includes such classic works as Prior's classification of meteorites. Prior also put together the first edition of the *Catalogue of Meteorites* which has now gone into a third edition, enlarged and improved by Dr. M. H. Hey. Apart from the catalogue itself the book has a useful summary of the classes of meteorites and an interesting chapter on the history of the British Museum collection. Also included are catalogues of meteorite craters and of tektites in the British Museum collection. A particularly welcome addition to the volume is the summary of minor element determinations. Clearly a summary of major element determinations as well would involve an enormous amount of research, but perhaps it is not too much to hope that future editions will carry such a summary. However, the book is a mine of information as it stands and will be invaluable to those working in the field.

A. M. MARSHALL

Lie Groups for Pedestrians

By Harry J. Lipkin. Second edition. Pp. ix+182. (Amsterdam: North-Holland Publishing Company, 1966.) 20 guilders; 40*s*.

THIS book is written for physicists, and will not satisfy those who seek an understanding of the mathematical properties of Lie groups and Lie algebras. The author assumes a previous familiarity with spin and isospin, with creation and annihilation operators and with other quantum mechanical concepts, and he develops the properties of Lie algebras largely by analogy. The book is suitable for those who seek a superficial understanding of the mathematics; it is not recommended for a serious theoretical student, who should have some understanding of the topological background (especially the idea of compactness), and of the relationship between Lie groups and Lie algebras. For an experimental physicist who simply seeks to understand particle classification schemes on a phenomenological basis, the book provides a painless introduction to the subject, working out details of many of the more familiar classification schemes. The author admits that the book is not comprehensive, and this should be borne in mind by the reader.

J. S. R. CHISHOLM

Mixed Boundary Value Problems in Potential Theory

By Ian N. Sneddon. Pp. viii+283. (Amsterdam: North-Holland Publishing Company; New York: Interscience Publishers, a Division of John Wiley and Sons Inc., 1966.) 40 guilders; 80*s*.

READERS of this book are impelled along by a number of problems taken from mathematical physics which have the form of boundary value problems of mixed type. Functions, usually harmonic, have to be determined from the specification of the function on parts of the boundary of the domain and of its normal derivative elsewhere on the boundary. There are plane problems and axisymmetric problems including the problems of the charged disk and the charged spherical annulus from electrostatics, punch and crack problems from elastostatics, and slit problems from hydrodynamics. All these are variants on one theme.

Most of the book is devoted to the solution of the harmonic mixed boundary problem by means of dual integral equations and dual series representations. The author is an authority on the subject, and this is reflected in his presentation of the material.

The principal formulae used in the analysis are gathered for easy reference into one chapter, and the basic methods for solving dual integral equations are presented early in the book in connexion with the classical problem of the electrostatic disk.

Most of the dual integral equations studied have Bessel or trigonometrical functions as kernels, whereas the dual series are based on Bessel functions, trigonometrical functions, Legendre polynomials and Jacobi polynomials. Triple integral equations and series representations are also considered, these arising when different conditions are imposed on three parts of the boundary of the domain.

The power of the methods is evident in the application in Chapter 8 to the electrostatic field effects of electrified disks, strips and spherical caps. Some interesting methods of obtaining bounds to the capacity of condensers formed from circular disks are given here.

This book is to be recommended to all students who wish to become familiar with current methods of research in the title topic.

E. E. JONES

Theory of Automatic Control

By H. Takai. Translated by Scripta Technica, Ltd. Edited by E. J. Feakes. Pp. ix+315. (London: Iliffe Books, Ltd., 1966.) 75*s*. net.

CONTROL engineering and control theory have much relevance to other fields, so that it is worthwhile to spread the gospel outside the boundaries to other disciplines. One objects, however, to the fact that it is always the same portion of the Bible which the preachers expound.

Nine of the ten chapters in *Theory of Automatic Control*, translated from the Japanese, deal with the well worn topic of continuous linear systems. Some of the standard sub-topics are discussed and treated quite competently as well, but no more thoroughly or more topically than any number of well established texts which already exist in English and which do not need translation. The tenth chapter is entitled "Nonlinear Automatic Control" but, along with a superficial treatment of non-linear systems, it discusses sampled data systems as if the phenomenon of sampling made it fit into this chapter.

In short, the necessity of translating in 1966 this text, published in Japanese in 1961, is not readily obvious.

PAUL ALPER

The World of Learning

1966–67. Seventeenth edition. Pp. xiv+1578. (London: Europa Publications, Ltd., 1967.) 150*s*. net

THE seventeenth edition of *The World of Learning* differs from the sixteenth in that it is even larger and contains more detail on universities and academies in a number of countries which were covered only sketchily in the previous volume. The information on the Soviet Union has been expanded, and the learned societies and research institutes of Argentina, Austria, Japan, Mexico and Holland are now classified systematically. One new feature of the book is the additional information on the chief language of instruction where this is not at once obvious, and on the length of the academic year. More than 150 countries are dealt with in more or less detail: their universities and colleges, libraries, museums and art galleries, and their learned societies and research institutes are listed, as are the names of their leading scholars. The book also contains an international section on the aims and functions of Unesco, and on the various world scientific and cultural organizations. Anyone who deals with scientists outside his own country will find this book a valuable guide to the proliferating network of international science.

JOHN SPENCER

OBITUARIES

Professor C. F. A. Pantin

CARL FREDERICK ABEL PANTIN, who died on January 14, at the age of 67, made many distinguished contributions to invertebrate physiology.

After Tonbridge and Christ's College, Cambridge, he went to the Marine Biological Laboratory, Plymouth, in 1922, where he investigated the physiology of amoeboid movement. In 1929 he returned to Cambridge as lecturer