

## **Presentation of the Dana Medal of the Mineralogical Society of America for 2012 to Roberta L. Rudnick**

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Friends, Mineralogists, Geochemists, Goldsmiths:

We are here to honor Roberta Rudnick for her contributions to our science.

Roberta's career and her science have been globe encircling. She started out in Portland, Oregon, went on for a Master's Degree at one of those places with incongruous names—"Paris, Texas," comes to mind—well, actually it was "Alpine, Texas," all part of United Plates of America, I guess, and ended up with a Ph.D. at ANU on the far side.

From there she came to the Max Planck Institute in Mainz, then back to ANU, on to Harvard, where she had the audacity to turn down the tenure offered to her(!), and finally landed at the University of Maryland. I think we can call ourselves lucky that she has not gone full circle to Alpine, Texas.

During this odyssey, she successfully raised a son and a husband, and she built a truly distinguished scientific record. Initially, she focused almost entirely on improving our knowledge of the composition of the continental crust by concentrating on its most vexing aspect, the deepest part of that crust, using xenoliths and geophysical data. Today, Roberta is the leading authority on the composition of the crust.

After a while, the deep crust wasn't deep enough, so she ventured into the subcontinental lithosphere, looking at Nb/Ta ratios and Re-Os compositions in peridotite and eclogite xenoliths. Again, she combined geochemical data on pressure-temperature systematics of xenoliths with geophysical data to delineate the maximum thickness of Archean cratons to be less

than 200 km, and she showed that heat production in those cratons is much lower than had been inferred from mantle xenoliths in kimberlites. Her work with Shan Gao on the history of decratonization of the North China craton, and the related foundering of mafic crust, have become classics and the basis for intense current research.

As a sideline, during past few years she invested quite an effort to use lithium isotopes as tracers of chemical weathering and crustal recycling. Lithium is definitely a tricky tracer, because it is subject to severe kinetic effects, and her work with her graduate student Teng showed, among other things, that against previous expectations, weathering makes for lighter, rather than heavier isotopes in the upper crust.

Roberta is one of those rare people who are both outstanding scientists but also have the kind of personality that inspires trust and confidence in her judgment. I have never seen her lose her cool. Not surprisingly, she is sought after to chair all sorts of committees, editorships, and, recently, academic departments. She has been elected Fellow of the GSA, the Mineralogical Society, the AGU, the Geochemical Society, and European Association of Geochemistry, and the Daly lectureship. She is a member of the American Academy of Arts and Sciences and of the U.S. National Academy of Sciences. This list of honors is incomplete, but you get the idea, I hope. Above all, that Roberta is a good and trusted friend.

Ladies and Gentlemen: May I present Roberta Rudnick for the Dana Medal of the Mineralogical Society of America.