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## BOOK REVIEW

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### Grouting in Engineering Practice

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**REFERENCE:** Bowen, R., *Grouting in Engineering Practice*, 2nd ed., Halsted Press Division, Wiley, New York, 1981, ISBN-470-271-7, \$44.95, 285 pp.

This publication has added some new features in the second edition but still suffers from the basic errors in the 1975 first edition. Namely, the emphasis of the author is in areas of his specialty, and he relies heavily on previously published references in areas where he lacks firsthand experience. This is a common error that shows up in many publications, but in this case, it is compounded by the fact that based on the references given, the author's experience is in radioisotopy, an interesting subject, but of somewhat minor importance in the field of grouting.

Chapter 1 deals with the aspect of grouting and presents an adequate history of grouting along with a good discussion on groutability. Cement and clay as grouting materials are dealt with in Chapter 2, and it is my opinion that this chapter suffers from too much use of commercial opinions and data, and too little explanation of the chemistry and mechanics involved.

Chapter 3 on chemical grouting completely leaves out any references to the research and development performed in the United States during the 1970s sponsored mainly by the Federal Highway Administration and the subsequent use of this technology on the Washington, DC and Baltimore subways. Also lacking is the extensive data developed from the U.S. Corp of Engineers, Lock and Dam 26 Test Program.

The author cannot be faulted for not discussing some of the more recent developments in chemical grouting such as the finite-element

design of soft-ground tunnels, creep in silicate grout, nondestructive testing of chemical grout, and so forth but is negligent in not reporting on the toxicity problems with certain of the chemical grouts.

Chapter 4, Emulsions in Grouting, starts off with a case history of asphalt-concrete pond liner that seems out of place in this text as does the discussion of bituminous-coated piles to reduce drawdown. However, maybe the author did the industry a favor by reminding us to at least consider emulsions in future design and construction of grouting projects. The minuscule use of emulsions in grouting may be the result of our ignorance rather than the unfeasibility of these materials.

Chapter 5 on Compaction Grouting is a restating of the various American Society of Civil Engineers (ASCE) geotechnical papers on this subject while Chapter 6 on Slabjacking is taken almost exclusively from the ASCE 1977 Committee on Grouting "Slabjacking-State-of-the-Art."

The largest use of grouts for the grouting of foundation of new dams is regulated to Chapter 7, and much more emphasis is placed on grouting of leaks in dams and dam failures than how to design, construct, and instrument a grout cutoff wall.

Chapter 8 on the application to other engineering structures touches on grouting used to reduce vibrations of machinery foundation and grouting in the mine, tunneling, and bridge industries.

The last chapter is entitled, "Specifications for Grouting," but really is a catchall for areas not covered in the previous chapters.

In summation, the main advantage of this publication is that it is the only commercial English manuscript that makes an effort to cover all aspects of grouting, and the author is to be commended for his effort in trying to cover this broad area in so short a publication. His references and case histories need to be updated. However, like every publication, something will be gained reading this text no matter what your background.