author concludes by considering similarity for small departures from equilibrium.

While this book treats similarity laws and modeling only for the affine transformation group, the interesting gas flow results obtained from dimensional analysis which are sprinkled throughout the book should make it especially appreciated by workers in the gasdynamics area.

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MATCHED ASYMPTOTIC EXPANSIONS AND SINGULAR PERTURBATIONS, by Viktor Eckhaus. 145 pages, diagrams, tables, illustr., $6\frac{1}{2} \times 9\frac{1}{2}$ in. Amsterdam, North Holland; New York, American Elsevier, 1973. Price, $8.95 (approx. £3·50).

At least two main trends in books on applied mathematics can be distinguished. One, and by far the larger, is presenting a survey of results and techniques which can be of direct use in applications.

The book reviewed here belongs to a second, somewhat more fundamental, kind; or as the author puts it: "No such survey is attempted here, the aim of the study is to clarify the procedures and the underlying concepts and hypotheses." The purpose of the book is clearly to provide the reader with the mathematical tools to carry out asymptotic approximations of solutions of differential equations and not to present a catalogue of perturbation techniques.

The first chapter is devoted to a precise definition of a large number of concepts as approximation of a function on a domain, regular and singular perturbations, local approximation of a function on a domain and the introduction of matching rules between local approximations.

In the second chapter singular perturbation problems are discussed in which elementary methods of construction still apply. This is the case if the structure of the local approximations and corresponding subdomains is relatively simple and is immediately suggested by the structure of the differential equations and the boundary conditions. Applications are found in the theory of linear ordinary differential equations and in linear elliptic partial differential equations without turning points. In the third chapter, finally, an extensive discussion is given of failures of the elementary method. The theory is then extended to cover a great many cases and a number of still unsolved problems are formulated.

The book can be studied successfully by any graduate student who took courses in analysis and elementary differential equations. The theory is moreover clarified by many examples in which the underlying ideas are not obscured by technical difficulties. An amusing and intriguing element of the author's presentation is that the limitations of the developed theory is at several points demonstrated by counter-examples.

During the last decade the theory of singular perturbations has proved itself useful in such different fields as celestial mechanics, the theory of water waves, the theory of biological systems, etc. This book can be useful to applied mathematicians who want to attribute a precise meaning to the perturbation techniques they use and is very useful for the exploration and development of new techniques.

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APPLICATION OF GREEN'S FUNCTIONS IN SCIENCE AND ENGINEERING, by Michael D. Greenberg. 141 pages, diagrams, $6 \times 9\frac{1}{2}$ in., Englewood Cliffs, N.J., Prentice-Hall, 1971. Price, $7.45 (approx. £3·00).

The subject of this book is the construction of Green's functions for ordinary and partial differential operators. Since the material is aimed at scientists and engineers, little general theory is developed; instead, a variety of techniques is used to solve a large number of specific problems.