

Acceptance of the Roebling Medal of the Mineralogical Society of America for 1984

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President Prewitt, members of the Mineralogical Society of America, and guests:

First, let me thank Phil for having a selective, rather than a comprehensive, memory.

I wish to express my thanks to the Mineralogical Society of America for the honor of the Roebling Medal. The notification, by Ed Roedder last November, that I was to receive it was probably the most pleasant shock that I have ever had. I don't know who was more surprised, me or my friends!

You know, those of us who serve the taxpayer in government agencies have little expectation of monetary reward for accomplishments, no patents from which to receive handsome fees, no lucrative positions on the boards of directors of profitable corporations, no share in the benefits from successful mineral exploration, and not even the right to invest *anywhere* in businesses concerned with minerals. What we do have is an unusually fine opportunity to work with a varied collection of talented colleagues with whom we make studies and publish findings. Other than the satisfaction of having one's works recognized, accolades are scarce. The usual form of recognition is a request for a reprint from a graduate student (whose professor had discovered our article but assigned the reference to the student to have him figure out just what these guys were really trying to say). However, the most treasured response of all is favorable recognition by one's peers. You have given me the best of all possible rewards. I accept it with pride—pride that I gratefully share with my many friends and colleagues who have contributed so much. I appreciate it immensely, and thank the officers and Council of the Society, as representatives of all the members, for this honor.

For perhaps 25 MSA luncheons, I have sat comfortably in the audience and watched with pleasure as my illustrious predecessors were honored at this table, never thinking that I might join them. The Roebling laureates constitute fine company, and as I look over their names and recall their impressive accomplishments I am more than a bit awed. However, I do possess one talent (or maybe it is just blind luck) that goes far beyond that of most of my colleagues and is probably responsible for my presence here today; that is the ability to find excellent coworkers, and first among these, in proximity, persistence, and patience, is my wife, Martha.

I appreciate the patience shown by my crystallographer colleagues at the beginning of my career. I am especially grateful to Mary Mrose for showing me how to orient crystals for precession X-ray study and for trying to teach a



ten-thumbed geologist how to make those "perfect" spindles for the powder camera; to Gunnar Kullerud who showed me that wonderful experiments could be performed in a simple apparatus, and to Pete Toulmin and Bob Garrels who helped me understand what the experiments meant; to Phil Bethke and Ed Roedder for career-long friendship and for interest and cooperation in all sorts of mineralogical-geochemical-petrological schemes; to E-an Zen and Julian Hemley who would not let me hide in my comfortable intellectual tower, but insisted that I get involved with the broader issues concerning mankind's use of resources and the environment. The list could be extended indefinitely including John Haas, Gerry Czamanske, Bob Rye, Brian Skinner, Jim Craig, Hu Barnes, Hiroshi Ohmoto, and many, many others.

Most of us have career-shaping events sneak up on us, and I would like to share my personal experience. I owe a lot to murdochite. In 1955 I was a brand new employee working with the crystallographic team led by Charlie Christ and Howard Evans at the Geological Survey. Charlie was particularly interested in the crystal chemistry of the then-new mineral murdochite. At the time it was thought to be simply a copper-lead oxide that contained tetravalent lead. He asked me to try to grow some synthet-

ic murdochite crystals for detailed structural analysis. I had been growing large carnotite crystals from various molten salt fluxes and immediately began trying similar procedures on murchisonite. Soon thereafter I managed to spill a few tens of cc's of molten NaOH all over my right hand, thereby considerably dampening my enthusiasm for murchisonite and relegating me to a couple of months of left-handed library work. While thus constrained, I began to compile data on the solubilities of metallic sulfides, carbonates, and so on and noted that the most soluble sulfides were those that tended to form carbonates most frequently. That led to a systematic geochemical approach to the mineral assemblages found in those complex and enigmatic rocks known as ore deposits. I've been at it ever since, spending part of the time in experimental and computational work trying to learn why minerals do what they do, and part of the time in the field and behind the microscope trying to learn to read the record so eloquently but

so cryptically written in the rocks and to interpret the processes that created them. I don't think that I would be breaking faith with Charlie to note that I've never had even the slightest urge to resume messing with murchisonite.

Before I close let me share briefly an observation about our Society, and our profession in general. Compared with the other physical sciences, and especially when compared with the biomedical sciences, our profession benefits immensely by being a small, relatively close knit group who strive to advance themselves and their science through cooperative studies and free communication and discussion, often well in advance of publication. This tradition is maintained more by imitation than by conscious effort; but it is nonetheless a treasure that should not be dismissed lightly but must be vigorously protected.

Once again, I am honored to have been chosen as the 1984 Roebling medalist. I cherish the award, and even more, the sentiment that goes with it. Thank you.