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equations of motion come next, followed by the Hamilton-Jacobi equation and the classical perturbation theory. The last chapter deals with continuous systems.

The exposition is very clear, and the organization is excellent. The purpose of each chapter is briefly summarized, and great care has been taken to illustrate every important technique by examples of physical interest, such as molecular vibrations, precession and nutation of the Earth's axis, Foucault pendulum, Keplerian orbits, Zeeman and Stark effects, sound waves, and Maxwell equations. As a rule, the method of exposition is chosen in each case to introduce the relevant notion in the simplest way.

A few problems are proposed, and the reader is told where to find some more. A good bibliography and a glossary of symbols are included.

Electromagnetic Wave Propagation. Conf. Proc. (Brussels, 1958). M. Désirant and J. L. Michiels, eds. 730 pp. Academic Press Inc., New York, 1960. \$22.00. *Reviewed by Nicholas Chako, Queens College.*

THE topics discussed in this collection of papers, which were presented in the Summer of 1958 at the international conference sponsored by the Postal and Telecommunication Group of the Brussels Universal Exposition, range over a wide field of wave-propagation phenomena. The majority of papers are concerned with the experimental and observational aspects of wave propagation in the lower and upper regions of the atmosphere under various conditions and at different times.

A number of papers are devoted to recordings and measurements of the refractive-index fluctuations over land and water under different temperature, humidity, and wind-velocity conditions; of the ground wave field for local conditions (terrain, time); of the effect of solar and meteoric activities on ionization and scattering of radio waves; of propagation of waves for a broad range of frequencies and over long distances beyond horizon reception; of radio echoes; and of diurnal effects on short-wave ionospheric propagation. Several papers describe recording apparatus, such as ray-tracing computers, devices for simulating time-varying properties of communication channels, and mobile scatterers.

On the theoretical side a number of articles deal with studies of coherent fields, scalar-theory representation of electromagnetic waves, refinement of geometrical-optics treatment of diffraction, low-frequency ionospheric wave propagation, and investigations of wave propagation in stochastic and stratified media and over a nonhomogeneous earth. One also finds short discussions on surface waves, electron densities in the upper ionosphere, cosmic radio noise, and ionospheric scintillation, including a detailed analysis and discussion of wave propagation for low and medium frequencies.

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one is impressed by the great progress made in recent years in understanding various aspects of wave propagation in the upper and lower regions of the atmosphere and of radio communication in particular. For this reason, every person engaged in this field will find valuable material in this volume which should be of great help in carrying out further studies on various aspects of wave-propagation phenomena.

Atomic and Nuclear Physics (2nd ed.). By Robert S. Shankland. 665 pp. The Macmillan Co., New York, 1960. \$8.75. *Reviewed by Norman Feather, University of Edinburgh.*

EXACTLY five years, to the day, separate the dates appended to the prefaces of the first and second editions of this book. That of the second preface is 28th March 1960, and the book was on sale in the summer of that year. This review, then, is sadly overdue—appropriate rather for *Physics Yesterday* than for *Physics Today*, as a colleague of mine expressed the matter. But it may not be altogether out of due time, particularly if a third edition is ever contemplated, as the reader will discover.

The reader of this review will probably be aware, vaguely, or more directly from personal experience, of the considerable differences in structure between undergraduate and graduate courses in physics in the US and university courses in that subject in Britain. He will know that American graduate courses are the frequent envy of British educationalists, and are likely, by slow degrees, to become the model for something similar in the postgraduate training of physicists in the UK. He will not need a Briton to tell him whether or not this book, which since 1955 has been aimed at the American student in his senior undergraduate and first graduate years, finds its target squarely. That it should have appeared in a second edition in a competitive market is evidence enough that many believe that it does. If he is interested in the book, he will already have formed his own opinion of it. In that case, all that a British reviewer can usefully do is to comment briefly on its revision, as seen through British eyes.

In this connection my main criticism relates rather to what has not been revised, than to what has been. I have no real quarrel with the fact that the main additions to the text (some sixty pages) occur in the six chapters dealing with nuclear and high-energy particle physics, though the disparity need not have been so overwhelming as it is (the first six chapters, dealing with atomic physics, occupy precisely the same number of pages as in the first edition). I am much more concerned that so many blemishes remain uncorrected. In Britain, the first-year undergraduate should know (he will at least have been taught) that to quote Reynolds' number as 10^3 cgs units is a heinous crime (p. 13) — and that Poiseuille's equation for an incompressible fluid is inapplicable to "the lamellar flow . . . of gas through a tube", in spite of a