful collaboration that continued for almost 15 years. This was a golden period of research for me, during which I learned a huge amount about science and its prosecution. His office door was always ajar and, given the right opening line, one would be treated to an illuminating lesson in quantitative geochemistry. Page after page of spidery writing, mostly indecipherable, translated my observations into an idea and then proved it with thermodynamics. Some of what we did seemed downright seditious, but he assured me that it was all kosher and could be found in the pages of Prigogine and Defay. We wrote a lot of papers together on trace element partitioning, performed many experiments, and developed a model of lattice strain that is quite widely used even now. Heady times.

I was sorry to see Bernie leave Bristol in 2005. By then his thinking had become deeper (Earth's core), but not darker. He shed light on a number of enduring problems in the conditions of core segregation, work he continued at Oxford with Alex Halliday, extending our ideas on mineral-melt partitioning to metal-silicate systems. He has set up high-pressure experimental laboratories at four universities; though I would bank on Oxford being his last. To my mind his greatest laboratory triumph was setting up the experimental facilities at Bristol in 1989. Together with Steve Sparks, his co-appointee, he helped mold Bristol into a powerhouse of Earth sciences from quite humble beginnings. Success was brought about by £1.3M, ten new posts and an extraordinary talent for recruiting the right people. The collegiality and esprit de corps that Bernie and Steve created continue today. I know that Bristol Earth Sciences is one of Bernie's proudest achievements and rightly so.

Bernie is a richly decorated Earth scientist. He features prominently in the I-Spy book of geological medalists, not least the Arthur Holmes Medal of the European Union of Geosciences (1997), Murchison Medal of the Geological Society of London (1997), Fellowship of the Royal Society (1998), and Goldschmidt Medal of the Geochemical Society (2003). Only last year he was awarded the American Geophysical Union's Hess Medal. He has deserved every one of them, and the Roebling Medal is no exception. It has been a privilege to know and collaborate with Bernie for over 25 years and I am delighted to be here today to introduce him to you. It is a great pleasure too that so many of his former students and post-docs also have made the journey to Vancouver.

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