or axisymmetric equations, inclusion of the effects of suction, or the comparison with experiment (which are all left out here), the reader must go to one of these or other texts. On the other hand, if he wants to start with the Navier-Stokes equations and work through the reduction to the boundary-layer equations and the mathematics of the transformations and solutions of the latter, this book is recommended as an introduction to the theory. In addition, solutions which have been published since 1953, when Howarth's two volumes appeared, up to 1961, and associated with the names of Cohen and Reshotko, Curle, Davies and Bourne, Gadd, Görtler, Liepmann, Lighthill, Lilley, Meksyn and Merk, Monaghan, Poots, Spalding, Tani, and others, are summarized.

Some functions are tabulated and a few curves are shown but for most of the results the reader must go to the original papers. Considering the brevity of the book there is a lot of interesting mathematical theory contained within it, but it remains essentially a brief review of part of a much larger field.

Technical Aspects of Sound. Vol. 3, Recent Developments in Acoustics. E. G. Richardson and E. Meyer, eds. 346 pp. American Elsevier Publishing Co., Inc., New York, 1962. $14.00. *Reviewed by Walter G. Mayer, Michigan State University.*

AFTER Professor Richardson's untimely death, the publishers of the two previous volumes of *Technical Aspects of Sound* asked Professor Erwin Meyer to take his place as editor and to complete the third volume of this handbook. According to the general plan proposed by Richardson, each chapter of the book was to present a survey of a well-established branch of acoustics. Dr. Meyer followed these original plans very closely.

The first chapter (by D. B. Fry and P. Denes) deals with the role of acoustics in phonetic studies. The principles involved in the generation and analysis of speech are given, forming the basis for descriptions of automatic speech recognizers and vocoders. The second chapter (T. S. Littler) is concerned with the mechanism of hearing, audiometry, hearing loss, and hearing aids. The third section (E. G. Richardson) is entitled Flow Noise. It treats fundamentals and various technical aspects of jet noise, shock waves, and acoustic phenomena related to turbulence, boundary layers, and cavitation. The fourth chapter (B. L. Clarkson) is a study of the effects of noise on structures and people. Special attention is given to the vibration of an aircraft-type structure due to noise. The last chapter (E. Meyer and H. Kuttruff) is devoted to architectural acoustics. A number of old and new measuring techniques are discussed together with electro-acoustic problems. The second half of this chapter considers design problems. The acoustic properties of some recently built concert halls are examined. The chapter also contains discussions of model investigations, anechoic and reverberation chambers.

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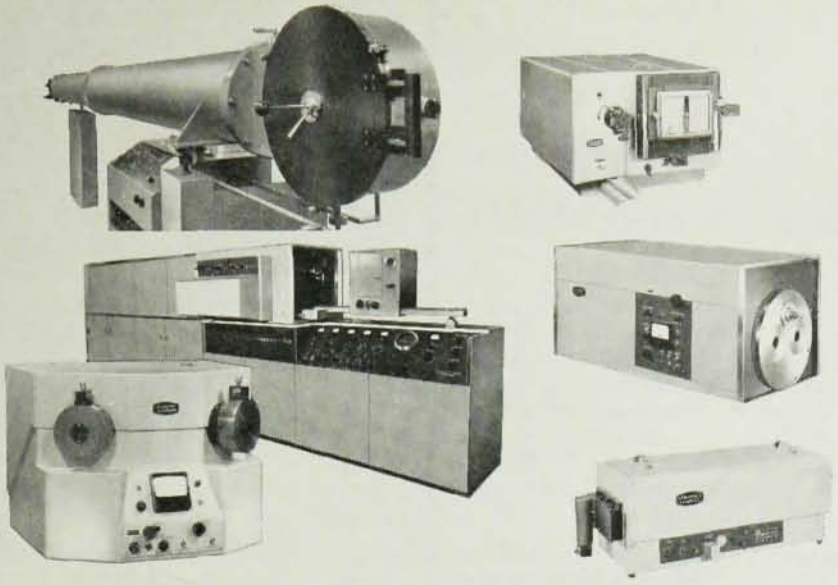

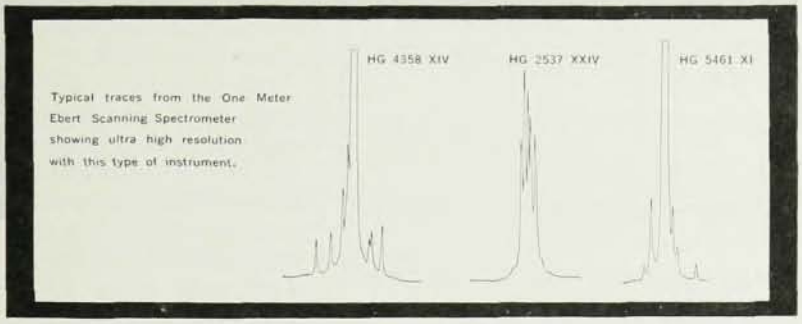

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The book is well illustrated and indexed. The references are generally up to date although the writers did not attempt to emphasize the very latest findings in their fields; instead, they have presented a well-balanced and comprehensive survey of five important branches of acoustics.

Statistical Strength Theory. By S. D. Volkov. Vol. 11 of Russian Monographs and Texts on Advanced Mathematics and Physics. Transl. from Russian by Royer and Roger. 267 pp. Gordon & Breach, New York, 1962. $11.50. *Reviewed by George H. Weiss, University of Maryland.*

A SUCCESSFUL theory of the weakening and failure of metals would have too many applications to bear detailed listing. The present monograph presents a theory of material strength which may indeed be applicable to many situations; however, the theory is ad hoc, and one cannot be completely convinced that Volkov's approach is a valid one on the evidence of this book alone. No attempt is made in it to indicate the possible limitations of the theory although their existence is certain.

The problem to which the author addresses himself is the elucidation of the properties of metals with microscopic inhomogeneities. The assumption made is that the inhomogeneities can be described statistically. If one then writes down the stress-strain equations, relations between moments may be obtained in a straightforward manner. The author then goes on to study media which have normally distributed stresses and elastic deformations. With this approximation, various averages can be taken and different physical properties calculated. It is at this point that the reader would require a more detailed idea of the limitations of Volkov's methods. But such information is not to be found. Some of the topics which are treated in detail are limiting surfaces of plasticity, fracture, and fatigue under cyclic load. There are many sample calculations, and there are references to detailed comparison with experimental data. Although I could not check this literature, I would presume that the theory is successful in many specific situations. A convincing exposition of a new theory does require a careful discussion of its boundaries. It is tempting to compare the statistical theory of elasticity with the statistical theory of turbulence. But the evidence for the validity of the former theory is not as well delineated as that for the latter, so that a final verdict will have to wait upon further work.

Basic Concepts of Physics. By Arthur Beiser. 341 pp. Addison-Wesley Publishing Co., Inc., Reading, Mass., 1961. $7.75. *Reviewed by Horace M. Trent, US Naval Research Laboratory.*

WE have here not a philosophical discussion of the foundations of physics but rather a simple and readable textbook for a one-semester college survey course intended for students not majoring in a natural