American Mineralogist, Volume 66, page 643, 1981

Presentation of the Mineralogical Society of America Award for 1980 to Susan Werner Kieffer

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Members of the Society and Honored Guests:

It is my great pleasure to introduce Dr. Susan Werner Kieffer, recipient of the Mineralogical Society of America Award for 1980. I first met Sue when she came to UCLA in 1971 as a postdoctoral fellow to be associated with George Kennedy. She had just received her doctorate at California Institue of Technology working with Gene Shoemaker and Barclay Kamb, dividing her time between petrologic investigations of rocks from Meteor Crater, and laboratory and theoretical studies of shock processes and heat capacities at Pasadena. Sue's educational background was hardly that of a typical geologist or mineralogist: an accomplished performer on both flute and piano, she obtained her Bachelor's degree in physics/mathematics at Allegheny College in 1964, graduating *magna cum laude*, then went on the next year to study astrogeophysics at the University of Colorado. In 1973 she was appointed to our UCLA faculty. After five years as Assistant, then Associate Professor, during which time she was awarded a Sloan Fellowship, Sue joined the Branch of Experimental Geochemistry and Mineralogy of the U.S. Geological Survey in Flagstaff in 1978. This year she is the Survey's first W. H. Mendenhall Lecturer. After some stimulating work at Yellowstone on geysers as volcanic analogues, much of her research life is now being devoted to the even more exciting and hazardous Mount St. Helens.

Sue's principal scientific field involves the application of physics to geological processes. Specific interests include: planetary sciences (cratering and related meteoritic phenomena); solid-state geophysics (spectral and thermodynamic properties of minerals at high temperatures and pressures); shock wave physics (phase changes accompanying impact processes); and fluid dynamics of eruptions (geysering, volcanic phenomena). Major publications treat shock metamorphism of the Coconino Sandstone and thermal diffusivities of minerals at high pressure, sound velocities of liquid–vapor mixtures, isentropic expansion of fluids under crustal and upper mantle conditions, Ionian volcanism, and thermodynamic/lattice vibrational interrelationships for rock-forming minerals. The last-mentioned subject constitutes three major published papers (two more in press) in a lesser-known journal which competes with *The American Mineralogist.* I well remember the Seattle annual GSA meeting in 1977 in which she presented her results to a special session organized by the MSA, for I have never witnessed a more attentive, packed audience, nor a more scientifically appreciative one.

In spite of her diverse and impressive scientific accomplishments, my fondest memories of Sue (so far!) are of a different sort; of a spunky postdoctoral fellow contending with her source of financial support; of an indefatigable runner who outdistanced everybody in our department with the exception of marathoner Art Boettcher; and of a helmsman floating down the San Juan River in a raft manned by drunken sots from the Geophysical Lab—and maintaining a semblance of order if not navigational direction.

Sue is a warm-hearted, high-strung person who demands much of herself and performs at 110 percent of capacity as a scientist, as a musician, and as a human being (wife, mother, naturalist). Her fundamental contributions to our physical understanding of earth materials and planetary processes represent the work of a lifetime, but she is just beginning! I am honored to present to you Dr. Susan Werner Kieffer, recipient of the MSA Award for 1980.

0003-004X/81/0506–0643$02.00