The last two chapters contain the only systematic exposition in English of the use of stress and strain potentials in elasticity theory. A surprising omission is the work of Neuber (Zeitschrift für angewandte Mathematik und Mechanik vol. 14 (1934) pp. 203–212); there is no reference to the recent Russian inundation. The virtue of Westergaard's presentation lies in his showing the reader the value of general solutions in terms of arbitrary functions and in his ability to adjust these to yield special cases of real interest.

There are numerous interesting exercises, stated mostly without answer. Some will give the student a surprise if he works them (e.g. Problem 6 on p. 114).

The reader accustomed to other engineering texts will find this one rather different. It is free from "approximations," yet many of the pages contain compact, individual, and interesting remarks on practical applications (e.g. pp. 43–45, 98–99). An example of the author's simple and personal manner of relating theory to experience, even in old material, is as follows (p. 80): "The constant μ is called Poisson's ratio; Poisson, in his extensive paper of 1829, presented arguments, later found untenable, that its value should be $\frac{1}{4}$. Good approximate values are: for steel, 0.3; for concrete, 0.2; for cork, close to zero, which is important in the operation of pressing a cork into a bottle; and for rubber, slightly less than 0.5, which makes it desirable to insert a rubber stopper into a bottle by turning it rather than by pressing."

To one accustomed to working in the mathematical theory for its own sake, this expression of a distinguished research engineer's belief in the mathematical method and quiet confidence in the exact solutions of the theory of elasticity will be welcome reassurance, especially at a time when traditional mechanics is besieged on opposite sides by computing machines and existence theorems. Every student of elasticity can read this book easily and with both profit and pleasure.

C. TRUESDELL

Séries adhérentes. Régularisation des suites. Applications. By S. Mandelbrojt. Paris, Gauthier-Villars, 1952. 14+279 pp. 4000 fr.

This book is an account of researches, mainly due to the author, on various problems which may seem unconnected at first sight. Their collection in one book is justified by the fact that all these questions can be treated by two main tools, the regularisation of sequences and Mandelbrojt's "fundamental inequality." This inequality gives a bound for the coefficients d_k of the formal Dirichlet series $\sum d_k e^{-\lambda_k s}$, if it is known that this series represents asymptotically the regular function $F(s)$ with a certain degree of accuracy in a domain Δ of the s-plane (hence the title Séries adhérentes).

The main contents chapter by chapter are: Chapter 1, Regularisation of sequences. Chapter 2, Watson's problem and generalisations. Chapter 3, The fundamental inequality. Chapter 4, Carleman's theorem on quasi-analytic functions, proved by Bang's real variable method as well as by the standard complex variable technique. Generalisations of Carleman's theorem are given in which the conclusion $f(x)\equiv 0$ follows from restrictions on the size of $f(x)$ and its derivatives on an infinite interval together with the hypothesis that $f(0)=f^{(\lambda_n)}(0)=0$, where $\{\lambda_n\}$ is a subset of the positive integers. Examples show that the results are very close to best possible. Chapter 5, Results on the closure of $\{x^{\lambda_n}/F(x)\}$ in the uniform topology on an infinite interval. Transition to the conjugate space immediately gives theorems on the uniqueness of the generalized moment problem $\int x^{\lambda_n}d\psi(x)=m_n$. Chapter 6, The Cartan-Mandelbrojt solution of the equivalence problem of classes of differentiable functions. Chapter 7, Location of singularities of functions defined by Dirichlet series. Generalizations of Picard's Theorem for such functions.

Most of the results have appeared in previous publications, but the book contains many improvements and completions of earlier work.

The presentation is clear and assumes no specialist knowledge of analysis. It is to be hoped that the book will encourage some mathematicians, who may have been deterred from a study of the original papers by the massive, rather tedious technicalities, to get acquainted with the fine results of the author. The technicalities now take a proportionately much smaller space, even though some tiresome detail might still have been omitted with the loss of some generality, but with a gain of perspicuity. This would have been especially justified by the fact that many of the theorems even at their most complicated just miss being best possible.

Perhaps one might regret that this presentation of the fundamental inequality and its applications has appeared at a time when we seem close to best possible results, but have not quite reached them. On the other hand it may be good that something is left for the readers of this book to do. They can be grateful to the author for giving them this careful account of the full facts of the case.

There are several misprints; most of them very minor.

W. H. J. Fuchs