

So he discusses the concepts and without ado states the laws. As a result the experimental foundations follow in orderly manner as consequences. The student is likely to lose sight of the fact that the structure was built to include these consequences, but this is probably of small concern to the man who is meeting the subject for the first time. Only the Schrödinger method is used. The student is referred elsewhere for the matrices of Heisenberg and the symbols of Dirac.

Basic to any introduction to quantum mechanics are the inarticulate major premises of the author. Some physics teachers may shudder to read that, "Particles in stationary states act as though 'guided' by a wave . . ." even though the definition of "guided" is left for the student to determine. There is a reference to "idealizations not capable of experimental verification because of the uncertainty principle". In statements of this sort the author seems to reveal a feeling for things that exist even when they cannot be observed. A particle always seems to have an existence that is more detailed than its wave function. But this book does not pretend to enter the battle of hidden variables, and as long as the journals find that subject a battleground, we cannot ask authors of the elements to define their terms with crystal clarity.

The book does not claim completeness. It sends its readers to Bohm for that writer's generous discussions of physical details, to Rojansky for his explanations of other techniques, to Eyring, Walter, and Kimball for detailed computations. But for a clear, step-by-step approach to the mysteries of the quantum theory, it will be found hard to beat.

Statistical Analysis of Stationary Time Series. By Ulf Grenander and Murray Rosenblatt. 300 pp. (Almquist & Wiksell, Sweden) John Wiley & Sons, Inc., New York, 1957. \$11.00. *Reviewed by Nelson Blachman, Sylvania Electronic Defense Laboratory.*

This monograph treats the representation of stochastic processes, the extrapolation and smoothing of time series of known spectra, spectral estimates and their distributions, and some applications. For the most part the processes depend on a time parameter which takes only integer values.

The book is written in the language of theoretical mathematical statistics, for its principal aim is to stimulate research on the many incompletely solved problems which are discussed. It is therefore likely to be unrewarding for the physicist, unless he is familiar with Cramer's *Mathematical Methods of Statistics* and Doob's *Stochastic Processes* (generally regarded as a difficult book), for it contains no review of the necessary background material. The physical reader may also wish there were more motivation for the many concise proofs, and he may be disturbed by the lack of page numbers in many of the allusions to other books which must be consulted to complete the proofs.

Nevertheless it is clear that Grenander and Rosenblatt are in a position to write a comprehensive exposi-



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tory treatise on the analysis of stationary stochastic processes, and it is to be hoped that they will publish a companion volume of this nature so that physicists as well as statisticians may appreciate the recent advances in this field.

Physics in my Generation. By Max Born. 232 pp. Pergamon Press, London and New York, 1956. \$6.50. Reviewed by Charles Süsskind, University of California.

A collection of nineteen papers, lectures, and book introductions, all but six of which were written after World War II, and all but two of which have been published previously. The two exceptions, which are also among the two longest contributions, are a lecture on "Physics and Relativity", presented at the International Relativity Conference in Berne in 1955; and "Development and Essence of the Atomic Age", a public lecture that Professor Born gave at various meetings in Germany during the same year. The first lecture comprises a brief review of the development of physics during the fifty years since Einstein's papers first appeared (a period that also coincided with the span of Born's professional activity), and provides some interesting footnotes to the history of modern physics, particularly with regard to the relationship between Einstein and Born over most of this very exciting era. Thus, Born takes issue with his erstwhile Edinburgh colleague, Sir Edmund Whittaker, who (in the second volume of his monumental *History of the Theories of Aether and Electricity*) considered the special relativity theory to be due largely to Poincaré and Lorentz; Born allies himself squarely with the multitude who would ascribe the major innovation to Einstein. The other paper contains some more or less profound comments on the study of history, in which Born wonders whether Toynbee's speculations about uniformity in history should not be interpreted in the light of the laws of statistics—a suggestion that might well serve as a starting point for a whole lot of PhD theses in history. Born argues that a trained scientist cannot go along entirely with the ideas of Spengler and Toynbee, but neither can he accept the just-one-damn-thing-after-another school of historical interpretation.

But perhaps the most interesting facet of this collection is the contrast between Born's 1921 introduction to his *Einstein's Theory of Relativity* and the 1951 postscript to his *Restless Universe*, the two essays that constitute the opening and closing selections. "In 1921 I believed," Born reminisces, "that science produced an objective knowledge of the world . . . superior to other, more subjective ways of forming a picture of the world—philosophy, poetry, and religion; and I even thought the unambiguous language of science to be a step towards a better understanding between human beings.

"In 1951 I believed in none of these things. The border between object and subject had been blurred, deterministic laws had been replaced by statistical ones, and although physicists understood one another well