

REVIEW

Victor Moritz Goldschmidt: Father of Modern Geochemistry; by BRIAN MASON. P. 184, figs. San Antonio, Texas, 1992 (Geochemical Society Special Publication 4, \$40.00; \$30.00, Geochemical Society members).—We owe Brian Mason a great debt of gratitude for this biography of V. M. Goldschmidt, the greatest geochemist of the first half of this century. Mason writes from considerable personal experience. In January 1940 Mason joined Goldschmidt at the Geological Museum in Oslo, started to work with him on the geochemistry of tellurium but left Oslo for Sweden on the morning of April 9, 1940, the day of the German invasion of Norway. Goldschmidt was smuggled into Sweden by the Norwegian underground late in 1942. In December of that year Mason and Goldschmidt were reunited in Stockholm. Their friendship continued in England, where Goldschmidt was flown by the British authorities in March 1943. They last met in December 1943 but continued to correspond. Goldschmidt returned to Oslo in June 1946 a very sick man and died there on March 20, 1947. Mason revisited Norway in the summer of 1948 and found his room at the Geological Museum exactly as he had left it eight years earlier. At the time, Dr. Ivar Oftedahl was sorting through Goldschmidt's papers. These included hundreds of pages of manuscript intended for his comprehensive treatise on geochemistry, a volume that was put into publishable form by Dr. Alex Muir and that was published in 1954 by the Clarendon Press, Oxford, as the classic 730-page volume *Geochemistry*.

Mason traces Goldschmidt's life as the son of a distinguished Professor of Chemistry in Zürich, Amsterdam, Heidelberg, and Oslo. VMG's own academic career began as a student of the great Norwegian geologist Waldemar Brøgger. Goldschmidt's first major research effort dealt with contact metamorphism in the Kristiania Region. His results were published in 1911 as a classic monograph on the application of physical chemistry to metamorphic petrology, a volume that presaged the much later burst of understanding of the chemical and mineralogical evolution of metamorphic rocks after World War II.

In the 1920's Goldschmidt's interests turned to crystal chemistry and to the distribution of the elements in the Earth. His table of ionic radii, his insights into the relationship between these radii, the charge of ions, and their atomic number were important in the development of solid state physics and chemistry. The impetus that he gave to studies of the distribution of the elements, particularly the minor and trace elements, led to a revolution in our understanding of geochemical processes and entitles him—perhaps more than any of his other work—to be called the “Father of Modern Geochemistry.”

In 1929 Goldschmidt moved from Oslo to Göttingen. There he was well supplied with all the necessities for doing first rate analytical and mineralogical research. A series of outstanding students studied the geochemistry of many of the minor elements. The results of their work were the basis of a series of papers on the “Geochemische Verteilungsge^e

setze der Elemente" (the geochemical laws of the distribution of the elements). Hitler's accession to power in 1933 ultimately spelled the end of the highly productive Göttingen years. VMG's Jewish ancestry marked him for persecution. He resigned from his professorship in 1935 and returned to Oslo virtually penniless. His work in Oslo continued along the lines established in Göttingen. In 1938 he published a table of the relative cosmic abundances of the elements, which became a cornerstone for current theories of the origin of the elements and the evolution of the solar system.

The respite in Oslo was also destined to be destroyed by German aggression. Norway fell in the spring of 1940. Goldschmidt decided to stay on at Oslo but was finally persuaded to flee to Stockholm after a series of arrests and a very close escape from deportation and almost certain death in the company of many members of the small Jewish community in Norway. From Sweden he flew to Britain, largely to help with the Allied war effort. In England he was ill a good deal of the time. He returned to Norway in 1946 but survived there for less than a year.

Goldschmidt's work was recognized by numerous honors, all listed in Appendix D of Mason's book. His name lives on in the Goldschmidt Medal, the highest award of the Geochemical Society, and in the growth of the several branches of geochemistry which he helped to found and to foster. His treatise on Geochemistry is still a well used reference work, both for its data and for its insights.

Mason's biography traces Goldschmidt's life and accomplishments with warmth and with great sympathy. Mason was deeply influenced by Goldschmidt, and in this book he pays homage to his mentor. If one were minded to fault the biography, it would be on the basis of its length or rather its lack thereof. Of the book's nearly 200 pages, only 116 are devoted to the text proper. The remaining pages are largely occupied by very useful Notes, by seven Appendices, and by an Index. One hundred sixteen pages are not enough to contain an expansive biography. I would love to have seen a fuller discussion of Goldschmidt's place in early 20th century science and a deeper analysis of his personality and his relationship to other people; but I am most grateful to Brian Mason for writing a biography which serves most admirably to make Goldschmidt's life and work accessible to his intellectual heirs.

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