SHORTER NOTICES

Analytical Mechanics. By H. M. Dadourian. Third edition. New York, D. Van Nostrand Co., 1931. xiv+427 pp.

The first edition of this well known text, published in 1913, was followed by a second edition in 1915. Although the third edition contains no essential changes, the text has been carefully revised. Some new material has been added and the presentation of a number of topics has been improved.

The author has based his development of the subject upon a single fundamental principle, called the action principle. A statement and explanation of the action principle has been given recently in the American Mathematical Monthly, vol. 38 (1931), pp. 270–274.

W. R. LONGLEY

Die elliptischen Funktionen von Jacobi. By L. M. Milne-Thomson. Berlin, Springer, 1931. xiv+69 pp.

"Five-place tables, with differences, of sn u, cn u, dn u with natural numbers as arguments, arranged according to values of $m(=k^2)$, together with formulas and graphs." The values of the functions are given in natural numbers to facilitate their use with computing machines. There are no other tables of these functions.

H. R. BRAHANA

Sur une Forme plus Restrictive des Relations d'Incertitude. By Louis de Broglie. Paris, Hermann, 1932. 24 pp.

La Projection de Noyaux Atomiques par un Rayonnement très Pénétrant. L'Existence du Neutron. By Irène Curie and F. Joliot. Paris, Hermann, 1932. 22 pp.

These two short books are volumes 31 and 32 in the collection Actualités Scientifiques et Industrielles which is under the general editorship of Louis de Broglie. The first is an analysis, with amplifying notes, of a paper by Landau and Peierls which appeared in the Zeitschrift für Physik, vol. 69. Developing a remark due to Bohr, it is shown that when account is taken of the axioms of the special principle of relativity, Heisenberg's uncertainty principle $\Delta p \cdot \Delta q \geqq h$ must be replaced by $\Delta p \geqq (h/c)\Delta t$, which does not involve the uncertainty in the coordinate measurement q. The application of the uncertainty principle to the measurement of electromagnetic fields is treated. The second book gives an account of experimental observations of a new type of radiation produced when light atoms, such as those of paraffin, are bombarded by α particles. The first experiments of this nature were made by Bothe and Becker in 1930, and they have been repeated by Chadwick, Feather and Dee, and others. The weight of evidence seems to support the hypothesis that the radiation consists of uncharged particles or neutrons. The authors believe that the neutrons effect occasionally the disintegration of the nuclei of atoms into whose sphere of influence they penetrate.

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