CORRESPONDENCE

G. W. Smith and J. B. Rea, in their paper "Aeroplane Tail Loads for Longitudinal Manœuvres" (October 1952 JOURNAL), describe the application of control theory to the calculation of the tail loads due to arbitrary elevator deflection. The notation used in the paper is formidable and may prevent those who are unfamiliar with the subject from making the attempt to understand it. The avoidance of the double suffix is one of the main blessings of the British stability notation and it may be of interest to point out how this principle has been applied to the definition of aircraft transfer functions as used at the Imperial College.

The transfer function, say Y, is essentially a ratio of output to input of a part of a control system—or aircraft. Its form will depend on the manner in which the output and input are expressed. In the paper by Smith and Rea they are written as "steady side" sinusoidal quantities and Y becomes $Y(i\omega)$, the circular frequency being ω and $i=\sqrt{(-1)}$. Had they been written in operational form, the transfer function would have been $Y(\mathrm{D})$ or $Y(p)$, D being d/dt and p the auxiliary variable of the Laplace transform as used in response calculations for linear systems. In practice the nature of the argument of the function is obvious from the circumstances and need not be made to clutter up the symbol. Nor is there any need to write the letter Y or alternative forms of it. Consequently, we replace the symbol $(\mathrm{T.F.})_{w\delta e}$ by w_η to represent the w response of an aircraft to the application of elevator deflection η and so on. The fastidious may wish to place a bar like $\overline{w}_\eta$ to indicate the operational or vector nature of the symbol.

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REVIEWS

In the October Journal (page 804*) the price of the book "Helicopter Analysis," Chapman & Hall Ltd., was incorrectly given as* 53*s.* 6*d. The price is* 60*s. net.*

The following are reviewed:—

Mechanics of Vibration.
Air Navigation—Theory and Practice.
Handbook of Aerial Mapping and Photogrammetry.
Development of the Guided Missile.
The A.B.C. of Model Aircraft Construction.
Principles and Practice of Aviation Medicine.
The Fated Sky.
Khaki and Blue.
Aircraft Engines of the World 1952.
Aeronautical Engineering Index.
Air Transportation Management.
The Observer's Book of Aircraft.
Aeroplanes and Aero-Engines.
Dunlop Aviation Equipment Manual.
Flames in the Sky.
Escape—or Die.
The Crowded Hours.
Faith is a Windsock.
Pioneer Pilot.

MECHANICS OF VIBRATION. Holger M. Hansen and Paul F. Chenea. John Wiley and Sons, New York. Chapman and Hall, London. 1952. 413 pp. Index. $8.00 net.

This latest addition to the literature of mechanical vibration is intended primarily as a text-book for the use of students who have had a groundwork of instruction mathematics and elementary dynamics. The two authors—both from the Department of Engineering Mechanics at the University of Michigan—state that their aim has been to present the fundamentals of vibration theory in a manner readily understood by the undergraduate and yet at the same time on a plane acceptable to the graduate student. The treatment throughout is painstaking, and explanations are given with much attention to detail. A commendable feature of the volume is that it is extensively provided with clear explanatory diagrams. Sets of exercises to be worked out by the student are also included, and the answers are given at the end of the book.