The sections on numerical methods are skimpy but what they do contain is certainly worth reading. This reviewer was very much impressed with the section on multigroup slowing-down equations for highly absorbing media.

Some of the material on numerical methods is new; some is old but not well known in the United States. One may cite, as an example, a Russian relaxation method which leads to a diagonal mesh sweep in two-dimensional problems. Apparently much work has been done on this method in Russia, work which seems to have been overlooked in this country.

Discounting its flaws, which we have belabored here, Marchuk's book deserves a wide audience. Nevertheless this reviewer still hopes that Marchuk will give us, some day, the book he promised in his introduction.

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(About the Author: In 1954 Dr. Gelbard received his Ph.D in physics from the University of Chicago. Since that time he has specialized in the development of numerical methods for the solution of reactor physics problems. Gelbard is now Vice Chairman of the R. M. and C. Division of the American Nuclear Society.)

Plasmas and Controlled Fusion. By DAVID J. ROSE AND MELVILLE CLARK, JR. MIT Press and Wiley, New York, 1961. 493 pp., $10.75.

The authors of this book are MIT professors with a background in teaching, research, and engineering applications of plasma physics. The book developed from their graduate classes for students of mixed background in physical sciences and engineering.

The book contains 493 printed pages. This includes a table of contents, and assorted appendices on notation and conversion of units. There are 200 illustrations and 209 specific references. The printing is superior and there are very few typographical errors.

The display of literary prowess in the introduction is apparently not intended to discourage engineers. This is a book with a mission. The authors have triumphantly written all equations in mks rationalized units and "wish all other systems a speedy trip to oblivion." The authors are to be congratulated on the tenacity with which they have labored to change the units employed in the original papers over to the mks rationalized system.

The content of the book is very ambitious. It attempts to cover the older aspects of ionization phenomena as well as the more recent developments in plasma physics. In addition there are three chapters on fusion devices and two chapters on fusion reactor energy economics. Consequently the depth of penetration of each subject is not impressive. A "once over lightly" treatment of almost every aspect can be found. There is however little discussion of the foundations of the subject. One can learn about some applications, but not much about the applicability of descriptions based, for example, on the hydromagnetic equations or the dynamics of single particles moving in an assigned field. The Vlasov equations do not make an appearance in the book at all which is a little surprising in view of the fact that most modern plasma physics is based on these equations. It is of course difficult to discuss the validity of the hydromagnetic equations or single particle pictures without reference to the Vlasov equations. It would be even more difficult to discuss the velocity-space microinstabilities so that this important aspect of the subject is neglected completely.

The discussion of fusion devices includes linear, toroidal, and θ-pinches, mirror machines, DCX, and OGRA, the Astron and the Stellarator. It is reasonably up-to-date and includes many of the highlights of the experimental results to date. It is descriptive rather than critical. After reading about the experiments one does not have a very good idea about the degree of disparity between theory and experiment that currently exists.

More lucid presentations and more comprehensive treatments of most of the subjects considered can usually be found in other textbooks currently available. However, a textbook with broad coverage that does not presume a substantial foundation in classical physics and mathematics is certainly lacking at this time. The authors have done a creditable task of surveying the current literature and expressing it in a form that should be digestible to someone with an engineering education that includes a reasonable basis in mathematics and classical physics.

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Reactors of the World—Second Series. Simmons-Boardman, New York, 1961. 28 pp., 26 illustrations, $3.50.

The second series of "Reactors of the World" presents drawings and data sheets on 13 reactors of various types and national origins. As with the first series, these data sheets have been extracted from the reactor descriptions presented from time to time in the British journal, *Nuclear Engineering*. Those of us who are accustomed to reading this journal have been impressed by the fine detail of the diagrams accompanying the reactor descriptions.

The reactor systems presented in the second series include the British reactors Pluto (heavy water, materials testing), Merlin (light water, research), Hinkley Point (carbon dioxide cooled, power), Zenith (zero power, experimental); the U. S. OMRE (organic, experimental) and N.S. Savannah (pressurized water, propulsion) reactors; the French G-1 (air cooled, production) and G-2 (carbon dioxide cooled, production and power) reactors; the Canadian NRU (heavy water, materials testing) reactor; the Belgian BR-3 (pressurized water, power experiment); the Norwegian Halden (heavy water, experimental); and the Italian Latina (carbon dioxide cooled, power) reactor.

The national distribution of reactors is much improved over the gross preference for British designs, which was apparent in the first series of "Reactors of the World." However, a better national distribution is certainly required to justify the international title.