

## **Presentation of the Dana Medal of the Mineralogical Society of America for 2015 to Marc Hirschmann**

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I have the delightful task of introducing Marc Hirschmann, the 2015 recipient of the Dana Medal from the Mineralogical Society of America. Marc graduated with an undergraduate degree in Geology from U.C. Berkeley in 1983 and then spent the next decade being a laboratory and field assistant with Charlie Bacon working on Crater Lake and other volcanic systems, completing a Master's project on the Skaergaard intrusion with Alex McBirney, and finally a Ph.D. with me at the University of Washington. So, with that information alone you already know some very important things about Marc. He is very broadly trained—Berkeley, Charlie, and Alex saw to that, you also know that he can deal with an obtuse and demanding supervisor, and despite that obstacle emerge to be one of the most distinguished graduates of the UW program.

What many of you may not realize is that Marc spent a good deal of his graduate career doing hard core mineralogy and thermodynamic solution theory. He was the first to use an in situ furnace and 4-pole diffractometer to determine the temperature dependence of Fe-Mg cation ordering of cummingtonite; those data became the basis for our current understanding of the thermochemistry of quadrilateral amphiboles. He developed solution theory for trace element constituents in olivine and he implemented that theory as part of the MELTS modeling package. Marc was also interesting to work with, because in those days his diurnal clock was offset by about 12 hours from everyone else. In retrospect, that was probably the key to his productivity.

From the University of Washington, Marc went to CalTech to be a post-doc with Ed Stolper and was assigned this new fledgling upstart graduate student named Paul Asimow to be his assistant. The three of them changed our understanding of the chemistry of melting in the shallow mantle by analyzing that problem in a rigorous thermodynamic framework. Like all endeavors that shift the paradigm, this work was vigorously discussed and debated, but largely because of Marc's careful analysis, his beautifully written papers, and his diligent attention to detail and insistence on petrologic veracity, acceptance and praise followed.

It was at CalTech that Marc became an experimentalist and not just an average one. His work and that of his group of students and post-docs in this field has focused on petrologic processes to include studies of phase equilibria at high pressure, the effects of both oxidized and reduced carbon species on mantle melting, the generation of carbonatites, and the storage capacity of volatile constituents in nominally anhydrous mantle minerals. In recent years Marc has become one of the leading authorities on the Earth's volatile budget and the evolution of that budget through time.

Throughout all this elevation to greatness and distinction, Marc remains a terrific person to know. He is thoughtful and friendly. His speaking style is pithy and captivating. His disposition is kind and helpful, and he has a great sense of humor. Ladies and gentlemen, it is my great privilege to present him to you as the 2015 recipient of the Dana Medal.