(p. 98) the raven's tongue is pitchy black, or that (p. 112) the snowy owl, and other owls also, when they perch can put three toes forward, or only two, just as they prefer ? We learn of the pigmy sparrow owl (p. 110), which is no larger than a song thrush, and a host of other interesting and useful things. The book is one which should be given to all Nature-loving children as a Christmas or birthday present ; it is excellently produced.   SETON GORDON

Methods of Mathematical Physics
By Prof. Harold Jeffreys and Dr. Bertha Swirles Jeffreys. Second edition. Pp. xi+708. (Cambridge : At the University Press, 1950.) 84s. net.

THE first edition of this outstandingly excellent mathematical treatise appeared in 1946 (see *Nature*, 160, 139 ; 1947). The publication of the second edition, as the date—November 1948—of the additional preface shows, has occupied more than a year. The authors, distinguished for their knowledge of mathematical physics and cosmogony, and by their researches in these fields, possess also a remarkably comprehensive and deep understanding of pure mathematics. Their purpose has been to synthesize this mathematical knowledge for the service of physics.

When first published, however, their treatise attracted the interest of some of the most eminent pure mathematicians, whose acute scrutiny of the work led to the discovery of a few errors and gave occasion for comments, which explains some of the changes in the second edition. The total revision undertaken by the authors is considerable. In certain chapters the argument has been simplified or generalized, or the discussion amplified ; new subjects have been treated, and most of the notes collected at the end of the first edition are now incorporated into the text. Additions have been made to the interesting collections of examples given at the ends of the chapters, which constitute a useful feature of the book in the Cambridge tradition.

Even more than its original form, the work is a fine product of British mathematical scholarship, and a benefaction to the cause of progress in natural philosophy.

Farm Records and Accounts
By Prof. J. Norman Efferson. Pp. ix+281. (New York : John Wiley and Sons, Inc. ; London : Chapman and Hall, Ltd., 1949.) 26s. net.

THE merit of this book lies in the skill with which the author has succeeded in giving a straightforward exposition of the main systems of records and accounts needed by farmers, while eschewing any attempt to make it a text-book on agricultural accounting or double-entry bookkeeping. The assumption that "most farmers and students of agriculture do not have and do not need technical accounting training in order to be able to keep and use the records that are adapted to their needs" is eminently sound. By his wholehearted acceptance of this assumption the author has succeeded in writing a book on farm records and accounts which is at once logical, simple and interesting. Anyone who has ever tried the unenviable task of teaching bookkeeping to agricultural students will appreciate that this is no small achievement.

It is inevitable that the American background from which most of the examples and supporting data are drawn limits the value of the book as a 'practical text-book' for British students. But the book itself is a real contribution to the technique of exposition in a difficult field, since it demonstrates that the lucidity of the exposition can be improved by retaining a practical agricultural point of view throughout.   E. T.

Thermodynamics of Dilute Aqueous Solutions, with Applications to Electrochemistry and Corrosion
By Dr. M. J. N. Pourbaix. Translated by Dr. J. N. Agar. Pp. xv+136. (London : Edward Arnold and Co., 1949.) 30s. net.

DR. M. J. N. POURBAIX has written an extremely stimulating book which has been ably translated by Dr. J. N. Agar. The treatment will be of value to electrochemists and particularly to those interested in metallic corrosion. Reactions are classified and treated systematically, thereby bringing out analogies such as that (p. 30) between the 'solubility' of a metal (affected by potential) and the solubility of a hydroxide (affected by the pH). The use of potential/pH diagrams leads to the concept of 'domains of stability' or 'domains of corrosion'. In deriving these diagrams, Dr. Pourbaix clearly states the assumptions on which his calculations are based. He also acknowledges generously the contributions of other workers.

Among the subjects discussed are electrochemical affinity, overpotential, the direction of oxidation and reduction reactions, the potentials of conductors in reacting systems and corrosion (including inhibition and passivation). The systems studied in detail are Cu-H_2O, Fe-H_2O, Cr-H_2O and N-H_2O. A list of 137 references and an index are provided.

The book is well produced and there are but few printing errors. Both author and translator are to be congratulated on their treatment of an important and fascinating subject.   F. WORMWELL

Dynamics of Real Fluids
By Dr. E. G. Richardson. Pp. vii+144. (London : Edward Arnold and Co., 1950.) 21s. net.

THE author has attempted to cover in 140 pages the whole range of fluid mechanics from classical hydrodynamics to problems on rheology. The result is an excellent summary of existing knowledge on a number of diverse topics ; but inevitably the treatment is rather superficial in parts. Many sections will convey little to the non-specialist, and some of the statements are rather obscure. Mathematical equations are either quoted or given with but little explanation, and the succeeding steps in the mathematical argument are not always obvious.

After a brief survey of the classical equations of hydrodynamics, there follows a long chapter on fluids of small viscosity. This includes a fairly detailed account of boundary layer problems, and a discussion on periodic flow and turbulence. There follow shorter chapters on compressible flow and heat transfer. The rest of the book deals with topics in which experiment has played a larger part than theory. Free surface problems such as the impact of a solid body on a liquid surface, cavitation and drop formation are reviewed. There follows a chapter on imperfect fluids, such as liquids containing solids in suspension, leading on to questions of erosion. Finally, with a chapter on elastic liquids, the reader is brought up against problems more of a rheological nature.

The text is amplified with numerous references to original papers, but unfortunately it is marred by a considerable number of misprints.   J. A. JACOBS