



MARTIN J. BUERGER

PRESENTATION OF THE ROEBLING MEDAL  
TO MARTIN J. BUERGER

CLIFFORD FRONDEL, *Harvard University, Cambridge, Massachusetts.*

*Mr. President, Fellows and Members of The Mineralogical Society of America, and Guests:* It is a pleasure to introduce Martin J. Buerger as Roebling Medalist. This award, the highest honor that our Society can bestow, is now given for the first time to an American structural crystallographer.

The development of structural crystallography through *x*-ray and other techniques has brought fundamental advances in our understanding of minerals and in our methods of dealing with them. W. L. Bragg, a pioneer in structure analysis, received the Roebling Medal in 1948. Paul Niggli, who worked in cognate fields, as they were relevant to his main interests in petrology and mineralogy, was awarded the Roebling Medal in 1947.

Buerger has worked broadly in this field. His main interest has been the application of structural data and of crystallochemical principles derived from structural studies to the interpretation of genetic problems in mineralogy and geology. Yet interpretations stem from experimental observations, and are tested by them. It is from this realization that the great bulk of his work has been concerned with instrumentation, particularly the Weissenberg and precession methods of single-crystal goniometry and powder photography by film methods, with crystallographic theory and the methods whereby the structure of a crystal is derived from the observed diffraction effects, and with the description by these means of the crystal structure of numerous substances.

Buerger's penetrating interests in the thermodynamics and structural control of polymorphism, in disorder and exsolution, and in thermostructural phenomena in petrology and geochemistry are indicated in the notable Presidential Address that he gave at the Ottawa meeting of our Society in 1947. In this Address I recall the thematic statement "Temperature endows a mineral with energy beyond that of its static crystal structure." A forthright and clearspoken person, not averse to rigor in any of its forms, Buerger sometimes has endowed people with temperance. His past laboratory assistants include charred examples—yet without exception their feelings became transmuted with time to affection.

Exacting thoroughness in preparation and demonstration, often combined with originality of method, is a characteristic of the man. His book "X-Ray Crystallography" treating chiefly of the Weissenberg method and his recent "Elementary Crystallography" are typical examples.

M. J. Buerger was born in Detroit in 1903. His undergraduate and

graduate college work was done at the Massachusetts Institute of Technology. He was appointed Assistant Professor at Tech in 1929, and became Professor of Mineralogy and Crystallography in 1944. Appointed Institute Professor in 1956, he is now Director of the School for Advanced Study.

A Fellow of the American Academy of Arts and Sciences, and a member of the National Academy of Science, he is a member of numerous other scientific groups including the Academies of Science of Torino and of Brazil. He founded the Crystallographic Society of America, that later merged with the American Society for X-Ray and Electron Diffraction, and was President of the latter organization in 1939. He has served the International Union of Crystallography both as a Council member and as a member of the U. S. National Committee. Our delegate to the organization meeting of the International Mineralogical Association, in Madrid last April, he performed his duties in exemplary fashion, participated in Spanish cultural activities and, in the always welcome discussion of the distribution of offices between countries, poured cement on Anglo-American relations. He is a co-editor of the *Zeitschrift für Kristallographie*, and a co-editor of the International Tables for X-Ray Crystallography. In 1951 Professor Buerger was awarded the Day Medal of the Geological Society of America for the "distinguished application of physics and chemistry to geology." He has long served our Society; he has given direction and impetus to Mineralogical Science. Mr. President, it is an honor to present Martin Julian Buerger for the award of the Roebeling Medal of the Mineralogical Society of America.