

## REVIEWS

**Experimental Fluid Mechanics.** By P. BRADSHAW. Pergamon Press, 1964.  
210 pp. 20s.

The title of this book is rather misleading. To the author, 'fluid mechanics' implies the type of aerodynamics applicable to wind tunnels; the wide fields, all experimental, connected with meteorology, oceanography, chemical engineering, hydraulic engineering, and naval architecture are ignored. Any reader expecting to find a broad front of experimental fluid mechanics will be disappointed.

However, as a book solely concerned with wind-tunnel testing, it may be of use in the general education of aeronautical undergraduates. In an initial section of 39 pages dimensional analysis and the basic principles of fluid mechanics are mentioned; these are treated in the same way as is done in most standard text-books. The final 32 pages refer to the organization of experiments and the writing of reports thereon; and have summaries of four investigations thought to be of general interest. At the end of each chapter there are a small number of problems, numerical and descriptive, for the student to work upon.

The middle portion of the book refers to wind tunnels and the instruments and methods used in them. The figures are largely diagrammatic, and one could not use them directly for building apparatus. The text neither gives specific examples stating the precise type of equipment found suitable, nor is accompanied by dimensioned figures. For example, pressure transducers are dismissed in a page; of how much more value would this book have been if precise makes and types of transducer, with their capabilities, were discussed? The drive arrangements of wind tunnels are discussed in less than a page; and there is only a passing reference to the design of cheap wind tunnels of the sort that many people must be satisfied with. Balance systems for measuring forces and moments on models are discussed with the aid of highly idealized sketches; the student who does not have a well-equipped laboratory near him could not visualize from these sketches the complication of real balance systems nor indeed the important details of connexions to them.

After reading this book, the reviewer is forced to consider how it carries out the ideals of the new Commonwealth and International Library Series, of which it forms a part. These ideals were to produce cheap, authoritative, specialized paper-back text-books to be of particular value to students and engineers in underdeveloped countries. This book is not particularly cheap for its size, and the far more authoritative book by Pankhurst & Holder (at £3. 10s.) would be preferred by any research man. The superficial nature of the treatment will not make it of much value to practical men in poor countries desperately trying to set up laboratories. Figure 18 would allow them to build a Pitot tube, it is true, but few other diagrams are sufficiently detailed. Moreover, the subject-matter is far too specialized for the many students of fluid mechanics in all its aspects,

and will suit only those in aeronautical and, to a lesser extent, mechanical engineering. It would be a mistake to think that the way in which fluid mechanics is taught in the United Kingdom and the United States in many departments of mechanical engineering is necessarily the best for countries that are not so preoccupied with supersonic flight and other sophisticated devices. This book is closely bound to such work and is therefore of value only to a restricted band of readers.

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