

Our Bookshelf.

The Rigid Airship: a Treatise on the Design and Performance. (The Specialists' Series.) By E. H. Lewitt. Pp. x+283. (London: Sir Isaac Pitman and Sons, Ltd., 1925.) 30s. net.

THE airship in aeronautical text-book literature has received but scant attention in the past. Aeroplane and seaplane design and the theoretical problems associated with them compose the subject matter of such works, while airships are dismissed in a few meagre paragraphs under the general heading of "lighter-than-air craft." There is no special reason for this other than that the airship has almost consistently been regarded as the step-child of officialdom and certainly not to be encouraged by any consistent policy of construction and development. Yet, regarded as a scientific problem, the design of the rigid airship, as the present work proves, presents a problem in a type of structure which has not previously occurred in engineering and consequently gives rise to a crop of fresh problems both on the aerodynamic and the structural sides.

The present work is confined to the question of design on the structural side. The earlier chapters analyse the forces on the airship in so far as they affect this question. The types of girders and struts used and the elastic properties of which they are composed are described in Chap. iv. The next two chapters treat of the beam stresses and the temperature stresses in the hull. The author then passes on to consider the tensions in the wiring—transverse, circumferential, and diagonal—and the longitudinal girders. The treatment is completed by a discussion of performance and a detailed analysis of design in a special case.

The author has throughout adopted the sound method of approaching each problem mathematically and comparing the results so obtained with actual experiment. In this respect the treatment is excellent. If a criticism might be offered, it is that the author has tended to keep rather closely to the methods developed in his own contributions to the subject, so that the work of other investigators is scarcely accorded sufficient prominence; otherwise a most satisfying book.

The British Journal Photographic Almanac and Photographer's Daily Companion, with which is incorporated "The Year Book of Photography and Amateurs' Guide" and "The Photographic Annual," 1926. Edited by George E. Brown. Pp. 848+32 plates. (London: Henry Greenwood and Co., Ltd., 1926.) 2s. net.

As this is the diamond jubilee issue of this well-known publication, the editor has considered it a suitable time to make several improvements in it, though a cursory glance shows that it is similar to previous issues in the general nature and arrangement of its contents. There are three notable changes in addition to the use of a rather clearer type. It is no longer an almanac except in title, for it contains nothing of the nature of an almanac or calendar. What was originally subsidiary matter has increased so much that the volume is now a general practical guide and record of progress, and in due time, we suppose, the main title will indicate this. For many years a substantial part of the matter other

than the advertisements was a collection of short articles from many contributors giving their experiences and suggestions. This section served its purpose at the time, but changing circumstances rendered it advisable to discontinue it. This year there is tendency to return to it; but the five articles are rather of the review or generally instructive character than of a personal nature. The history of the "Almanac," with a reproduction of the first, which was a wall sheet calendar with a few useful items of information in the margins, is of value from a historical point of view. The editor on "Amateur Cinematography," Mr. T. L. J. Bentley on the use of a hand-camera, and Mr. J. W. Purkis on "Rational Time Development" are authoritative articles on matters of present-day interest. As a celebration of the jubilee the volume includes thirty-two excellent photogravure reproductions, twenty-five of which are from the Paris Salon of Photography.

Electrical-Machinery Erection. By Terrell Croft. Pp. ix+314. (New York: McGraw-Hill Book Co., Inc.; London: McGraw-Hill Publishing Co., Ltd., 1925.) 15s. net.

MR. CROFT is concerned with the mechanical features of electrical machinery installation. The average young engineer when he has finished his college training knows little of the mechanical operations that have to be performed between the unloading, for example, of a heavy motor generator-set, from the car to its final fixing and aligning in its operating position. As a rule, he allows himself to be guided by the foreman, who generally does everything by a cut-and-dried method. The methods of arranging the slings and of bracing the apparatus prior to lifting he learns from the workmen. The methods learnt in this way are unsuitable in certain cases, and the young engineer is too often thrown on his own resources, sometimes with unfortunate results. We therefore welcome this book, as it should prove useful to every engineer engaged in erecting work. There are 334 excellent illustrations, showing not only the correct methods, but also commonly used incorrect methods, of performing necessary mechanical operations. A section of the work is devoted to "mechanical maintenance," particular attention being devoted to the upkeep of the bearings.

The Dynamical Theory of Gases. By Dr. J. H. Jeans. Fourth edition. Pp. vii+444. (Cambridge: At the University Press, 1925.) 30s. net.

THE intervals at which new editions of this valuable treatise are called for grow shorter, testifying to the continued—in fact, growing—interest of students and investigators in the subject, and to the importance of the service rendered by the author in presenting it so admirably. The second edition, of 1916, was different in important respects from the original work of 1904, the quantum theory having in the interval offered a way of escape from the difficulties surrounding the theorem of equipartition of energy. In the third edition, of 1921, the account of the quantum theory was extended. In the present issue a few recent papers on the kinetic theory are duly remarked on, either in the text or in footnotes, but no important changes are made.