Memorial to Paul Ramdohr 1890–1985

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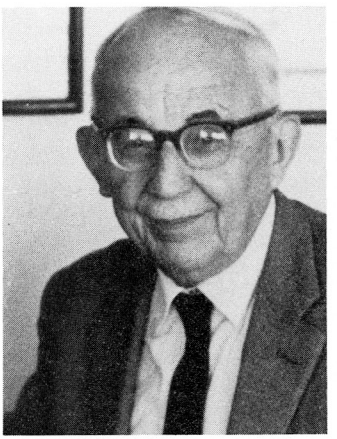

Paul Ramdohr died of a stroke on March 8, 1985, shortly after his 95th birthday. The "Erzvater" (father of the ores) will be remembered as one of the greatest mineralogists in his country. With his encyclopedic knowledge of ore minerals and polished sections, he stood quite alone. He was tough, robust, and equipped with incredible physical and intellectual perseverance up to a great age. He demanded much from himself as well as from others. He was gifted with an exceptionally good sense of sight, which he combined with a good memory and quick powers of deduction.

As he used to say, "Die Leute Können alle nicht hingucken." He therefore had an enviable advantage over others, which allowed him to work long hours with the microscope. More important, Paul Ramdohr will be remembered as a man who was always willing to pass on his immense knowledge in an unselfish manner. Unforgettable are the hours of shared microscopy; he trusted his eyes and his intellect more than chemical and x-ray analyses, which often proved to be wrong or inexact.

Paul Ramdohr was a good teacher, in the classroom as well as during excursions. His intentions were not simply to please his students, but rather to motivate them to learn. He always tried to speak as simply as possible, so that beginners and people from foreign nations could easily follow. In examinations he was severe but just. Even months later, he could still remember good examinations; he also did not forget bad ones.

Paul Ramdohr was born on January 1, 1890, in Überlingen at Lake Constance. He graduated from the Gymnasium in Darmstadt in 1909 and then attended the Universities of Heidelberg and Göttingen. He took part in the first World War from the first to the last day. He joined the artillery, where he acquired the skill of reading maps, but also partial deafness in one ear—a fact many people did not know.

Following the war (1919), Ramdohr earned his doctorate in Göttingen with a widely regarded doctoral thesis about the basalt of the Blauen Kuppe near Eschwege. His teacher, Professor Mügge, recognized Ramdohr's talent and taught him from the advanced school of careful observation—inasmuch as it can be learned. Professor Mügge must have been a man with special qualities. Ramdohr greatly admired him. Many years after Mügge's death, Ramdohr could be heard saying, "What would be Mügge's criticism, if he could read my papers?"

Ramdohr was 32 years old when he received his Habilitation from the Mining Academy of Clausthal, Harz. Shortly afterward, he began working with ore microscopy, a tool which in the following years he developed and refined.

One can argue about which part of his scientific development was the most productive. Many friends and colleagues favor his work following 1950. However, I believe the time between 1920 and 1950 is not any less important. During that time he laid the groundwork for later successes in hard, creative pioneer work.

Ramdohr became full professor at Aachen in 1926. Together with Schneiderhöhn, he was the

author of a book on modern ore microscopy, which became an indispensable help in ore mineralogy, economic geology, ore dressing, and metallurgy.

Two important Ramdohr publications came out in 1928. One concerned the ores of the Rammelsberg, the biggest nonferrous metal deposit of Germany. Origin of substance, precipitation, diagenesis, and metamorphosis of that pyritic deposit concerned Ramdohr for decades. In his second publication concerning the Rammelsberg (1953), Ramdohr formulated the theory that metals form in marine environments, by volcanic exhalations, under conditions similar to those of a sapropel rich in H_2S. The poisoned biotope is proven by the dying off of plankton and many other life forms. At that time, nobody guessed that researchers in submarines about 30 years later would observe formation of such ores in the East Pacific and at the Galapagos Rise.

Ramdohr's work on the firmness of coke (1928) was widely recognized because of its practicality, even outside the field of mineralogy.

During the summer of 1930, by invitation of the Summer School of Geology and Natural Resources of Princeton University, Ramdohr and Schneiderhöhn traveled through the United States for six weeks. During this journey, they not only collected minerals but also established valuable contacts, most notably with Waldemar Lindgren, the senior American researcher in ore deposits.

In 1931, Ramdohr married Anne-Sofie Souheur, who stood by his side until his death, in good and in bad times. She was his good genius and perhaps the only person who knew how to smooth his slight streak of impetuosity, in private life as well as with his collegues.

In 1934, he followed A. Johnsen as professor of mineralogy at the famous Friedrich-Wilhelm University of Berlin, later Humboldt University. In 1937, he became a member of the Prussian Academy of Sciences and was elected President of the German Mineralogical Society. At the age of 47, Ramdohr reached the highest position possible for a German professor of mineralogy. A harmonic cooperation connected him with Stilles, the patriarch of geology and tectonics. This contact is expressed in his work. In 1936, the 11th edition of *Klockmann's Textbook of Mineralogy*, completely revised by Ramdohr, was published.

During this time he made journeys to Norway and Sweden: Jakobsbakken, Sulitelma, Boliden, and others. The phenomenon of metamorphosis and deformation of ore deposits was discovered. Ramdohr himself gathered tons of materials in quarries and mines, and personally labeled all the collected samples, learning much in the process. He told me that personally collecting samples was one of the most important activities of his long life.

Then came the years of war and finally the destruction of his institute in Berlin. After the breakdown, Ramdohr and his collegues were assigned to reconstruction works: he served first as a stone-breaker for the Russian honorary monument, and later as a laborer building canals. Ramdohr told me that he made one of his most interesting discoveries working in the canals: the formation of splendid gel pyrites in the sapropel of the sewage system. This was a discovery he urgently needed for his work on the pyritic deposits.

Despite the deprivation of the post-war years, the "Klockmann-Ramdohr"—the first mineralogy compendium following the war—was published in 1948, a work of high scientific quality. A journey to Australia (1949) inspired Ramdohr to work on the metamorphic lead-zinc deposit occurring in granulite facies rocks at Broken Hill in New South Wales. His main work, however, applied to a great new book about ore microscopy, *The Ore Minerals and Their Intergrowths*, which was published in 1950 by the Academy Publishing House of Berlin. It was later translated into several languages and appeared in four editions.

In 1950, after declining an offer to work in Australia, Ramdohr became a professor in Heidelberg, the town he had loved since his student years. In 1951, he became a member of the Academy of Sciences in Heidelberg. His most important work during this time was a study concerning the gold-uranium ores of the Witwatersrand in South Africa and their interpretation as fossilized placer.

After becoming professor emeritus, he retired from official university service at the age of 70, in order to work in the Geophysical Laboratory of the Carnegie Institution in Washington, D.C., an activity he continued until 1964. Together with Kullerud and Schreyer (1964), he studied the metamorphic conditions of the pyritic deposit at Bodenmais in the Bavarian Forest.

After 1964, Ramdohr dedicated most of his time to research on meteorites. He published many papers in cooperation with the Max Planck Institute for Nuclear Physics in Heidelberg. Later, he examined samples from the moon as principal investigator. Visitors from all parts of the world went to Heidelberg to see Ramdohr and view the rock samples from the moon.

Ramdohr's last spectacular achievement, when he was 81, was his study of the giant Australian meteorite Mundrabilla. The aged Ramdohr insisted on driving personally to the West Australian desert to organize the shipping of the 6-ton iron meteorite to Heidelberg. While the meteorite was being cut up, something went wrong with the diamond saw. Ramdohr was present to provide advice: in the manner of the old Romans, the meteorite was sawed using wire ropes and carborundum.

High regard for Paul Ramdohr's scientific achievements is reflected in the many honors he received on the national and international levels: five honorary doctorates; membership in six academies; thirteen honorary memberships, two of them in America (Geological Society of America Honorary Fellow and Mineralogical Society of America); and eight medals. His long list of publications comprises more than 250 titles.

Paul Ramdohr had the rare gift of staying young through the company of science and youth, and being of good cheer, even in old age. He is survived by his wife, one daughter, four sons, and all their extended families, to whom go my deepest condolences.

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