and fast-atom or ion ejection. The last two phenomena were the discovery of Kistemaker's group.

What about the "applications" promised in the title? Many of them are obvious (though not always successful), such as surface cleaning, surface loading, making thin foils thinner and depositing films of sputtered material. In addition, there are some subtle or second-order applications. A few of them are: modifying surface microtopography in various ways, studying the structure of thin deposited films and its relation to the substrate, and studying diffusion between two metals in contact. The diffusion studies give information on the alloys formed and thus are a valuable complement to tracer techniques.

An unsuspected effect with obvious usefulness is passivation. Moore has observed that an electropolished aluminum surface bombarded with about 0.05C of 10-keV helium ions exhibits much stronger resistance to corrosion than an untreated surface. Haymann, in Trillat's laboratory, has observed a similar effect for uranium bombarded by argon. Ion bombardment appears to offer enormous opportunities for imaginative practical exploitation.

Despite the astonishingly high price (5.4¢ per page), the publishers have fallen far below their usual standards in the quality of this book. They have not provided an index and they have omitted the authors' names from the Table of Contents. The titles are generally uninformative, and the result is that finding anything or anybody in the book requires a safari. Moreover, there is a distracting alternation of format. The translated articles are photo-offsets of typed manuscript pages (poorly proofread), while articles originally written in English are reproduced from the typeset French edition. The net result does a disservice both to the authors and to the anonymous translators, who did a fairly good job.

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About the Reviewer: Robert J. Mackin, Jr. is Chief of the Physics Section, Space Sciences Division, of the Jet Propulsion Laboratory. There he is concerned with several areas of physics research, including both laboratory and 'space' experiments. He formerly spent six years with the Controlled Thermonuclear Division of the Oak Ridge National Laboratory, where his main activities were in plasma physics and associated vacuum problems.

A Book Which Shall Remain Un-Named.

We do not care to pillory one author or one publisher because by chance his book came to our attention, but neither do we want to give the false impression that the new books are better than they are by suppressing the most unfavorable reviews. This review, it seems to us, will serve as a *caveat emptor* for the purchasers and a pointed chiding to publishers. These services will be more generally applied, if the object of the review is kept unknown. *Editor.*

This book is entirely without merit and should never have been written. The contents are trivial, the coverage of the subject announced in the title is fragmentary, and the coverage of the relavent literature is worse than fragmentary. In my opinion, it is not worth $5.00; I would not have it free.

But in spite of being valueless scientifically, this book served me by focusing my attention on the torrent of bad books that is presently flooding the scientific market. It made me ask myself why we fill our library shelves with frequently worthless books, such as 1) unpolished theses like the subject of this review; 2) reissues of old books which, though well respected in their day, are now outmoded; 3) books of independently written chapters that are variously repetitive, poorly connected, or filled with gaps; 4) collections of reprints (usually reproduced photographically from the original journals) that are strung together without any editing whatsoever; and 5) poorly edited conference proceedings (whose tape recorded discussions often contain pitiful inanities, some mercifully anonymous). Even when the contents of these books have some value, the books themselves certainly represent the nadir of pedagogy. Who among us would prefer them to books such as Born's *Atomic Physics*, Tolman's *Statistical Mechanics*, Margenau and Murphy's *Mathematics of Physics and Chemistry*, Goldstein's *Classical Mechanics*, or Feller's *Probability Theory*? Why then do our libraries buy them and give them shelf space? These are the questions that went through my mind as I read this ill-starred book; and more important than discussing the book is trying to answer the questions.

This I think is the answer: In the last few years libraries, research institutions, and publishing houses have gotten into a vicious circle. The libraries, in conformity with the frantic psychology of the space age, are trying to keep their stacks complete and up to date, moment by moment. To do this, they buy virtually everything that is offered to them. (On the individual level, this desperate search for the security of completeness and 'up-to-dateness' leads to the acquisition of great stacks of unread reprints, preprints, and xerox copies.) Because libraries feel they must acquire books very soon after publication, few of them wait for books to be reviewed so that they can then buy the good ones. Instead they buy them all. Publishers know this and can rely on a certain block of institutional sales irrespective of whether a book is good or bad. They use this more-or-less guaranteed block of sales to cover their initial costs, and can therefore afford to publish anything. In fact, there is a genuine incentive to publish anything; since buying is uncritical, total sales depend largely on the number of titles being offered, regardless of their merit. Result: a 'library crisis.'

What can be done about it? *Nothing*, if we keep on buying everything that is offered, regardless of whether it is good or bad. *Everything*, if we recommend that our libraries not buy books until they have some indication, preferably good reviews in the open literature, that the books are good. In buying other things, like insurance or used cars, it is good to be wary of salesmen who say, "You can't afford to wait." I recommend that libraries be similarly wary of anyone who tries to tell them they cannot afford the time and effort careful buying demands.

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About the Reviewer: Lawrence Dresner has been a theoretical physicist at the Oak Ridge National Laboratory since 1954. His work, until recently, has been in the fields of reactor and nuclear physics. He is currently working on the problem of purifying salt water. He confesses charily to having written a book on resonance absorption of neutrons and to having translated another on neutron physics.

Phase Diagrams for Ceramists. By E. M. Levin, C. R. Robins and H. F. McMurdie. The American Ceramic Society, Columbus, Ohio. 602 pages. $18.00.

This is the seventh compilation of phase diagrams issued under the auspices of the American Ceramic Society. It has been five years since the last supplement was issued and 31 years since Hall and Insley published their first group of 178 diagrams. The present edition containing over 2000 diagrams has a 40% increase in number over the 1956 issue with, significant additions in fused salt, metal-oxygen and rare earth systems.

One of the most comprehensive of its kind, this work is an indispensable reference for scientists and engineers in the materials field. The diagrams are introduced with an excellent discussion of terms, the phase rule and instruction for interpretation of the systems. With this introduction, a much fuller understanding of high-temperature phase equilibria is possible for the man not specifically trained in the field who nevertheless must refer to phase diagrams for his work. For the man who would like to pursue the field further, there is a brief section on experimental methods and a short bibliography. It is suggested that the work would be improved by making both of these sections more comprehensive.

The nuclear scientist and engineer are particularly favored in this edition by the fused-salt diagram additions. The fluoride diagrams published by the group at Oak Ridge National Laboratory represent some of the finest work of its kind. Rare-earth system additions have grown from essentially none to nearly 200 and a similar growth is shown for one, two and three metal-oxygen systems (about 150 in the new edition). There have been some additions for uranium and thorium, and five plutonium systems are reported. Conspicuously absent are carbide systems, which are of increasing importance to nuclear technologists. While these systems can be found in other works, it would be convenient for workers in the nuclear field to have them in this work.

The large increase in hydrothermal diagrams (nearly 50%) is welcomed and future editions will undoubtedly reflect the growing interest in high-pressure hydrous systems. The rapidly growing anhydrous high-pressure field should also be a source of many new diagrams.

The table of oxide melting points on page 569 is a valuable feature of the book, but many of the data cited are outdated. For example, a melting point given for UO_2 was measured in 1911 and is nearly 700°C in error. It should no longer be included with the more recent determinations. The diagrams show improvement in uniformity and reflect the more critical selection by the authors. While it is not the authors' intent to evaluate accuracy or change the original drawings, the policy of selection of the best diagrams where several may exist has made this edition better.

For the benefit of the reader who has not used this work previously, I refer to the system index found on page 581 which is arranged alphabetically giving the diagram number rather than the page number. The diagrams are listed sequentially as figures. The diagrams cite the authors and references from which they are published so that more detailed study can be made by the user if he so wishes.