

MEMORIAL TO JOSÉ J. BRAVO*

L. GARCIA.

Dr. Bravo was born in the city of Lima, the capital of Peru, on the 17th of April, 1874. His parents were Dr. Manuel Gerardo Bravo and Señora Maria Bresani, both of illustrious lineage, and he was a grandson of the famous Peruvian physician, Dr. José Julian Bravo.

He received his elementary education in the Institute of Lima, where he always received the highest honors. Then he went to the engineering school whose halls witnessed his talent, his successes and his scholarship which was of the highest order. He closed his scholastic career at the age of twenty, after which followed a life of activity and study, he being one of the most intellectual collaborators in the National development, and an exponent of its potentialities, himself giving an example of unremitting labor in the various fields of science and professional work, and dedicating himself unreservedly to science and his country.

He introduced into the country the study of micropetrography and modernized the teaching of mineralogy, and wrote the first course in palaeontology printed in South America. He recognized that the mineral deposits of Pallasca and Conchucos, considered up to that time as iron mines of no value, contained the rare and valuable mineral wolframite. He was the first engineer to declare that the deposits of vanadium at Minas Ragra were the most important in the world. He had the distinction of having the name Bravoite given to a mineral discovered by him. He also discovered two species new to science, Patronite and Helectypus Paulckey. Bravo was the directing spirit in the National Congress of Mines in 1917, as also in the Pan American Scientific Congress in 1924, of which he was General Secretary. Simultaneously with the Scientific Congress was held the Congress on the Unification of Specifications in which he took a conspicuous part and as a consequence was appointed a director in the bureau established at Lima.

* Paper read by Professor A. L. Parsons at the eighth annual meeting of *The Mineralogical Society of America*, Cleveland, Ohio, December 29, 1927.

Bravo was an Engineer, Doctor of Science, and Professor of the University of San Marcos where he offered a course in Physical Geography, the lectures of which have been printed.

He solved the difficult problem of the fumes at Arroya. As an official he collaborated in various administrative and government undertakings, some of which were outside his official sphere of action, a notable example of this being his work on export laws.

He was the Director of the *Cuerpo de Ingenieros de Minas y Aguas*, Director of the Bureau of Standards, President of the Association for the Advancement of Science, a member of the Supreme Council for Mines and Waters, Professor in the School of Engineering, offering courses in palaeontology and mineralogy. He was a member of the Societies of Mines, Engineers, Geology and Geography, the Council of Industrial and Scientific Research, the Geodetic and Geophysics Union, the Technical Committee on Taxation, Protector of the Indigenous Race, occupying on many occasions the Presidency of many of them.

In 1908 the Provincial Council of Lima in honor of his studies on mineralogy, micropetrography and palaeontology, decorated him with a gold medal and he also received decorations from the Crown of Italy, the Holy See and others. He was a member of many scientific institutions of Europe and North America, among which are the following: *Deutsche Geologische Gesellschaft*, The Mineralogical Engineers, *Société Géologique de France*, The Institution of Petroleum Technologists (London), American Geographical Society (New York), *Société Linnéene de Lyon*, and the Mineralogical Society of America.

His publications include the following books: *Mineralogy*, *Palaeontology*, *Physical Geography* and various works and studies of great importance.

He was overtaken by death on a visit to the United States to represent Peru at the Congress of Standards and Commerce which met at Washington, planning to continue his journey to Europe to take part in the Congress of Geodesy and Geophysics.

An automobile travelling at thirty-five miles per hour took his life, leaving as orphans his little children. Dr. Bravo was married to Señora Sara Bresani who had died scarcely a year before.