

risk during chemical use. As was stated earlier in this review, the book uses the international perspective as its base for compliance. At the end of each chapter, the authors supply a complete list of references which will help the reader elect whether the material supplied will be of use and meet the particular legal requirements within the area of operation.

DAN KERR

Chemical Hazards of The Workplace, 3rd edn., by Gloria J. Hathaway, Nick H. Proctor, James P. Hughes and Michael L. Fischman (Eds.), Van Nostrand Reinhold, 115 Fifth Ave., New York, NY 10003, 1991, ISBN 0-442-00455-9, 666 pp., \$79.95.

A reference manual concerning approximately 550 of the most commonly encountered work place chemicals. The authors provide a much welcomed introduction and brief (55 page) introduction into workplace industrial hygiene in terms that the layman can comprehend. The main thrust of the book is to provide brief biographies from a toxicological format, incorporating the latest limits available from the standard producing bodies (OSHA, ANSI, EPA). The book does an excellent job of presenting not only the technical data but also a brief narrative on the material itself, again, in layman's terms. The final section of the book references Chemical Abstract Services (CAS) numbers as well as a cross reference to the chemicals covered in the book. One of the "should be required" publications in any safety professional's library.

DAN KERR

Groundwater, by R. Allan Freeze and John A. Cherry, Prentice-Hall, Inc., Englewood Cliffs, NJ 07632, 1979, ISBN 0-13-365312-9, 604 pp., \$84.00 (plus postage).

Although we recognize water as one of the essentials for life and industry, the importance of groundwater often is overlooked. This volume, *from 1979*, authored by two Canadians (Dr. Freeze is with the Department of Geological Sciences, University of British Columbia, and Dr. Cherry is with the Department of Earth Sciences at the University of Waterloo) begins by highlighting the interdisciplinary study of groundwater, and should interest or be essential to geologists, hydrologists, soil scientists, agricultural engineers, petroleum reservoir analysts, and land-utilization scientists and engineers. Since a surprisingly large number of people still use wells as a source of water for domestic use, the importance to human health can hardly be doubted.

The endless circulation of water between ocean, atmosphere, and land, known as the hydrologic cycle presents the opportunity to capture water, to retain it for desired times, and then to use the water for both domestic and industrial applications, including irrigation and public supplies.

Since 1856, when Henry Darcy published a report on the water supply of the city of Dijon, France, the flow of water into and out of underground areas (aquifers) has been considered a science. While Darcy concentrated on the flow of water through sand grains, clay particles or rock fragments with other media has been studied by others. This, in essence, is the thrust of the book, supplemented by impoundment and management of underground systems.

The chemical evolution of natural groundwater presents information on the different bases, from carbonate to crystalline rocks and sedimentary systems. The importance of aquifers is stressed, and the exploration for aquifers and their response to pumping, as in well systems, is examined. The fact that geotechnical problems may arise, as in dams and tunnels and eventually into excavations is outlined in some detail. The genesis of economic mineral deposits and implications for geochemical exploration conclude the main text, while several appendices on topics covered by the text are given, with references. It is unfortunate that the references are not as up-to-date as they should be; the copy at hand was published in 1979. A thorough updating would be noted with interest.

Overall, the volume, even in its present form, is a valuable resource and reference, and was designed for use as a text in introductory courses normally taught in the junior or senior year of undergraduate geology, geological engineering, or civil engineering curricula. Elementary calculus is used frequently in several of the chapters, but, in context, this is highly desirable. Doubtlessly, the present volume will be cited as a classic for this little-appreciated aspect of water containment and use.

HOWARD H. FAWCETT

Stormwater: Best Management Practices and Detention for Water Quality, Drainage, and CSO Management, by Ben Urbonas and Peter Stahre, PTR Prentice Hall, Englewood Cliffs, NJ 07632, 1993, ISBN 0-13-847492-3, 449 pp., \$52.00 (plus postage).

Urban stormwater engineering and management have made much advancement in recent years, and a heavy rain or "flood" is not tolerated if preventable. In addition, the question of the contamination which stormwater can spread, as well as the legal aspects, can no longer be ignored. Dr. Urbonas is with the Urban Flood Control District in Denver, Colorado, while Dr. Stahre, the co-author, is with the Malmo Water and Sewer Works in Malmo, Sweden. This international cooperation has produced a very useful and practical volume.