

BOOK REVIEWS

Polarisation Diélectrique. J. ERRERA, Professor of Physical Chemistry in the University of Brussels. 172 pp., 35 figs. Les Presses Universitaires de France, 49 Boulevard Saint-Michel, Paris, France, 1928. Price 35 Fr.

Occasional summaries in the recent periodical literature dealing with the field of dielectric polarization have treated largely that part of the polarization which is due to the presence of electric doublets in the molecule. The polarization induced within the molecule, that is, the molecular refraction, was discussed so often a generation and more ago that it is now commonly regarded as an outworn subject and dismissed with a cursory treatment as a necessary preliminary to the discussion of the dipole polarization. Professor Errera, on the other hand, takes up the classical theory of polarization in an alternating electric field throughout the range of electromagnetic waves from X-rays to Hertzian waves and, by this comprehensive treatment, gives the reader an unusually coherent account of the field as a whole. The theory of polarization for the region of short waves is, of course, available in many hand-books and larger textbooks and the relation of refraction to chemical composition was for years the theme of many papers, but it is helpful to have this material summarized together with that on dipoles.

The brief account of experimental procedure is useful in showing what methods are available and, through literature references, where the details of technique may be found. A few of these are described rather fully, and some experimental results are presented, usually as illustrations of general behavior. Of course, a reader can always find details to criticize and may cavil over matters of inclusion and exclusion. The physicist may inquire why the application of the wave mechanics to the theory of dielectrics is not discussed and the chemist may wonder at the very small space allotted to the relation between electric moment and molecular structure. The inclusion of an adequate treatment of these subjects would, however, so expand the book as possibly to interfere with the admirable logic and clarity with which its material is presented.

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Künstliche Verwandlung der Elemente. HANS PETTERSSON. Translated from the Swedish by ELISABETH KIRSCH. Pp. VIII+151. Figs. 59. Walter de Gruyter and Co. Berlin and Leipzig, 1929. Price Rm 9.

The book is a presentation of the subject of atomic disintegration for the general public. It is profusely illustrated. After an historical introduction to the subject, leading through radioactivity, it gives the history of the artificial disintegration of atoms, stressing the work in Cambridge and in Vienna and follows this by a description of the various methods of observation. Considerable space is also devoted to the description of the ways and means of preparing the radioactive material used as the source of the alpha-particles which are to bombard and disintegrate the atoms. This is followed by a discussion of the fundamental (building) units in the structure of all matter, of the nucleus of an atom, of the possibility of transmutation and of annihilation of matter and finally of the radiation from stars and of the inner structure of stars. The scope and method of presentation may perhaps be gleaned from one of the concluding sentences in the book: "Der Weg des Forschers, welchen ich dem Leser hiermit gezeigt habe, führt vom Laboratorium des Alchimisten bis nach demjenigen des Astrophysikers, Milliarden von Erdradien entfernt von dem Stäubchen im Weltraum, welches wir bewohnen."

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