group theory to organize the material. For instance, the standard properties of the Euler totient appear here as group-theoretic corollaries. The chapter ends with an adequate treatment of the cubic and quartic. The last chapter on the location of roots, both real and complex, is especially detailed. Convergence questions for both Newton's process and for the regula falsi are treated. Contemporary results (with references to live authors) are included in §48 where zeros of complex polynomials are discussed in such a way that the reader is not left with the all too common impression that the subject is embalmed. Although there are no exercises, the text abounds with well chosen examples. The few errors which appear seem to be caught in the errata at the end.

FRANKLIN HAIMO

Handbuch der Laplace-Transformation, Vol. II. *Anwendungen der Laplace-Transformation*. Part 1. By Gustav Doetsch. Birkhäuser, Basel and Stuttgart, 1955. 434 pp. 56.15 Swiss francs.

In this volume the author covers a wide range of applications, many of which might be considered as being applications of the Laplace transform, rather than properties of the Laplace transform, only by fiat. He begins with a collection of results from the first volume (cf. Bull. Amer. Math. Soc. vol. 58 (1952) p. 670), the "rules" for operating with the Laplace transform. Then he takes up a wide variety of connections between the asymptotic expansions of a pair of transforms. Ordinary Abelian and Tauberian theorems were dealt with in the first volume; here it is a question of what can be deduced about one member of a pair of transforms when an asymptotic expansion for the other is given. Much of this material is discussed here for the first time in systematic form, and many old isolated results now appear as special cases of the general theory. Numerous illustrative examples are taken up, for example Stirling's series for log $\Gamma(s)$, Bessel functions, theta functions, and the wave function for the hydrogen atom.

The second part of the volume takes up the connection between Laplace transforms and factorial series (which the author thinks deserve more attention than they have been getting). A number of miscellaneous convergent expansions are also discussed.

The third part deals exhaustively with the use of the Laplace transform to solve ordinary differential equations, first those with constant coefficients on a half line, then those with constant coefficients on a whole line, and finally those with variable coefficients, in so far as the method is applicable to them. Problems about servomecha-