

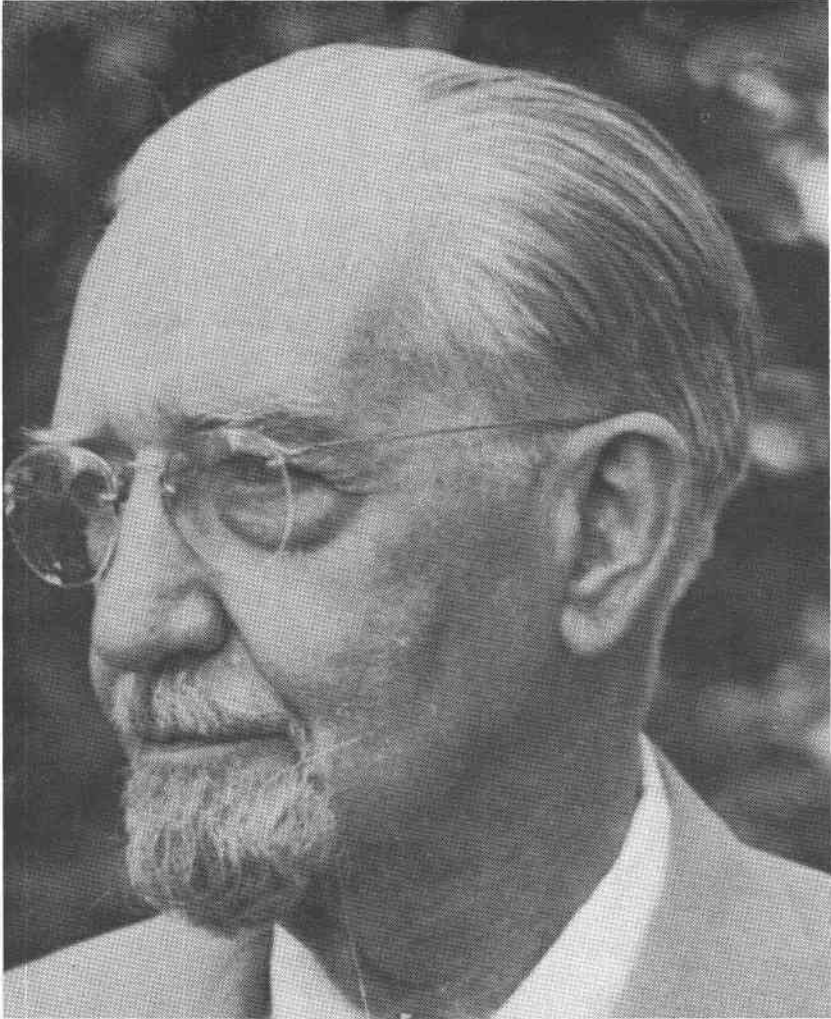
MEMORIAL OF ALBERT JOHANNSEN

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Albert Johannsen was born December 3, 1871, at Belle Plaine, Iowa, and died at the age of 90 on January 11, 1962, at Winter Park, Florida. Johannsen received a B.S. degree in architecture from the University of Illinois in 1894. Following graduation he worked at several jobs: architect's assistant, furniture designer, field assistant with the U. S. Geological Survey at Jackson Hole, Wyoming, and assistant city engineer in Salt Lake City. He returned to school and received a B.S. in geology from the University of Utah in 1898. He then went to the Johns Hopkins University where he received his Ph.D. in petrography in 1903. His dissertation which dealt with the serpentines of Maryland was an outgrowth of a study which he made for the Maryland Geological Survey. Upon completion of his graduate studies he joined the staff of the U. S. Geological Survey, a connection which he retained until 1925. His work for the Survey began in the San Juan Mountains of Colorado. Later, he worked for the Survey in the Black Hills of South Dakota. He was Acting Chief of the section on Petrology from 1907 to 1909. In 1909 he went to the University of Chicago where he succeeded J. P. Iddings. The next year he became a permanent member of the faculty as Assistant Professor. Johannsen was promoted to Associate Professor in 1914 and became a full professor in 1918, a position which he held until his retirement in 1937.

These are the bare outlines of his professional career. Johannsen was pre-eminent in the field of microscopical petrography. He probably was, in a sense, the greatest and last of the American school of petrographers, the first of which was George Huntington Williams of Johns Hopkins, who studied with Rosenbusch and Zirkel at Heidelberg and who brought the thin section study of rocks to America. Upon Williams untimely death, E. B. Mathews, who was a student of Williams and who also in turn studied with Rosenbusch, was appointed Williams successor. Thus Johannsen, as Mathew's student, was introduced to microscopical petrography at the Hopkins which had been and still was almost the only place in America where instruction in this then new subject could be had. Thus Johannsen became the leading disciple of the Rosenbusch school of petrography in America.

This cultural heritage explains to some degree Johannsen's admiration of the best in German scholarship, his own mastery of German, and his unsurpassed works in the "Handbuch" tradition. He is best known for his translation of Weinschenk's "Fundamental Principles of Petrology,"



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his own "Manual of Petrographic Methods"—a work still unsurpassed in the English language, and his monumental four volume work "A Descriptive Petrography of the Igneous Rocks" published by the University of Chicago Press. Johannsen's "Essentials for the Microscopical Determination of Rock-forming Minerals," also a University of Chicago book, was translated into Russian. A portion of his descriptive petrography was translated into Chinese. Johannsen is perhaps better known for these works than for his original contributions which appeared in some 40 papers in the technical journals. Chief of these is his quantitative classification of the igneous rocks. Less well known is the fact that Johannsen was a "special editor" of both the 1936 and 1957 editions of *Webster's New International Dictionary* and was responsible for all the definitions in petrography in this well-known work.

Johannsen's writings are characterized by his meticulous attention to detail and to thoroughness. All references cited, and these were legion, were checked by him. He set a standard of excellence that puts most contemporary scholarship to shame. In a sense Johannsen's scholarship was a kind of literary scholarship. He was more interested in rock names than in rocks. He was more pleased if he could trace the history of a rock term to original sources than in the discovery of a new kind of rock. His interests lay in classification and nomenclature and in rock description rather than genesis. To some degree, therefore, he was out of step with his contemporaries in his later years. He regarded a good rock description as something of permanent value and considered ideas about rocks as ephemeral—things that change with the fashions of scientific thought.

Albert Johannsen was first of all a teacher as his 28 years of service at the University of Chicago demonstrate. He taught primarily graduate students who came from many places in this country and abroad. None will fail to remember his patience and willingness to help them learn their optical theory and master the technique of the thin section study of rocks.

Johannsen was a collector at heart. At the time of his retirement he left a superb collection of nearly 5,000 rock specimens at the University of Chicago. For most of these he had thin sections. The collection included materials from nearly all of the classical areas of petrology—all specimens were catalogued and cross-indexed. Each specimen was neatly trimmed to standard size and shape—a reminder that the art of collecting and trimming, of which Johannsen was a master, is indeed a lost art in our generation.

Johannsen's collecting extended to many fields outside of geology including postage stamps, commemorative half dollars, U. S. vice presidential autographs, first editions of Charles Dickens' works including the

famous Phiz illustrations and dime novels. These hobbies became his chief interest upon retirement and out of them grew two books: "House of Beadle and Adams and its Dime and Nickel Novels," a three volume work, two volumes of which appeared in 1950, published by the University of Oklahoma Press, and "Phiz: Illustrations from the Novels of Charles Dickens," published in 1956 by the University of Chicago Press. Each is a scholarly work and the first, in particular, entailed a good deal of travel, of search of legal records and consultation of the archives in the Library of Congress.

Albert Johannsen had other talents also. He was an accomplished artist and when a student in Utah he drew the fashion plates for the *Salt Lake City Herald*. He was also skilled in oil painting. He was a photographer of merit and a Leica enthusiast long before 35 mm cameras became popular in the U. S. In fact he took many of the photomicrographs used to illustrate his books and even contributed papers to professional photographic journals.

Prof. Johannsen was a truly educated man in the classical sense. He was an accomplished linguist, spoke German fluently, knew Latin and Greek, was widely read. The several chapters of his 4-volume descriptive petrography are adorned with multilingual literary quotations; references to the works of one of his favorite authors, Mark Twain, appear in footnotes in volume 2 (p. 152, 230).

As noted in "Who's Who in America," (vol. 20, 1938-39) Johannsen was a Fellow of the American Association for the Advancement of Science, of the Geological Society of America, and of the Mineralogical Society of America. He was an honorary member of the Academia Nacional de Ciencias de Mexico and a member of the Deutsches Mineralogisches Gesellschaft. He also belonged to the American Numismatic Association and the Adventurers Club of Chicago and the Western's Club, a group interested in Americana. He was Associate Editor of the *Journal of Geology* from 1910 to 1937. He was elected to Phi Beta Kappa and Sigma Xi. He was a Mason (32°, Shriner), a member of the Masonic Veterans Association of Illinois and Acacia. He is survived by his wife (Annabelle Scott of Radford, Virginia) whom he married in 1904, and two sons, Albert and Willard Johannsen.

Professor Johannsen was honored in 1938 by a special number of the *Journal of Geology* (vol. 46, no. 3, part 2), entitled "Studies of Petrology," upon the occasion of his retirement at the University of Chicago. This volume, containing contributions by such petrologists as Bowen, von Eckermann, Larsen, von Wolff and Eskola, is a fitting tribute to a scholar. His life is a reminder that one can be productive and useful without a grant or project, without a staff of assistants, without per diem or

travel allowances, and without overhead. He accomplished so much with so little. May his tribe increase!

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MEMORIAL OF WILLIAM JOHN McCAUGHEY

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William John McCaughey, Professor (Emeritus) of Mineralogy at The Ohio State University, and a Life Fellow of the Society, died in Columbus, Ohio on April 8, 1962, after a brief illness.

With his passing, the Mineralogical Society of America has lost not only one of its senior members but an outstanding scientist and inspiring teacher who encouraged many undergraduate students to take advanced studies in mineralogy and the related sciences.

William John McCaughey obtained his early education at the Philadelphia Central High School where he graduated in the 107th class of 1902.

Central High School at that time was under the direction of President Robert C. Thompson, an outstanding teacher and administrator. It was here that young William acquired an early interest not only in science but in literature and ethics that was to remain with him throughout his life. He continued his studies at the University of Pennsylvania and obtained his B.S. degree in chemistry there in 1906.

Upon his graduation from college, he took a job as assistant assayer with the U. S. Mint in Washington.

Following two years (1906-1908) with the Mint, he transferred to the United States Bureau of Soils in Washington where he worked (1908-1911) on identification of soil minerals and the classification of soils based upon their mineral components.

During the period that he was in Washington, he continued his education with graduate work in chemistry, mineralogy and geology, first at Johns Hopkins and later at George Washington University where he obtained the Ph.D. in 1912. At the Bureau of Soils, young William, like others, had difficulty in identifying the finely divided soil minerals. He saw how successful Dr. Fred E. Wright and others at the Geophysical Laboratory had been in using the petrographic microscope for the identification of minerals in fine powders. Largely by self-study, McCaughey mastered this fine-powder petrographic technique and was able to apply



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it to his work on soil minerals. He developed an exceptional skill in this new field of optical mineralogy that was to be of great value to him in his later teaching, scientific and industrial work. While in Washington, Dr. McCaughey also had occasion to observe at first hand the important work on phase equilibria of rock-forming oxides that was being done at the then newly created Geophysical Laboratory of the Carnegie Institution of Washington. He was quick to appreciate the wide application of this fundamental research on phase equilibria to the fields of chemical, ceramic, metallurgical and mineral technology.

In 1911, he joined the faculty of The Ohio State University, Columbus, Ohio, as assistant professor. Two years later he was asked to organize and head a new Department of Mineralogy in the College of Engineering. In 1916, he was made professor and chairman of the department and held this position until 1952, when he retired and was appointed Emeritus Professor. The principal objective of the new department was to teach mineralogy to engineers as a science that would be useful to them in their industrial and scientific careers. In addition to fundamental courses in crystallography and descriptive mineralogy, Dr. McCaughey introduced and taught courses in optical mineralogy and in thermochemical mineralogy. His courses in thermochemical mineralogy were the first of such given in this country. In these, he emphasized the high-temperature equilibria in oxide and silicate systems and cited instances in industry where the teachings were of practical importance. The courses in optical mineralogy stressed the identification and study of minerals in the form of fine powders as well as in thin sections. He encouraged students to work with the raw materials, products and by-products of industry that they would encounter in their later work.

Dr. McCaughey's courses in mineralogy proved to be of such interest and value that they were specified in four of the curricula of the College of Engineering. His courses were also available to and taken by graduate students in other departments, including geology.

Professor McCaughey was held in high regard as a teacher by both his students and associates. He possessed a combination of faculties that made him outstanding in his field. He had an encyclopedic knowledge of his subject, combined with great enthusiasm and the ability to inculcate in his pupils the desire to learn. He was a keen observer and admonished his students to look for the unusual or, as he was wont to state, for the problems that do not come out even or as expected. He maintained a keen interest in the work of the University as a whole and served on its Council on Instruction and as chairman of the committee on the Lamme Medal for a number of years. In recognition of his accomplishments, The Ohio State University bestowed the honorary Doctor of Science degree

upon him in 1953. In 1960, numerous friends and former students established a graduate fellowship in his name at the University to provide financial assistance for graduate study in mineralogy.

Throughout his teaching and scientific career, Dr. McCaughey maintained a particularly intense interest in high-temperature processes and the reactions that occurred in these processes. In spite of a heavy teaching load, Dr. McCaughey found time to direct and personally carry out extensive research investigations. Much of his research work was done on products of high-temperature reactions, such as slags, glasses and refractories. His research accomplishments, and those of the many graduate students working under his guidance, have been of great importance to metallurgy and ceramics, as well as to the field of mineral technology.

Dr. McCaughey adhered to the strict code of moral and ethical principles that he had been taught at home and at school, and by his commendable conduct impressed these high principles on his students and associates. Many of his former students came to him for help on the problems they encountered in their "after-school" careers. Dr. McCaughey gave generously of his time and skills in such cases and drawing on his extensive knowledge and experience, he was usually able to assist them. It is not surprising, then, that the devotion of his former students will remain a living monument to his teaching accomplishments.

Dr. McCaughey's activity as a Life Fellow of the Mineralogical Society of America included service on the Council from 1932 to 1935 and as Vice President in 1941. He was elected to Fellowship in the Geological Society of America in December, 1929. In 1956, he was given a certificate attesting to his 50 years of membership in the American Chemical Society. He was a member of the Mineralogical Society of Great Britain and Ireland, Deutsche Mineralogische Gesellschaft, American Crystallographic Association, American Geophysical Union, American Institute of Mining and Metallurgical Engineers, and the Ohio Academy of Science (Fellow). In addition to the Society of the Sigma Xi (President of the O.S.U. Chapter, 1928-29), McCaughey had been recognized by several honorary societies: Tau Beta Pi (engineering), Alpha Chi Sigma (chemical), Phi Lambda Upsilon (chemical) and Sigma Gamma Epsilon (earth sciences).

Although never an ordinary member of the American Ceramic Society, he had had a close association with it. During the period 1912 to 1916, he assisted in editing the *Transactions* of this society. In 1936, he was selected to give the Orton Memorial Lecture. In 1954, the Pittsburgh Section of this organization presented him with the Albert Victor Bleininger Award for his outstanding contributions to ceramic engineering. On April 30, 1962, he was elected to honorary membership in the society.

He maintained an active association with the metallurgical and ceramic

industries and had over the years a consulting relationship with a number of companies in these fields, including the Republic Steel Corporation, Owens-Corning Fiberglas Corporation, A. C. Spark Plug Division of General Motors Corporation, Union Carbide Corporation, Weirton Steel Corporation, Division of National Steel Corporation, Bethlehem Steel Corporation, and Basic Incorporated.

Dr. McCaughey was born in Philadelphia, Pennsylvania, June 21, 1882, the youngest of four children of Adam John and Catherine (Elliot) McCaughey. On November 25, 1908, he married Emma R. Wilson who, together with their two daughters, Mrs. Elizabeth Fruewald and Mrs. Charles H. Kohler, Jr., survives him. He is also survived by his brother, James E. McCaughey, and his sister, Mrs. Margaret Lindsay.

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