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Acceptance of the Mineralogical Society of America Distinguished Public Service Medal for 2009

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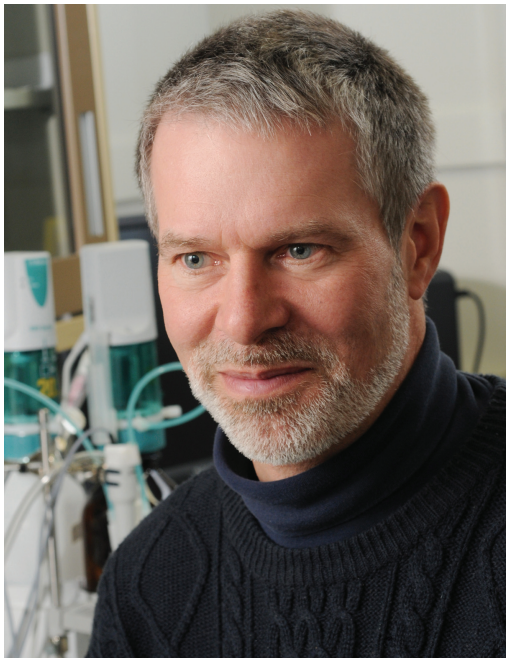
Friends and Colleagues:

It's a terrific honor to receive MSA's Medal for Public Service, especially with my close friends and collaborators Russell Hemley and Nancy Ross standing beside me. I am keenly aware of the extraordinary contributions of previous winners of this medal, and I accept this award in the spirit of a challenge to attempt to live up to their efforts.

Indeed, we are all challenged by the need to communicate what we do to a broader audience: to the general non-specialist audience to be sure, but also within the Earth sciences community. We all know that mineralogy and petrology have changed dramatically over the past three decades. Since the 1970s, many universities have replaced retiring mineralogy professors with new faculty, for example in environmental sciences or geobiology. Some distinguished academic mineral collections have been packed up or given away. Traditional mineralogical tasks, such as determining chemical, physical, and structural properties of new species, are today less central to our field than they once were.

At the same time, the many roles of mineralogy in basic and applied Earth sciences have never been richer, as the work of today's MSA awardee and Roebling medalist make clear. Mineralogy is key to understanding such fundamental questions as the early history of our planet, the geochemical origins of life, the co-evolution of the geosphere and biosphere, the nature of Earth's inaccessible deep interior, and the possibility of life on Mars and other worlds. Mineral sciences also are vital to numerous issues of public welfare, including the quest for new technological materials, issues related to environmental health and safety, and concerns about global changes in climate and access to resources.

Consider the example of carbon—the element of life; the central element in pressing issues of health, climate, energy and environment. As Rus Hemley mentioned, we've just inaugurated the Deep Carbon Observatory—a broadly interdisciplinary, 10-year effort to understand carbon's chemical and biological roles in Earth's interior. Every aspect of this effort is grounded in mineralogy. Where is the carbon and how much is down there? Is there significant carbon locked in nominally acarbonaceous minerals? What are the rheological properties of deep minerals and rocks that allow C-rich fluids to move? How does the chemical energy of rocks support the deep biosphere?



And then there are issues of carbon sequestration, questions about the origins of deep hydrocarbons, and uncertainties in the magnitude of CO_2 fluxes from volcanoes—all forefront societal problems that depend on an understanding of interactions between minerals and fluids. So it's not surprising that public outreach will be a critical component of the Deep Carbon Observatory over the next decade.

Scientists and non-scientists alike care intensely about these issues. And so we all have the opportunity and, I would argue, the responsibility to tell the stories of minerals and their multifaceted roles in our lives. I also want to assure those of you who are beginning your careers that public outreach need not detract from your scientific research ambitions. Rather, public engagement will cause you to see your focused research efforts in a broader perspective, it will help you to select projects with the greatest potential impact on your friends and family, and it will empower you to interact with the widest range of people, both within and beyond the Earth sciences.

Thank you again for this honor.

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