

Presentation of the Mineralogical Society of America Award for 1995 to Zachary D. Sharp

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Zach Sharp was born in Los Angeles, the son of an artist and television writer. As a boy, his connections to the entertainment world led to a couple of appearances on the *Wild Wild West* television series, and as a young adult he played bass in a jazz ensemble. Zach was on the gymnastics team in high school and was a member of the racquetball team at his alma mater, University of California at Berkeley. Still an accomplished athlete, he did a series of back-flips for an appreciative audience at a recent meeting of the Geological Society of America. Fortunately for all of us, some of the boundless energy in this whirlwind of activity was diverted to the study of earth science. Zach has blossomed into one of the most visible and productive earth scientists working today.

After graduating from Berkeley, Zach was employed as a geologist to work on geological problems related to an EPA-mandated program to construct a new storm drain system in the Bay area. While a graduate student at the University of Michigan working first with Bill Kelly (on phase equilibria of arsenopyrite) and then with Eric Essene as principal advisors, Zach completed some excellent scientific projects in Ann Arbor. His dissertation research involved a study of Archean granulites and banded iron formations from a remote field area at about 3 km high elevation in the northern portion of the Wind River Mountains in Wyoming, which is located in a primitive area with restricted access. Notable field assistants for Zach's field work included Mike Cosca and George Helffrich. An excellent field geologist, Zach served capably as a teaching assistant at the University of Michigan field camp near Jackson, Wyoming. During his time at Michigan he undertook diverse research projects at the University of Utah (stable isotopes with John Bowman), the U.S. Geological Survey in Menlo Park (stable isotopes with Jim O'Neil), SUNY Stony Brook (piston-cylinder experiments on the stability of sodalite with Steve Bohlen), and the Geophysical Laboratory (single-crystal X-ray refinements of various minerals at high pressures with Larry Finger and Bob Hazen). During this period he also married his longtime sweetheart, Sharon. They had their first child, Alana, just before Zach completed his dissertation.

As a postdoctoral fellow working with Doug Rumble at the Geophysical Laboratory, Zach obtained NSF funding and developed the first successful laser-sampling system for oxygen isotope analysis of silicates and oxides. Indeed, he has been the mover and shaker in the application of laser technology to stable isotope analysis and

was the first to make laser-assisted measurements a routine technique for earth scientists. Also at the Geophysical Laboratory, Zach managed to fit in a study of the diffusion rate of oxygen in quartz under anhydrous conditions with his Geophysical Laboratory colleague Hatten Yoder and Bruno Giletti of Brown University. After his stint at the Geophysical Laboratory, Zach accepted a post as a faculty member at the University of Lausanne with Johannes Hunziker. There he built a modern stable isotope laboratory with on-line laser-sampling capabilities in record time. In short order he developed new techniques for the in situ microsampling and analysis of carbonates, phosphates, and silicates; he showed that stable isotope ratios were minimally fractionated during laser analysis when conducted properly. The advantages of the laser-based technique are manifold. Lowered blank levels, greatly increased rapidity of sampling, minimal separation and preparation, and rapid feedback of data combine to yield a significant advance over traditional procedures. His techniques are an important breakthrough in isotope geochemistry and have been widely incorporated by others. It is safe to say that most modern stable isotope laboratories now employ laser techniques in one or more applications. Many of the practitioners of these techniques have traveled to Lausanne to pick Zach's brains on how best to get their systems operational. There were many obstacles to overcome in establishing protocols for his techniques, now considered routine. There are few among us who can so easily deal with the myriad adversities that arise during laboratory research. Zach never complains or loses his cool when the computer system fails, a precious sample is pumped away, or the oxygen tank becomes empty at a critical moment. He finds a solution—maybe a rubber band that will suffice temporarily—and addresses these problems joyfully.

Zach produces a large amount of high-quality isotopic data in his laboratory. Visitors to the Lausanne laboratory are overwhelmed with the flurry of activity about this man. You can feel the excitement of scientific discovery as he leaps from the binocular microscope to tune the mass spectrometer, or to make a glassblowing repair, or to comment exuberantly on the result just obtained by a student. He is extremely helpful to those working in his busy laboratory and devotes as much time as needed to help colleagues with laboratory problems or interpretation of data. In addition to his superb laboratory skills Zach is an imaginative scientist with extremely broad interests. In collaboration with Postdoctoral Fellow Dave

Kirschner, longtime colleague Mike Cosca, Professor Hannes Hunziker, and a host of other talented scientists in residence at Lausanne and elsewhere, he has worked on crack-seal veins, eclogite-facies metasomatism, D/H constraints on subduction-zone systems, fluid flow during thrusting in the Swiss Alps, authigenic and diagenetic minerals in limestones, experimental and empirical calibration of stable isotope fractionations between various phases, and another half dozen diverse topics. His current interests range from diagenetic and limnological problems, to structural projects, to low-temperature hydrothermal and metamorphic systems, to deep crustal and upper mantle materials. Zach has already established himself as one of the very best stable isotope geochemists/petrologists in the world. He is also a devoted family man who always makes time in his busy schedule for the loves of his life: Sharon, Alana, and second daughter Chloé. We are highly pleased and proud to present to you the winner of the 1995 Mineralogical Society of America Award, Zachary D. Sharp.