

ment. In his first seasons, field work meant travel by canoe and portage far from rail and road. The solitude, the strenuous work, the restricted fare, were at the same time a challenge and an attraction to the hardy and vigorous. His liking, his vocation, his genius for field work, were the true measure of this man, who could outwalk many a younger and taller man on a long traverse, who would never require of an assistant that which he would not do himself, who did not disdain to share the more menial tasks of camp life. He will be remembered by those who were privileged to share the campfire with him, and by his students, as a rare geologist, and a true humanist.

A complete list of Professor Moore's publications appeared in 1966 in *Geol. Soc. Amer. Bull.*, 77, 229-231.

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## MEMORIAL OF WALDEMAR THEODORE SCHALLER<sup>1</sup>

August 3, 1882-September 28, 1967

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Dr. Waldemar Theodore Schaller, mineralogist of the U. S. Geological Survey for more than sixty years, died on September 28, 1967, at the Mar Salle Nursing Home in Washington, D. C., after an illness of about two years.

Dr. Schaller was born in Oakland, California, on August 3, 1882, the son of Theodore P. and Eliza Borneman Schaller. His father, who was deeply interested in the natural sciences, taught him the elementary principles of chemistry before he was old enough to enter high school.

At the University of California, where he was a Leconte fellow, Waldemar Schaller's latent interest in geology was greatly stimulated by Professor Andrew C. Lawson, head of the Department of Geology. Professor Arthur S. Eakle taught him mineralogy and goniometry, and he studied analytical chemistry under the guiding hand of Professor Walter C. Blasdale.

A few months after receiving his bachelor's degree in 1903 he was appointed Assistant Chemist on the U. S. Geological Survey at the munificent salary at that time of \$100 per month. Here in the Division of Physical and Chemical Research, under George F. Becker as Chief, he was associated with such giants in the field of geochemistry as Frank Wigglesworth Clarke, William F. Hillebrand, George Steiger, Eugene T. Allen, and Eugene C. Sullivan. In this environment Schaller stored up a wealth

<sup>1</sup> Publication authorized by the Director, U. S. Geological Survey.



*Waldemar Theodore Schaller*

of knowledge and experience that served him so well as a background for his future research work.

In 1908 Waldemar Schaller married Mary Ellen Boyland, and, though no children blessed this union, it was a very happy one. Three nieces were raised from early childhood and received the same loving care that would have been lavished on their own children.

Schaller resigned from the Survey on March 1, 1912, and he and Mrs. Schaller went to Europe. There they visited mineralogical museums, and he conferred with the leading European mineralogists. In June of that year he received his Doctor of Philosophy degree, *summa cum laude*, under Professor Paul von Groth at the University of Munich. His thesis, most of which had been written after previous consultation with Prof. Groth before he went to Europe, was entitled: *Beitrag zur Kenntnis der Turmalingruppe*. It was an investigation of the chemical composition of tourmaline and the related optical and crystallographical properties. This was followed by studies under Professor Victor Goldschmidt at Heidelberg. October found Dr. Schaller reinstated on the Survey after his very rewarding six-month stay abroad.

Dr. Schaller's contributions to mineralogy were many and covered a wide range of subjects. His conclusion that water or hydroxyl is a necessary constituent of tremolite, published in 1916, has led to our present interpretation of the composition and structure of all the amphiboles. His classic study of the paragenesis of the saline minerals in the Permian deposits of New Mexico and Texas, pointed the way for the British mineralogists in their later investigation of the English evaporites of the same age.

Schaller's work did much to enlighten us on the genesis of pegmatites. He showed that many pegmatites are not simple igneous injections but have been formed by a long and complicated succession of mineral replacements.

Dr. Schaller was Acting Chief of the Section of Chemistry and Physics from 1944 to 1947. This merely added the burden of administrative work to his already full schedule of mineralogical research.

The list of the scientific societies of which Schaller was a member is a long one. It includes the American Chemical Society, the Geological Society of America, the Mineralogical Society of America (charter fellow, treasurer 1930-40, vice-president 1921, president 1926), the Geological Society of Washington (vice-president 1934, president 1935), the American Association for the Advancement of Science, the American Institute of Mining and Metallurgical Engineers (president of the Washington Section 1937), the Washington Academy of Sciences (vice-president 1936-37), the American Academy of Arts and Sciences, the Mineralogical Association of Canada, the Geochemical Society (charter member), and

the Society of Economic Geologists. He was also a member of Sigma Xi and of the Cosmos Club. He was a member of the Mineralogical Society of Great Britain and Ireland (1912-1945), and elected honorary member 1945. In 1956 he was elected an honorary member of the Société française de Mineralogie et Crystallographie. Schaller was a fellow of the Deutsche Mineralogische Gesellschaft, and the Wiener Mineralogische Gesellschaft.

Dr. Schaller was awarded the Roebling Medal of the Mineralogical Society of America in 1938, the second recipient of this honor, the U. S. Geological Survey Distinguished Service Award in 1952, and the Becke Medal of the Austrian Mineralogical Society in 1963.

The November-December, 1953, issue of the *American Mineralogist* was dedicated to Clarence S. Ross and Waldemar T. Schaller. At that time each had formally retired from the U. S. Geological Survey, having reached the mandatory retirement age of seventy, but continued on in the Survey laboratories with the same enthusiasm that characterized their previous work.

Dr. Schaller had a very keen sense of humor that was likely to bubble over at any time. A younger colleague, hoping to "stump the master" handed him a transparent rhombohedron of magnesite, that looks very much like calcite, and asked him to name the mineral. Schaller looked at it carefully for a moment and said "Any fool would say that this is calcite, but I am not a fool. It is magnesite."

Schaller attended the annual meeting of The Mineralogical Society of America that was held in Cincinnati, Ohio in 1961. Here at dinner one evening with several of the former officers of the Society, he pulled his locally famous trick of addressing the waiter in a sort of garbled speech and then saying "Oh, you don't speak Chinese?" But this time the waiter retreated to the kitchen and brought back another waiter who did speak Chinese but not the Schaller variety. His penchant for such practical jokes that left no ill feelings livened up many luncheons and other social gatherings.

The greatness of Waldemar Schaller as a scientist is reflected in his bibliography of nearly three hundred papers that include the description of more than forty new minerals. However, the picture of Schaller, the scientist, is inadequately drawn without portraying Schaller, the man. He was friendly, warm and generous, always ready to help his associates over difficulties encountered in their research problems, but was a severe critic of those who did not hew to the line of scientific rectitude.

The main part of Dr. Schaller's bibliography was published in *The American Mineralogist* [38] 1276-1283, (1952)] at the time of his official retirement from the U. S. Geological Survey. It is well known, however, that Dr. Schaller had no intention of retiring from active work and so,

in 1963, at the end of a further ten-year period, his bibliography was brought up to date and published in *Amer. Mineral*, **48**, 1410–1412. The papers that have appeared since then are added here at this time, with the comment that his list of publications is not yet complete. Dr. Schaller, as befits an active worker in any field, had numerous manuscripts in various stages of preparation and his colleagues are bringing many of these to completion. There will, for that reason, be further publications that will bear his name.

The counsel and guidance of Waldemar Schaller will be greatly missed at his Alma Mater, the U. S. Geological Survey.

1965

(AND ANGELINA C. VLISIDIS AND MARY E. MROSE). Macallisterite,  $2\text{MgO} \cdot 6\text{B}_2\text{O}_3 \cdot 15\text{H}_2\text{O}$ , a new hydrous magnesium borate mineral from the Death Valley region, Inyo County, California. *Amer. Mineral*, **50**, 629–640.

(WITH MARGARET D. FOSTER). New analysis of Genth's volborthite. *Amer. Mineral*, **50**, 785–789.

(WITH MARY E. MROSE). The identity of paternoite with kaliborite ( $\text{K}_2\text{O} \cdot 4\text{MgO} \cdot 11\text{B}_2\text{O}_3 \cdot 18\text{H}_2\text{O}$ ). *Amer. Mineral*, **50**, 1079–1083.

Paul F. Kerr: His years as Secretary of the Mineralogical Society of America. *Amer. Mineral*, **50**, 1546–1547.

1966

(WITH MARGARET D. FOSTER). Cause of colors in wavellite from Dug Hill, Arkansas. *Amer. Mineral*, **51**, 422–428.

1967

(WITH ANGELINA C. VLISIDIS). The formula of shattuckite. *Amer. Mineral*, **52**, 782–786.

(AND MAXWELL K. CARRON AND MICHAEL FLEISCHER). Ephesite,  $\text{Na}(\text{LiAl}_2)(\text{Al}_2\text{Si}_2)\text{O}_{10} \cdot (\text{OH})_2$ , a trictahedral member of the Margarite group and related brittle micas. *Amer. Mineral*, **52**, 1689–1696.

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## MEMORIAL OF ARNO SCHÜLLER

November 11, 1908–March 27, 1968

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The untimely death of Arno Schüller took a very enthusiastic and hard working man out of the ranks of German mineralogists. This loss weighs especially heavy because he belonged to a middle-aged group acting as a bridge between the older and the younger generation of scientists. In Germany, this gap is particularly serious due to the great