

## MEMORIAL OF MAXWELL NAYLOR SHORT

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Maxwell Naylor Short died at his home in Tucson, Arizona, March 23, 1952. The shock of his death was more keenly felt because he had appeared at the time to be making a remarkable recovery from an illness that had incapacitated him during the fall months of 1951. Dr. Short's passing is felt keenly not only by his family but also by his many friends and students, and the numerous admirers of his scientific contributions to geology and mineralogy.

Dr. Short was honored in many ways for distinguished service in his



MAXWELL NAYLOR SHORT

1889-1952

chosen field. He was a Fellow of the Mineralogical Society of America and was elected president in 1939. He served for many years, until the time of his death, as one of the associate editors of *The American Mineralogist*. He was a Fellow of the Geological Society of America and vice-president of that organization in 1940. He was an active member of the American Institute of Mining and Metallurgical Engineers, the Society of Economic Geologists, and of the honorary societies Tau Beta Pi and Sigma Xi. He was elected president of the Arizona chapter of Sigma Xi in 1941.

Max Short was born in Pembina, North Dakota, March 1, 1889, the son of Augustus and Eliza Jane (Naylor) Short. He was brought up on his father's farm in the Red River valley and throughout his life possessed a love of growing things. At his home in Tucson he cultivated a fine garden, specializing in roses. He spent many summers during his later years on the farm in Pembina and, among his various activities, developed a wild life preserve there.

Dr. Short completed his high school course in Los Gatos, California, and in 1911 received a degree from the University of California in mining engineering. Subsequently he followed the mining profession, working at a number of places in Arizona and Mexico. He was always fond of recounting the experiences he had during those early days. In Arizona he was employed by Phelps Dodge Corporation, the Calumet Mining Company, and the Magma Copper Company; in Mexico he was employed by El Rayo Mining and Developing Company (in Chihuahua) and the Tecolotes Mining Company. He was always proud of the fact that he had "mucked" with the best of them.

During World War I Short suffered a serious accident while serving at Camp Fremont, California, with the 319th Engineers. He lost both legs in a mine explosion. This loss handicapped him greatly but did not stop him permanently from doing a great deal of field work, especially underground. During World War II he filled in voluntarily as instructor in topographic mapping and spent entire days in the rugged terrain and heat of southern Arizona. The accident changed Short's life, but in making adjustments to new conditions he contributed greatly to geology in fields he probably otherwise would not have pursued. It is a great tribute to his perseverance and power of will that, in a profession normally followed by men of more than average physical stamina, he accomplished so much.

Following the accident of World War I, Short decided upon geology as a career and after his recovery entered Harvard University where he made an enviable academic record as a graduate student. He began a study of the opaque minerals while at Harvard and used this as a thesis

for his doctorate which he received in 1923. He was appointed an instructor at Harvard during the following two years and then entered the service of the United States Geological Survey. He returned to fill the post of Lecturer at Harvard during the years 1927-28.

Dr. Short's researches both at Harvard and with the U. S. Geological Survey followed his major field of interest, the identification and genesis of the opaque ore minerals. His keenness of observation and laboratory skill are familiar to many who have used his classic work, "Microscopic Determination of the Ore Minerals." This outstanding contribution to the geological and mineralogical literature first appeared in 1931 and immediately attained a prominent place, both in the libraries of mineralogists and economic geologists, and as a classroom text. Short's original observations and methods, and his evaluation and representation of pertinent techniques from other fields stimulate the reader by their lucid presentation. A major revision of the work appeared in 1940.

Short joined the faculty of the University of Arizona in 1931, but continued on a WAE basis with the U. S. Geological Survey for many years. He became Professor of Petrography and Mineralogy at Arizona and head of the Department of Geology and Mineralogy in 1948, a position he held until forced by illness to relinquish it in 1951.

The decision to become an educator was a happy one. Not only did Dr. Short possess high scientific qualifications, but his great patience and capacity to explain with clarity difficult phases of a subject were an invaluable aid to his students. He entered into this sphere of his career as a teacher—not as a pedant. He loved his students and earnestly desired that they obtain the maximum that he was capable of giving. His classes in mineralogy and petrography were usually small, but he lectured in a formal style and with an erudite phraseology which delighted his students. This was quite at variance with his friendly informality and shyness he exhibited at other times, both at home and at the University.

One of Dr. Short's most notable characteristics was his unselfish desire to assist those with whom he came in contact. This trait explains why so many people regarded him as a close friend. He always took great pleasure each year in photographing his advanced classes and hanging the framed photographs in his laboratory. Short was also unstinting in his energies in assisting his fellow instructors, even in such menial chores as grading papers in elementary courses and tutoring undergraduates in subjects other than geology. Certain favorite expressions of enthusiasm and approval, as "textbook stuff" and "see it with the naked eye" have become a part of the geologic vocabularies of many of his students and professional associates.

Dr. Short's attitude toward academic life and his intellectual curiosity can be illustrated by the fact that he frequently audited courses of his associates. Undergraduates were sometimes startled at first to see him attending certain classes regularly and taking an active part in the discussions. He was also interested in other subjects and for many years prior to his death, he registered in the College of Fine Arts and pursued studies for the piano. He loved to perform at his home for friends.

The high integrity represented by Short's contributions to geology insure their lasting value. At the time of his death he was collaborating on a textbook on hand specimen petrology.

Dr. Short is survived by two sisters, Virginia and Eleanor (Mrs. William Norton), and a nephew, Dr. Charles A. Short, Jr.

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