Quartz Resonators and Oscillators. By P. Vigoureux. Pp. 217 + 13 plates. (London: H.M. Stationery Office, 1931.) 7*s.* 6*d.* net.

WRITTEN round the practical use of quartz in vibrating systems, this monograph will be of interest to many classes of readers. It describes the preparation of suitable pieces of crystal from the natural material—apparently by no means a difficult operation—the connexions and mathematical theory of circuits involving these, and the physics of quartz. We should like to direct special attention to the illustrations, and particularly to the photographs of the electrical discharges which vibrating crystals can set up in a partial vacuum, and of the interference fringes seen with a crystal oscillator close to optical flat. It would be difficult to devise more beautiful demonstrations of the modes of vibration of rods and plates. Including as it does an extensive bibliography, the book serves a useful purpose in co-ordinating existing results, and can scarcely fail to stimulate further research. K. G. E.

Engineering.

(1) *Cross-Country Flying.* By Major Oliver Stewart. Pp. ix + 116 (12 plates). (London: Constable and Co., Ltd., 1931.) 6*s.* net.

(2) *Flying as a Career: a Popular Guide for all proposing to obtain a Position in the new Industry as a Pilot, Navigator, or Aircraftsman.* By Major Oliver Stewart. Pp. ix + 81 + 12 plates. (London: Sir Isaac Pitman and Sons, Ltd., 1931.) 3*s.* 6*d.* net.

(1) MAJOR STEWART is a writer of the kind that seems to be prevalent in aviation, to its great advantage. He has the ability to explain the most abstruse problem to the non-scientific reader by selecting the essentials, and presenting them simply yet accurately. His book, "Cross-Country Flying", deals with the use of the compass, air speed indicator, turn and drift indicator, bubble inclinometer, etc., in the air, and the general use of maps, course plotters, and calculators on the ground. He avoids the complicated mathematical theory upon which much of it is based, without descending to such a simplicity as to offend the intelligence of the reader.

There are chapters on the regulations laid down by law to be observed when flying, and a sufficient explanation of meteorology and instructions for the use of wireless communication to enable the pilot to make use of the broadcast services in this respect. A chapter on bad weather flying is unfortunately only too appropriate in Great Britain at the present time.

(2) "Flying as a Career" deals in a strictly impartial manner with the various possibilities in aviation to-day. The author is quite rightly severe in his condemnation of the Royal Air Force 'Medium Service' system as a 'blind alley' occupation. Aspiring aviators and their parents can read this book with considerable advantage.

The Light Aeroplane Manual. By F. D. Bradbrooke. Pp. ix + 251. (London: Chapman and Hall, Ltd., 1931.) 10*s.* 6*d.* net.

THIS is an exceedingly well written book but with an entirely misleading title. The term 'Manual' suggests the practical outlook, and detailed descriptions of light aeroplanes and their engines, together with hints on their use and maintenance, are expected. Actually the book is a simple and remarkably correctly written treatise on the theory of flight, both from the point of view of why an aeroplane flies and, appreciating this, how to fly it properly. The author has skilfully avoided the all too common pitfall of making a statement scientifically incorrect in order to simplify it. He has not dealt with the more complex mathematical and physical outlook, but as the book is obviously intended for the user rather than the producer of an aeroplane, his action is justified.

The chapter headed "Types of Aircraft" is rather a disappointment, in that it is merely a description of some present-day aeroplanes, which will serve to make the book out of date rapidly, remembering the rate at which aircraft design is progressing to-day. A more general discussion upon the broad classification of types, into which modern aircraft is automatically dividing itself, would have been more in keeping with the rest.

The book should certainly be read by all aircraft owners who are ambitious to be something more than mere aerial chauffeurs, and should be useful to elementary students of aeronautics.

The Mechanical Properties of Wood: including a Discussion of the Factors affecting the Mechanical Properties, Working Stresses for Structural Timber, and Methods of Timber Testing. By Prof. George A. Garratt. Pp. ix + 276. (New York: John Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1931.) 17*s.* 6*d.* net.

THIS American publication deals with a subject that is receiving more and more attention from forest utilisation officers, wood technologists, architects, and manufacturers, for all find that it is very necessary that reliable information should be available upon the mechanical properties, not only of a few woods, but also of all the important commercial timbers. Moreover, it is necessary that there should be an international understanding about any research that is being carried out.

The book under notice, whilst primarily a textbook for students, will also be found of value to other people interested in timber and its manufacture. The author has divided his work into four parts. Part 1 treats of the relation of wood to stresses and strains, which are included under the three general headings tensile, compressive, and shearing, each of which is then dealt with separately and subdivided as necessary. Illustrations and tables add materially to the interest of the descriptions. Part 2 deals with factors affecting the mechanical properties of wood, such as knots, checks, shakes, cross grain, decay, etc. Preservative treatment is given full consideration, time of felling