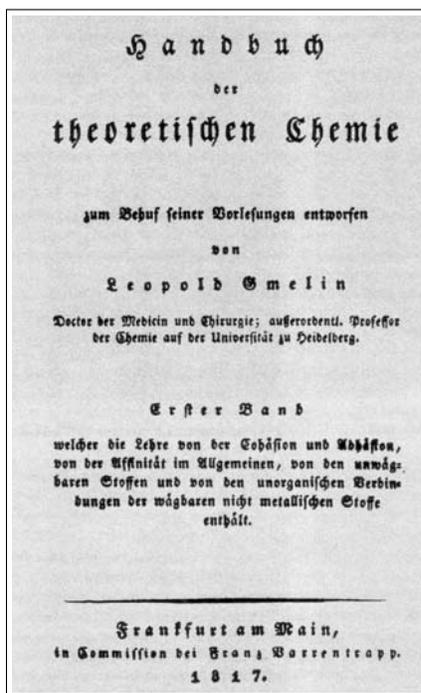


## GMELIN AND HIS *HANDBUCH*

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The first edition of Leopold Gmelin's three-volume work, *Handbuch der theoretischen Chemie*, published by Verlag Chemie in Heidelberg in 1817, was reprinted in 1988 on the occasion of the 100th anniversary of the author's birth (Fig. 1). The book contains a portrait of Gmelin (Fig. 2). A postage stamp was also issued in Germany to mark this event (Fig. 3). The importance of this work lies in the fact that Gmelin was the author who attempted for the first time in the history of chemistry to cite the original literature; i.e., he not only acknowledged his contemporary chemists and their work as other authors before him had done, but he systematically indicated where their work was published. As he prepared new editions of the book, the lists of references increased. This was the motive behind which the German Chemical Society decided to continue preparing new editions and creating the Gmelin Institute for that purpose.

Leopold Gmelin (1788-1853) was born in Göttingen into a distinguished family of chemists, traveled to Tübingen, Vienna, and Italy, and then settled down at the University of Heidelberg in 1813. In 1817, at the age of 29, he held the first chair of medicine and chemistry at the University of Heidelberg, the same year in which he published his *Handbuch*. His book was expanded in successive editions into a multi-volume reference work. He systematically arranged all facts concerning every



Front page of the first volume of Gmelin's *Handbuch der theoretischen Chemie* of 1817

element and compound, giving references to the pertinent literature. In 1922 the German Chemical Society assumed the continuation of this monumental work with the eighth edition. Later the Gmelin Institute was founded in Frankfurt to keep the *Handbuch* up to date (Table 1). The full collection is now a multivolume work of great importance as a research tool (Fig. 5). It was ultimately translated into English.

The Table of Contents of Vol. One is shown in Fig. 4. Printed in the old German Gothic script, the book opens with an introduction of four pages, in which the author defines chemistry as a part of natural science and then goes on to explain the plan of the book. The contents are presented in four parts: Cohesion (7 pages), Adhesion (6 pages), General Chemistry (37 pages), and Special Chemistry (1499 pages), the last comprising the bulk of the book.

Under General Chemistry the topics discussed are: Chemical Affinity, Saturation, Neutralization, Decomposition, and related topics. The Special Chemistry is composed of two parts: Chemistry of Unweighable Matter (light, heat, electricity), and Chemistry of Weighable Matter, which is further divided into two large sections: Inorganic Compounds and Organic Compounds (Tables 2 and 3). The inorganic compounds are subdivided into

10 nonmetals, 11 light metals, and 25 heavy metals. It should be noted that sodium was known as natronium, magnesium as magnium, beryllium as glycium, aluminum as aluminium, and tungsten as scheel. Volume One covers all the material up to and including the nonmetals, Volume Two the metals, and Volume Three the organic compounds. No equations and no drawings are to be found in the text. A few tables showing analysis of material are followed by an index of 29 pages. Lacking drawing, formulas, and equations, the text could easily be mistaken for a novel.

The fifth edition was prepared in 1852-53 but without inclusion of organic compounds. Later Friedrich Konrad Beilstein (1838-1906) in Saint Petersburg under-

took updating this part, which eventually developed into the widely valued *Beilsteins Handbuch der organischen Chemie*, first published in 1880-1882.

Gmelin was succeeded at Heidelberg in 1852 by Robert Bunsen (1811-1899), but his legacy, in the form of his *Handbuch*, was sustained.

## ABOUT THE AUTHOR

Fathi Habashi, Professor Emeritus, Laval University in Quebec City, Canada, has published widely in the field of metals. His most recent book is *Researches on Rare Earths: History and Technology*, 2008.

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Leopold Gmelin (1788-1853)

