ested in science will be delighted with this book which faithfully re-creates one of the most fruitful and dramatic periods in the development of physics. It will seem almost incredible to the post-war generation of physicists that the memorable experiments and theories presented are only about 50 years old and that not so long ago in nuclear physics it was possible to make such momentous discoveries by Rutherford's proverbially simple means.

Ergodic Theories. Proc. of the Internat'l School of Physics "Enrico Fermi" (Varenna, Italy, May 1960). 241 pp. Academic, New York, 1962. $7.50. *Reviewed by Robert J. Rubin, University of California at San Diego.*

TO physicists, ergodic theory in statistical mechanics is inextricably linked with the notions of irreversibility and approach to equilibrium. This close connection is apparent in the book under review in which more than half of the space is devoted to ergodic theory (classical theory: Truesdell; quantum theory: Ludwig, Loinger, and Uhlhorn). The remainder of the book consists of excursions into the real world of molecular chaos, master equations, diagonal singularities, and density expansions (van Hove, Verboven, Cohen, Lebowitz, Falkoff, and Résibois), with a level-headed lead article by Rosenfeld, "Questions of Irreversibility and Ergodicity". As Course 14, *Ergodic Theories,* in the Italian Physical Society's International School of Physics "Enrico Fermi", the book is a success.

A Physical Theory of the Living State: The Association-Induction Hypothesis. By Gilbert Ning Ling. 680 pp. Blaisdell, New York, 1962. $17.50. *Reviewed by R. B. Lindsay, Brown University.*

MODERN biophysics and biochemistry rest on the assumption that the behavior of the living cell as the unit of life can be accounted for by the use of the fundamental principles of physics and chemistry. Much success has been achieved by the hypothesis that all living systems consist predominantly of proteins, water, and salt ions, and that the behavior of such systems depends in the last analysis on the interaction of these components. For some time, a widely held theory has postulated that these interactions are essentially a long-range affair in the accepted physico-chemical meaning. The author of the present work is inclined to disagree with this view. He believes that the available experimental evidence points rather to the plausibility of the assumption that in the living cell the system of proteins, water, and ions must exist in close association, implying the interplay of short-range interactions. The author works out in detail the consequences of this point of view, supplemented also by the use of another motion which he calls the inductive effect. The latter term means essentially the influence of polar groups in the protein molecule carrying net electric charges on the distribution of free electrons.