important part which such learned societies or professional bodies can play in the advancement of technology. Secondly, the book should help to give a much more accurate and stimulating picture of the technologist in the mind of the reader and, all too short as it is, it should at least do something to assist in that urgent task of education if a sufficient number of the ablest students are to be attracted to such a career.

But to say no more would be unfair to Prof. Hutton, for the book derives added interest from his discerning comments on technical education, on the work of research associations, on the place of technical libraries and information services, and on other subjects. There is a sketch of the work of the Physics Laboratory in Manchester in the days of Schuster and Rutherford, and some more specific recollections of Schuster, Rutherford and Tizard are given in a separate chapter. As would be expected of Prof. Hutton, the references are full and well arranged at the end of each chapter.

Anyone, however, who has known and worked with Prof. Hutton will also certainly wish for more; but, suggestive as the book is and full of comments which, like those on scientific writing and the art of communication, are topical as well as wise, to those who have not known Prof. Hutton it can scarcely convey any real idea of how much we owe to him in such fields as those of technical education and the development of special libraries and information services. One may well be amazed at the range of his interests and at his untiring energy, but his work was never superficial. Prof. Hutton delved deeply in all his work and it remains for another writer to complement his own story by revealing the thoroughness and foresight of his work in the field of libraries and information services, for example, and the unfailing courtesy and deep understanding of the help he so readily and freely gave to those who turned to him for help and guidance. Inevitably in a book covering so wide a field there are points where opinions expressed might be challenged somewhat, or where small additions might seem desirable. These, however, are minor, and it is to be hoped that this readable and well-printed book will find many readers not only among scientists themselves but in industry, in Parliament and among the general public.

R. Brightman

NUCLEAR REACTOR PHYSICS

Neutron Physics

By K. H. Beckurts and K. Wirtz. Pp. x + 444. (Berlin: Springer-Verlag, 1964.) 68 D.M.

Introduction to Neutron Distribution Theory

By L. C. Woods. (Methuen's Monographs on Physical Subjects.) Pp. xii + 132. (London: Methuen and Co., Ltd.; New York: John Wiley and Sons, Inc., 1964.) 28*s.* net.

It is now twenty-two years since the first nuclear reactor was built, and in that time reactor physics has become an established technological subject. These books represent the second generation of text-books in this field, and both can provide a very suitable basis for a university course. In fact, both books originated from such courses.

Neutron Physics, by Beckurts and Wirtz, is somewhat misnamed. Neutron physics as a subject is about thirty-two years old and has become diversified into several distinct areas. These include reactor physics, some parts of solid- and liquid-state physics, and some parts of nuclear physics. This book mainly covers the reactor physics side of neutron physics. With the advent of nuclear power there has been a substantial growth of interest in this area, and a number of text-books have been written. *Neutron Physics* is more broadly based than some and gives a clear and comprehensive introduction to the field. The depth of coverage has inevitably to be limited, but adequate bibliographies are provided at the end of each chapter. The translation from the German has been carried out competently, so that almost everywhere the presentation is in good clear English. The book starts with a discussion of neutron sources, detectors and various types of experimental equipment for neutron cross-section work. It continues with the reactor physics theory and experiment, including neutron thermalization, diffusion and transport theory. The concluding section covers many of the experimental techniques of reactor physics. In the theoretical part of the book the mathematical presentation, while not particularly difficult, does require a graduate knowledge of mathematics. On the other hand, very little background of nuclear physics or knowledge of reactor physics is required. On the whole it can be recommended as an excellent introductory text and of value to university courses on reactor physics, particularly those concerned with needs of the experimental reactor physicist.

The monograph by Woods is based on a specialist course covering neutron distribution theory. Again it includes neutron thermalization, diffusion and transport theory; the mathematical presentation is slightly more difficult than in the book by Beckurts and Wirtz. For those requiring the theoretical side of the subject only, it forms an excellent introduction leading naturally to the more sophisticated theoretical treatments. Its scope is indicated by its division into three chapters; the first covers the basic equations of distribution theory, the second deals with neutron moderation, while the third covers multi-group theory. *Introduction to Neutron Distribution Theory* is a useful addition to the Methuen series and to the range of reactor physics text-books.

P. A. Egelstaff

MAGNETIC STORMS

Solar Plasma Geomagnetism and Aurora

By Sydney Chapman. (Documents on Modern Physics.) Pp. 141. (London and Glasgow: Blackie and Son, Ltd., 1964.) 32*s.* 6*d.*

This monograph is one of a new series, entitled *Documents on Modern Physics*, in which the editors intend to specialize in presenting selected reviews, lecture notes, conference proceedings, and important collections of papers in branches of physics of special current interest. The contents of the book are based on lectures given by the author at the twelfth annual session of the Les Houches Summer School of Theoretical Physics in July 1962. The entire course of lectures at the School has been published previously in book form in 1963 under the title *Geophysics: The Earth's Environment*. It is rather surprising that the editors of the present monograph have not complied with the author's wishes regarding its title, as stated in his preface.

Prof. Chapman is an eminent geophysicist who has made outstanding contributions to the theory of geomagnetism. His purpose in the present book has been to describe the evolution of knowledge and theory concerning magnetic storms—the name given to intense transient disturbances in the geomagnetic field. The book may be regarded as a supplement to *Geomagnetism* (Chapman and Bartels, 1940) but, unlike the earlier treatise, the exposition is selective rather than comprehensive. Special emphasis is placed on the investigations of the author and his colleagues, notably S.-I. Akasofu and V. C. A. Ferraro. The discussion is confined primarily to researches which originated before the advent of satellites and space probes, and the reader is referred to the publications of other writers for an account of the many developments during the past decade.

The first chapter of the book outlines those aspects of geomagnetism and solar activity which are fundamental to an understanding of magnetic storm phenomena. The geometry and kinematics of the passage of solar plasma