order to be able to interpret experimental results, the effect of suspension filaments and thermocouple wires on the temperature is analyzed. Chapter I closes with a careful interpretation of available experimental results, and the author concludes that ". . . . Maxwell's theory of droplet evaporation can be considered as supported by experiment. . . ."

The second chapter is devoted to work in which moving droplets are considered. This problem is not nearly as well understood as that involving a stationary droplet. Several attempts at an analytical solution are discussed and some experimental results are presented. The experiments by Frössling are emphasized. The author points to the differences in results obtained for low Reynolds numbers and states that ". . . the problem of evaporation of droplets at small Reynolds numbers can by no means be considered as solved."

In the third chapter the nonstationary effects of evaporation are considered. The analysis for a motionless droplet is again given in some detail and the author finds that for small drops the quasi-stationary approximation is often sufficient. Approximations to the characteristic times for the evaporation of moving droplets are mentioned briefly.

The book will be of value to those interested in the specialized field in question. To avoid disappointment, the prospective buyer should know that this book has been reproduced by photo-offset from a typewritten manuscript.

Aerodynamics

Incompressible Aerodynamics. By Bryan Thwaites, Editor. Oxford University Press, New York, N. Y., 1960. Cloth, 6 × 9 in., xx and 636 pp. $12.

REVIEWED BY R. E. MEYER[3]

IT IS difficult to imagine now the full sensation in fluid dynamics and aeronautical engineering caused by the appearance of Durand's "Aerodynamic Theory" in the 1930's. It presented with sudden clarity a whole new chapter of science previously known to only the few who had created and reported it in a confusion of dispersed and unconnected papers. The collective account not only boosted aerodynamic research and engineering, it also encouraged the early publication of further collective works in the new fields explored during the sweeping surge of fluid dynamics which followed, from "Modern Developments" in 1938 to the "Princeton Series" still in progress of publication. Meanwhile, however, a gap has appeared in the serried ranks of the monograph series because the original Aerodynamic Theory has gone rather out of date.

It is into this gap that Thwaites has stepped with his "synthesis of original contributions" by 16 among the foremost British aerodynamicists. It presents a comprehensive, up-to-date account of the aerodynamics of wings and related bodies in steady flight at low Mach number and high Reynolds number. Actually, the book was not conceived as a new version of Durand's great series, but rather as the third volume of a new version of Goldstein's "Modern Developments." Accordingly, it is an account, not only of theory, but equally of experiment. Moreover, a great deal of attention has been devoted to some design aspects of the subject in order to avoid, as far as possible, even the appearance of a gap between pure science and engineering.

So comprehensive a purpose would have been ambitious even for a series of a dozen volumes. To achieve it in 570 pages has required considerable sacrifices. The bulk of the book consists of a string of what common parlance calls (so inappropriately) "digests" of original papers and groups of such papers. Collectively, they are made to tell a consistent and comprehensive story, but individually, they are too brief to be fully understandable. There is no room for the painstaking explicitness of a Goldstein in explaining the limitations of the evidence on which the theoretical or experimental results rest. The account must restrict itself almost entirely to the presentation of the best available results. Only too often, of course, the best available is merely tentative and preliminary. In many instances, these shortcomings will presumably be made good in the first two volumes of the series, but in others no redress is in sight.

The scope and purpose of the book would seem to remove it far from the ranks of the textbooks. In this reviewer's opinion, however, it occupies an outstanding place among them because of the passionate determination of the Editor to relate every sentence to physical reality. Rather than fail in this purpose, he exposes himself to the occasional charge of recklessness and of letting emphasis verge on dogmatism.

It cannot be counted as a criticism that the book will be found unsatisfactory by all the readers approaching it from a single point of view, whether it be the experimenter's, the theoretician's, designer's, or student's. Its primary purpose and merit lie in providing information, prodigious amounts of information, which is not only authoritative and useful, but the very existence of which was in many cases nearly impossible to discover from the normally published literature. The 37 pages of references alone would have constituted a valuable publication. If a substantial part of your work is in fluid mechanics, you will need this book.

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Linear Viscoelasticity

The Theory of Linear Viscoelasticity. International Series of Monographs on Pure and Applied Mathematics, vol. 10. By D. R. Bland. Pergamon Press, New York, N. Y., 1960. Cloth, $5^1/_2$ × $8^1/_2$ in., vi and 124 pp. $7.50.

REVIEWED BY WILLIAM PRAGER[4]

THIS introduction to the concepts and methods of linear viscoelasticity could well serve as a text for a one-semester course at the beginning graduate level. The exposition is very concise but clear. The mathematical background required from the reader unavoidably includes some familiarity with transform techniques.

The first two chapters are concerned with the mathematical description of linear viscoelastic behavior under uniaxial stress (Chap. I) and under combined states of stress (Chap. II). The treatment in Chap. II closely follows that in a recent paper of the author (*Proc. Roy. Soc.*, A, 250 (1959) 524). The next three chapters deal with problems of stress analysis in linearly viscoelastic bodies. Chap. III is concerned with problems involving sinusoidally varying stresses and strains, Chap. IV with quasi-static problems in which all inertia effects can be neglected, and Chap. V with dynamic problems. The fitting of simple models to measured values of the complex modulus or compliance is discussed in Chap. VI.

Since so much has been packed into the 124 pages of the text, the absence of a subject index is to be regretted.

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The problem is then an incompressible low-speed aerodynamics problem. When the density is allowed to vary, the problem is called a compressible problem. In air, compressibility effects are usually ignored when the Mach number in the flow does not exceed 0.3 (about 335 feet per second or 228 miles per hour or 102 meters per second at 60oF). Above 0.3, the problem should be solved using compressible aerodynamics. Compressible aerodynamics.