MEMORIAL OF ALEXANDER HAMILTON PHILLIPS

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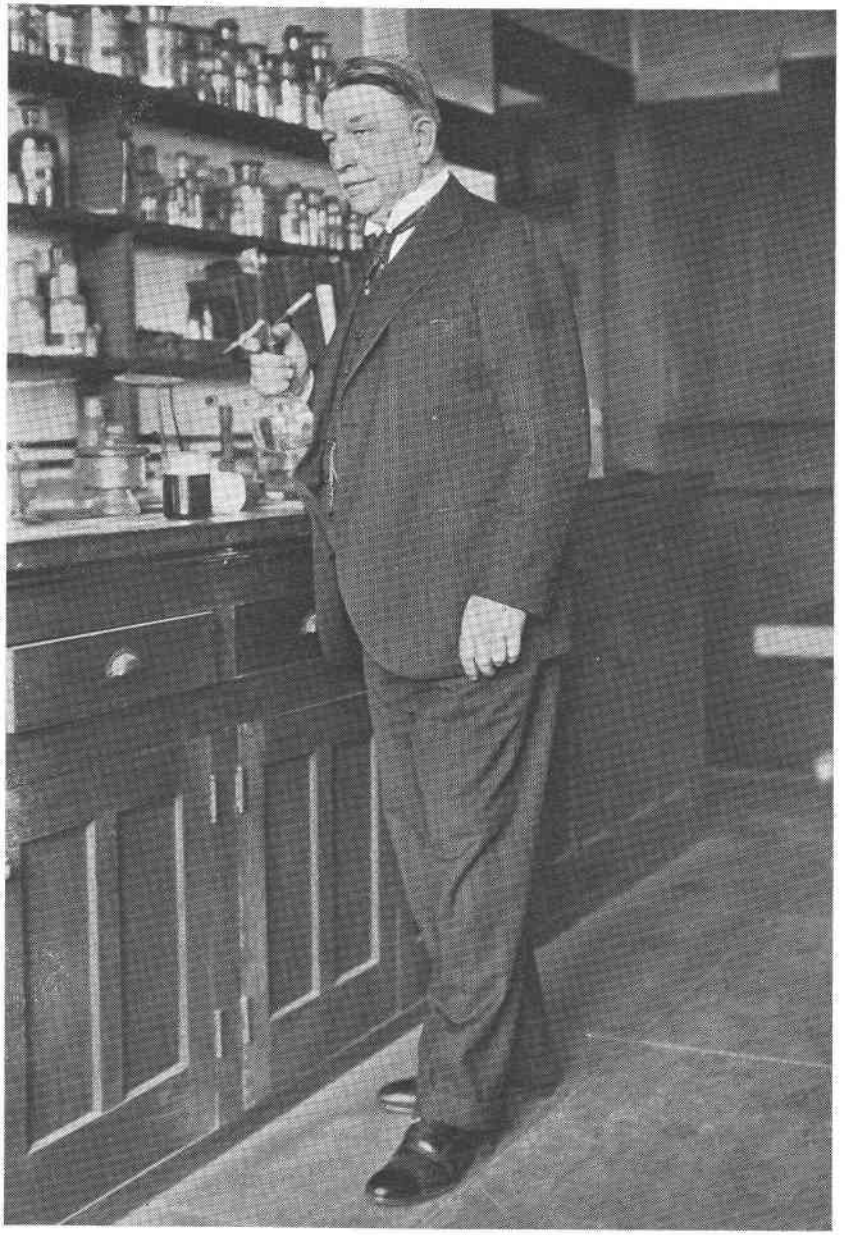
Professor Alexander Hamilton Phillips died at his home in Princeton, New Jersey, January 20, 1937, at the age of seventy years. Professor Phillips was a warm friend of all mineralogists, from the boy collector with his first specimens to the professional research scientist. He had both a real love for minerals as specimens and a deep interest in them as subjects for scientific research.

He was born and grew up on the family farm near Lawrenceville, New Jersey, only a few miles from Princeton. He was the son of John Feaster and Hannah Warne Phillips. He married Miss Mabel Harriet Knight of New York City in 1896. Mrs. Phillips died in 1934. They had no children.

Professor Phillips entered Princeton University in 1883 and graduated with the degree of B.S. in the class of 1887. He continued his studies while teaching at the University after graduation, and received the Sc.D. in 1899. As an undergraduate he took a very large number of courses (37 semester courses) in science and mathematics, and was elected to Phi Beta Kappa in his senior year. His courses in science were mostly in biology, chemistry, and mineralogy. In the early period of his active services, the present diversification and specialization in science were not so marked, and one could be competent in several fields. This is well exemplified in Professor Phillips' career.

For a period of 49 years following his graduation from Princeton in 1887, Professor Phillips was an official member of the staff of instruction at Princeton. He had the unique distinction of serving successively in three departments. The breadth of his experience can best be indicated by citing the courses he taught. For six years he was a member of the Biology Department, assisting in such courses as Vertebrate Morphology; Comparative Anatomy and Embryology; and Morphology of Birds and Reptiles. During this time he was associated with Professors W. B. Scott, and H. F. Osborn, and was for two years under his brother John Warne Phillips (Demonstrator in Biology). The following 13 years, with the exception of one year, he was a member of the Department of Applied Chemistry and Mineralogy, and taught courses in Qualitative Analysis; Quantitative Analysis, whose content was described as "including salts, limestone, coal, feldspar, etc., and sugars, milk and similar food analyses"; Advanced Quantitative Analysis including complex substances, such as iron, steel, etc.; Assaying; and Blowpipe Analysis. For one year (1903–1904) he was a member of a separate department of Mineralogy



Alexander Hamilton Phillips
(1866–1937)

together with Professor Cornwall. From 1905 to 1936 he was a member of the Department of Geology and taught courses in Blowpipe Analysis, Descriptive Mineralogy, Optical Mineralogy and Crystallography, Petrography, and Advanced Mineralogy, including crystallography and the paragenesis and chemical relations of minerals.

Professor Phillips was recognized by all those who had occasion to come in contact with his work as a thoroughly competent chemical analyst, and his main research activities were largely directed at problems which involved chemical analysis. His first published paper (1894) was based on two chemical analyses of rock from Hawaii; his doctorate dissertation (1899) was a thoroughgoing microscopic and chemical study of the trap rock of Rocky Hill, New Jersey. This contained nine complete chemical analyses comprising three specimens of rock from three different vertical positions in the sill, and chemical analyses of two augites and four plagioclases from the analyzed rock specimens. The difference in composition of the augites and of the plagioclases was explained in terms of fractional crystallization, an early recognition of this important principle in interpreting certain mineral and rock relationships. At the time of his death he had completed a series of 30 chemical analyses of minerals and rocks for a series of papers in which he was collaborating with Dr. H. H. Hess, and had finished all the weighings of precipitates and volumetric determinations for another analysis, but had not made any of the calculations to determine the oxides. The writer made the appropriate computations and the total added up to 99.91 per cent, a result quite in keeping with his uniform accuracy.

In 1904 he published a paper on "Radium in an American Ore." This presented the preliminary basis for a method of concentrating radium from Colorado carnotite (hydrous potassium uranium vanadate), a process founded largely on the principle of fractional crystallization. The concluding sentence of his paper was "These facts prove beyond question that carnotite will become a commercial source of radium." Radium was first produced on a commercial scale from this ore in this country in 1914.

In 1914 Professor Phillips undertook an analytical search for metals in marine organisms from the Tortugas, collected in collaboration with his colleague, Professor van Ingen. Since the amount of metallic constituents ranged from only a few ten thousandths to a few hundredths of a per cent, the task was an exceedingly delicate one. Minute amounts of copper, iron, zinc, and manganese were found in all the materials examined, as well as lead in the liver of a horse conch, and vanadium to the extent of 0.12 per cent in a dried holothurian. These results were of

importance in connection with the possible role of organisms as a source of the minor metallic constituents of sedimentary rocks.

He aided materially the researches of his colleagues and of graduate students through advice on chemical problems and through the contribution of a great many chemical analyses.

His analytical studies also led him to the discovery and description of a new mineral (gageite) from Franklin Furnace. He also discovered some new zinc phosphates from Salmo, B. C., but was anticipated in publication by Dr. T. L. Walker of Toronto.

Aside from the chemical studies, he published several papers describing new crystallographic forms for minerals, and his presidential address before the Mineralogical Society in 1931 was on "Isomorphous substitution of elements in minerals."

Professor Phillips was the author of a comprehensive textbook of mineralogy, which included tables for determining all but the very rare minerals by means of the blowpipe. This latter subject was one of his special interests.

He had the ingenuity of the traditional Yankee. All of the highly complicated crystal models, of which he had a magnificent collection he made himself from the wood of a pear tree grown in his own back yard. He also made a set for Mt. Holyoke College when fire destroyed their collection.

Professor Phillips was very active in university affairs and served on many of the major committees of administration where, in the words of Dean L. P. Eisenhart, "his fine spirit, deep human sympathy, and sound judgment were of great value."

He was an ardent fisherman and also an amateur ornithologist. His interest in wild life, combined with his broad scientific background, enabled him to render valuable services to the State of New Jersey as a member of the State Fish and Game Commission from 1919 to the date of his death. In this capacity he has had virtual direction of the Hackettstown Fish Hatchery, with the result that pioneering work was done in many fields and the hatchery is now one of the foremost in the country. His services were much in demand as a toastmaster and speaker at dinners of sportsmen.

Professor Phillips was one of a rather small group that was vitally interested in the organization of the Mineralogical Society of America, and was chairman of the organization committee (December 1919) and one of the Charter Fellows of the Society. He served the Society as Councilor (1920–1923), Treasurer (1924–1929), and President (1931), and was always influential in the affairs of the Society.

He was a Fellow of the Geological Society of America (1914–1937) and Vice President for the year 1931; also Fellow of the American Association for the Advancement of Science, the Society of Naturalists, and the American Chemical Society.

Professor Phillips served his community in many official positions and capacities. He was a member of the Borough Council from 1906 until 1911, and Mayor of Princeton from 1911 until 1916. During the World War he was food administrator of the Borough. For the last year of his life he served as Recorder of the Borough and was held in deep respect by those in all walks of life for his humane, fair, and impartial administration of justice.

For nearly 32 years Professor Phillips' interests centered in the Department of Geology at Princeton, and by his will he provided a substantial fund for the furtherance of the work of that department and for additions to its mineralogical collections.

Professor Phillips was a scholar of varied interests, broad experience, and excellent judgment. He was noted far and wide for his deep laugh, and his good humor and congeniality were contagious. The interests of the Mineralogical Society of America were close to his heart, and the members of the Society accorded him a deep fondness, admiration, and respect. We mourn the loss of a very great personality.