

BOOK REVIEWS

Propagation des ondes dans les milieux periodiques. By Léon Brillouin and Maurice Parodi. Paris, Masson et Cie., 1956. 348 pp. 4600 francs.

Throughout the development of theoretical physics one finds the periodic structure which distinguishes itself by the fact that common mathematical methods are available for what appears to be a host of different problems in physics. In the volume under review, Brillouin and Parodi have revised the earlier text of Brillouin (L. Brillouin, *Wave propagation in periodic structures*, New York, McGraw-Hill, 1946) and they give us an interesting account of periodic structures as they arose in Newton's time to those which arise in present day physics and technology.

The simplest periodic structure arose in the study of the motion of a uniformly loaded string (neglecting the mass of the string). The difference-differential equation, describing the dynamical behavior of the individual masses, occurs in many different physical problems, such as the uniform electric filter and the periodic loaded wave-guide. For finite structures, that is a finite number of masses in the case of the loaded string, we have the advantage that we can study the motion of the particles by what amounts to "finite Fourier series" since there are only a finite number of degrees of freedom in the system and this simplifies the methods of solution considerably. The book at hand is devoted to bringing to the attention of the reader the wide variety of physical problems which fall in this general category as well as a study of the mathematical methods. The mathematical methods are applied to systems with a finite as well as an infinite number of degrees of freedom and also to systems in two and three dimensions.

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Structure of Rings. By Nathan Jacobson. American Mathematical Society Colloquium Publications, vol. 37, 1956. 7+263 pp. \$7.70.

In the last dozen years a great deal of progress has been made in establishing a structure theory for associative noncommutative rings without chain conditions. A large share of the basic results were obtained by the present author and he is therefore eminently fitted to present the theory in its present form to the mathematical public. He has done so very successfully in the volume under review and has given us an essentially self-contained account which should be easily accessible to a reader with only the very basic notions of modern