

Books

History of The International Chemical Industry From the "Early Days" to 2000 Fred Aftalion (Translated by Otto Theodor Benfey), Chemical Heritage Foundation, Philadelphia, PA, 442 pp., \$24.95, 2001, 2nd Edition

If a person considers the history of the chemical industry as beginning with the first large-scale chemical operation carried out in a factory, then history begins with sulfuric acid manufacture in 1766 in France. Sulfuric acid was used for dye manufacture and to make other acids that were used to extract metals from ores.

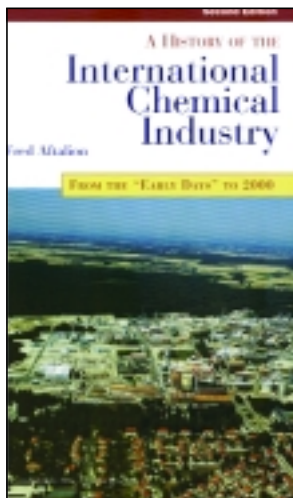
The author divides the history of chemistry into six time periods: The 1700s to 1850; 1850 to 1914; 1915 to 1939; 1939 to 1973; and 1973 to 2000. We also learn about the ancestors of Modern Chemistry, such as Priestly, Lavoisier, Avogadro, Faraday and Dalton. In each of these periods, we learn of the processes developed, the scientists and inventors who developed these processes, and the companies that commercialized the processes. History is further broken down according to the roles of the main countries involved in chemistry in each period: France, England, the U.S., Switzerland, Germany, Scandinavia and Japan.

In chronological order, beginning with the earliest, the subjects include: sulfuric acid, the alkalis, dyestuffs, coal-tar chemicals, the electric arc furnace, explosives, pharmaceuticals, synthetic rubbers and polymers, and petrochemicals.

Two aspects of chemical history that were not covered in this book are the impacts on history of nuclear chemistry and carbon black — important omissions in the estimation of this reviewer.

The author uses the effects of the happenings in world history on the chemical industry to supply continuity. As world population and food needs increased, the world could no longer rely on guano deposits for fertilizer. Thus, fertilizer chemistry became important. A concomitant need was the development of chemicals to control plant diseases and reduce insect damage.

German chemists led the world in making useful materials using Germany's plentiful coal tar. The free world had to find solutions to chemical shortages during World War II, thus, petroleum-based chemistry was developed (primarily in the U.S.), which resulted in advances in polymers, pharmaceuticals and agricultural chemicals. In later years, we see the effects in the chem-



ical industry of overproduction and adverse environmental occurrences.

Although the author jumps from subject to subject, chemical engineers can use the bibliography, appendix and index to select whatever they want to know about international chemical industry history.

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The Motion of Bubbles and Drops in Reduced Gravity

R. Shankar Subramanian, R. Balasubramaniam, Cambridge University Press, New York, NY, 488 pp., \$100, 2001

This monograph is primarily about the motion of bubbles and drops caused by interfacial surface tension due to temperature gradients on their surfaces. The authors provide a reasonably comprehensive approach and highlight the current research in the field.

The book is divided into four parts. In Part One, the reader is introduced to the role of gravity and interfacial surface tension on the motion of bubbles and drops in chapter one, with the governing equations given in chapter two. The motion of isolated bubbles and drops is covered in Part Two. Chapter three provides in-depth coverage of bubble and drop motion within a gravity environment, and is used to underscore the important differences with motion induced by interfacial forces, the subject of chapter four. Part Three deals with the motion of bubbles and droplets with each other and with neighboring boundaries. Chapters 5–7 are devoted to body-force-driven motion and motion driven by the interface. In Part Four, chapter eight deals with mass transport to bubbles and drops in reduced gravity. Chapter nine is devoted to motion occurring in a body of fluid due to interfacial tension gradients on its free surface. Emphasis is on the theoretical analysis, but experimental results are presented whenever possible.

The text is well referenced and indexed, and the detailed table of contents enables the reader to quickly find topics of interest.

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