tory explanations that should be helpful even to the mature readers for whom the book is intended.

Accordingly, the phase-space concept is presented at the beginning, illustrated by the pendulum with Newtonian damping, probably the most effective elementary example of the transition from linear to nonlinear behavior. The phase plane is given considerable attention throughout, although not as much as the engineer or scientist might desire. Background is provided by early chapters on linear equations and existence and uniqueness theorems. Although only one chapter is entitled "Stability in Nonlinear Systems," the last half of the book is devoted primarily to this centrally important topic. It is good to see that Dr. Struble presents Lyapunov's "second method", the principal analytical tool for studying nonlinear stability problems in the Soviet Union, now being introduced in the United States. He also gives considerable attention to Poincaré stability and mentions Laplace stability.

There is now no general approach to nonlinear problems, and the variety of nonlinearities makes a single unifying method seem unlikely. There is much need for mathematical treatments like Dr. Struble's, as well as for important approximating techniques like the describing function (which he does not mention). And this will remain true even as simulation of nonlinear systems by analog and digital computers obviates the necessity for complete analysis.

Eigenfunction Expansions Associated with Second-order Differential Equations, Part 1 (2nd ed.). By E. C. Titchmarsh. 203 pp. Oxford U. Press, New York, 1962. $6.75. *Reviewed by George Weiss, University of Maryland.*

THIS is the second edition of a mathematical treatise of some interest to physicists. Several chapters have been rewritten and there is now some reference to the work of Levitan. Unfortunately the work still remains forbiddingly difficult to read and only analysts of a high order will be able to appreciate it.

Singularities of Linear System Functions. By Bernhard Gross and Elde Pires Braga. 90 pp. American Elsevier Publishing Co., Inc., New York, 1961. Paperbound $4.00. *Reviewed by Robert J. Rubin, National Bureau of Standards.*

ALTHOUGH this little book is written in the language of electrical network theory, it is of interest to students and specialists in the fields of dispersion-relation theory, crystal-lattice dynamics, dielectric relaxation, and viscoelastic behavior, where the underlying mathematical structures are identical. The properties of linear networks can be characterized in terms of the singularities in the complex frequency plane of functions such as the driving-point impedance, which in turn is related to the diagonal element of a Green function for the network. In this book several specific examples of linear networks are examined in detail.