

Briggs's table (in 1624) to fourteen decimals; and the table of Spenceley, Spenceley and Epperson (in 1952, by the Smithsonian Institution) which gives twenty-three decimals, but has only ten thousand arguments. The difficulties of publication are clear, and the remarkable achievement of Thompson in purchasing a Monotype keyboard and setting up the whole table himself is thereby enhanced. A single-handed effort of this nature deserves publicity: Thompson, virtually single-handed, has computed, checked, set up in type and proof-read the whole of the tabular material of more than nine hundred pages, and the checks and proof-reading have been as thorough as the most exacting of table-makers—that is, Thompson himself—could desire.

The tables are accompanied by interesting and valuable introductory matter on interpolation and on the construction of the tables, and include several auxiliary tables of logarithms and antilogarithms to twenty-one decimals. A translation by J. T. Foxell of "The Life of Henry Briggs", by Thomas Smith (1707), is also included. This is a book to last for centuries and should be in all computing libraries.

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## VIBRATION IN ENGINEERING STRUCTURES

Introduction to a Study of Mechanical Vibration  
By G. W. Van Santen. (Philips' Technical Library.) Pp. xvi+296. (Eindhoven: N. V. Philips' Gloeilampenfabrieken; London: Cleaver-Hume Press, Ltd., 1953.) 35s.

THE author of this book regards sinusoidal strains as the *bête noire* of the engineer, and in consequence his main concern is with the measurement, origin and elimination of mechanical vibration in engineering structures. The earlier chapters develop in a readable and competent manner the standard theory of the behaviour of simple mechanical systems, both idealized and of engineering importance, vibrating at or near a natural frequency.

Chapter 9, on vibration propagation, raises the question of the degree of over-simplification which is allowable in a volume which professes to be an introduction. The section here on the velocity of transverse waves in a bar achieves excessive over-simplification by assuming that the lateral displacements arise entirely from shear strains. The propagation of shear waves is best illustrated by the torsional case, given later, which lends itself quite simply to an exact analysis. The transverse wave is more complex, but could be introduced with profit in an alternative over-simplified form by assuming that bending strains are predominant. This would lead to a logical introduction of dispersion, which is only vaguely hinted at in the book. A similar question of over-simplification is presented in the rather naïve discussion of fatigue; for example, the statement that fatigue failures "are not accompanied by any distortion of the part" is misleading without further qualification.

The chapters on vibration measurement and its associated pitfalls constitute the most valuable part of the book, in which the author clearly enters his special field. The reader hoping to acquaint himself with a representative selection of measuring instruments may be a little disappointed to find the examples drawn almost exclusively from those

marketed by the author's company; but the range turns out to be sufficiently extensive to form the basis for adequate discussion.

The book is well produced at a price which represents fair value for money by present standards, but this edition would be improved by more diligent proof-reading. The translation from the Dutch is good, but in parts the ideas do not flow so sweetly as they might. The volume can be strongly commended to the attention of those concerned with the experimental analysis of vibration in engineering structures. The most serious student who seeks a sound basis from which to attack the more advanced theoretical aspects would do well to peruse den Hartog first, for in the book under review he will miss the fascinating examples which are a sure means of providing a grasp of the fundamental principles.

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## Rh BLOOD GROUP

### *Rh-Hr* Blood Types

Applications in Clinical and Legal Medicine and Anthropology. Selected Articles in Immunohematology. By Prof. Alexander S. Wiener. Pp. xii+764. (New York: Grune and Stratton, Inc., 1954.) 11.50 dollars.

### An *Rh-Hr* Syllabus

The Types and Their Applications. By Prof. Alexander S. Wiener. (Modern Medical Monographs—No. 9.) Pp. xii+82. (New York: Grune and Stratton, Inc., 1954.) 3.75 dollars.

IT was in 1940 that Landsteiner and Wiener described the *Rh* blood group, and since then research into this particular group has been continuously carried out by workers all over the world. It has become the most complicated human blood group and is now known to be of clinical importance; the studies that have been made have added considerably to our knowledge of human genetics.

Prof. A. S. Wiener has made very many contributions to this work, and the first of these two books, "*Rh-Hr* Blood Types", consists of a selection of the author's papers bound together. Research workers will have read most of Prof. Wiener's papers, but in any event this is a book for the specialist and it may be useful to have a number of selected reprints bound together, since it makes reference to points of detail much easier.

The other work, "*An Rh-Hr Syllabus*", is a little monograph about the *Rh* blood group, its relationship to disease and anthropological and medico-legal applications. I liked this little book and found it pleasant and readable; persons with no special knowledge of blood groups will find it useful and helpful.

One of the difficulties about the *Rh* factor is that there are two separate systems of notation depending upon the theory one holds about this blood group. Prof. Wiener puts forward his theory of multiple allelic genes and his *Rh-Hr* notation and dismisses the Fisher-Race notation used by most British workers. It is a pity, too, that Prof. Wiener has extended the difference in notation by using anti-*F* and anti-*J* for what are known to most British workers as anti-*Fy<sup>a</sup>* and anti-*Jk<sup>a</sup>* antibodies. It is to be hoped that the notation difficulties in this field will be resolved satisfactorily in the course of time.

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