solid-state detectors in energy measurements of fission fragments. The use of drifted detectors in gamma-ray spectrometry is not discussed in this book.

We believe that the work of Niels J. Hansen will prove to be very valuable to all those performing nuclear measurements that involve the use of solid-state detectors. Practically all the information needed by the user is contained in this book. Even those who have no, or very little, solid-state-physics background will profit by the reading of this work since most of it is self explanatory and written in a very readable way.

It will also be very useful for people engaged in the design of electronic instrumentation associated with solid-state detectors, since it is a quick reference source for all the fundamentals of these, nowadays, so-popular devices.

A good list of references is given at the end of the book for anyone who wishes to dig deeper into the subject.

In conclusion, *Solid State Charged Particle Detectors* is a book that was probably expected by many and that, we are sure, will be welcomed by many who are interested in having a clear and concise picture of these useful devices. This work certainly achieves this end.

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About the Reviewer: Angel M. R. Ferrari received his degree of Licenciado en Fisica from Instituto de Fisica de San Carlos de Bariloche, Argentina, where he studied with a fellowship awarded to him by Argentina's Atomic Energy Commission.

He spent two years (1960-1961) in the United States as an IAEA fellow, one of them as a research participant at the Instruments and Control Division at Oak Ridge National Laboratory.

Back in Argentina, he taught Nuclear Instrumentation in Bariloche for two years. At present, he is with Tennelec Instrument Company in Oak Ridge designing electronic instruments for nuclear applications.

Ionic Bombardment: Theory and Applications. Proceedings, in English, of an International Symposium of the Centre National de la Recherche Scientifique, Bellevue, France, Dec. 8, 1962. Published by Gordon and Breach Science Publishers, New York, N. Y., (1964). 359 pages. $19.50.

For the busy reader who wants a more denotative title, this one might be extended to read "Experiments Related to Effects of Bombarding Various Materials With Several-keV Ions, Together With a Couple of Theoretical Papers." Alternatively, the greater part of the book could adequately be entitled "Sputtering and Associated Phenomena." The subtitle should include: "previously published in French as *Le Bombardement Ionique, Theories et Applications.*"

The symposium reported here was convened by Prof. J. J. Trillat, Director of the X-ray Laboratory of the CNRS. Prof. Trillat has been a pioneer in the observation of surface phenomena caused by ionic bombardment. Explicitly, he has developed techniques for studying surfaces, during bombardment, by means of electron microscopy and electron diffraction. Since most surfaces change dramatically during such bombardment, it is not surprising that the book contains many pages devoted to photographs of diffraction patterns and electron micrographs. Such illustrations constitute almost a quarter of the book, about half of them being from CNRS.

The abundance of such illustrations is a major clue that this is not basically a physics book. Indeed, the conferees represented a substantial number of disciplines (or at least departments), and their center of gravity lay somewhere near metallurgy. A physicist recognizing this fact can approach the book in a much more receptive manner.

Sputtering (ejection of target atoms) is the most prominent effect of low-energy ion bombardment. Nearly all of the world's sputtering-physics groups (there are only a few) were represented: Wehner (USA), Kistemaker (Netherlands), M. W. Thompson (UK), and W. J. Moore (USA). The subject matter presented by these groups was for the most part little different from that found in reports of conferences on high vacuum or on ionization phenomena in gases. However, their insights into the work of the other conferees, as brought out in the discussions, appeared to constitute rather fruitful cross-fertilization and may have been one of the more valuable features of this novel interdisciplinary gathering. A similar comment might be made about the contributions of the radiation-damage group from Oak Ridge and of D. E. Harrison, one of the world's few practicing sputtering theorists.

Sputtering experiments have become quite sophisticated in the past few years. They have dealt with nearly all properties of the sputtered atoms and have covered systematically a broad range of incident ions and target materials. In addition, several related phenomena have been observed and examined: secondary electron emission, positive and negative ion emission, photon emission (characteristic of beam ions or of target atoms or ions)

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