This book presents, in a condensed form, a phenomenological description of friction. The author, beginning with a brief description of mechanical properties of materials and the various strength properties associated with materials, covers in an informal manner the various aspects of wear, friction, adhesion, and lubrication.

These topics are more than adequately covered and illustrated with helpful sketches; much of the viewpoint is substantiated through the use of many graphs. Of special interest to the readers of this journal might be the coverage of the use of radioactive tracers to follow the wear process.

What is disappointing and not covered to any extent is the role that modern research techniques, such as low-energy electron diffraction, have played in unraveling many of the features of surfaces. The use of this technique, as well as others, could be quite helpful in bringing a more theoretical viewpoint to this subject.

If one wishes to have an up-to-date book on the phenomenology of friction, this book, in spite of its outlandish price per page, would be quite helpful, but it cannot serve as more than a text; i.e., it is not a research volume.

James M. Galligan is a metallurgist serving as an Associate Professor in the Henry Krumb School of Mines, of Columbia University. He came to Columbia as an Assistant Professor after research assignments at the University of California, United States Steel, and the University of Illinois. He has published a number of papers in his field. He received his PhD from the University of California in 1962.

ESPECIALLY FOR ENGINEERS

Title Defects and Failures in Pressure Vessels and Piping

Author Helmut Thielsch

Publisher Reinhold Publishing Corporation, 1965

Pages *xviii* + 427

Price $15.50

Reviewer Robert Baldwin

Having spent the last several years working on the design, construction, and inspection of the process systems for a reactor, I found this a most pertinent book.

The book has the thesis that, in most cases, defects can either be avoided by proper design or can be detected and eliminated prior to placing equipment in service. To this end, just about every conceivable failure is discussed from the viewpoint of cause, detection, and prevention.

Had I studied this book five years ago, some rather painful experiences might have been avoided, others better understood, and some of our equipment would have been more confidently designed. Perhaps it is because the author speaks so directly to my experience that I feel this is a worthwhile book; but I doubt that my experience is unique. In any event, there has been a need for some time for a book that deals, from the engineer's point of view, with all the various aspects of materials for process equipment.

If you have ever had a pipe or vessel failure, the odds are that in this book you will find why the failure occurred and how it could have been avoided. Also, you will be relieved to find that you can get your information without the assistance of an interpreter to translate specialist's jargon. It is all there in plain, straightforward language with thoughts organized in a logical manner.

At no time did I feel that what was being discussed was really just theoretical stuff and of interest only to the researchers, the metallurgists, or the welding engineers. I was reading about my world, the world in which an equipment failure puts others out of work, and might even endanger the physical well-being of a number of people. In case the reader's experience does not supply examples of failures, the author gives examples of failures and their consequences in the most sparse and undramatic language. The understatement is very effective and the moral clear, though unstated.

For all its virtues, this is no book for the overly cautious engineer. The thought of all that could go wrong with piping, so ably documented, would drive him from the field.

Robert Baldwin is a Mechanical Engineer assigned to Brookhaven National Laboratory's High Flux Beam Reactor (HFBR) Project. He has held this position for the past six years. Prior to this, he worked with the LMFR Project at BNL. Baldwin came to Brookhaven from AMF where he spent eight years as a Development Engineer and Product Engineer working on a variety of tobacco processing machinery, radar, and ordinance equipment. His engineering education was received at West Virginia University and in the Navy V-12 program at MIT.

A LOT ABOUT PRACTICALLY NOTHING

Title Practical Vacuum Techniques

Authors William F. Brunner, Jr. and Thomas H. Batzer (Sponsored by USAEC)

Publisher Reinhold Publishing Corporation

Pages *x* + 198

Price $8.25

Reviewer George H. Bancroft