The Measurement of Air Flow. By E. Ower. Second edition, revised and enlarged. Pp. viii + 243. (London : Chapman and Hall, Ltd., 1933.) 15s. net.

THE accurate measurement of the mean rate at which a gas is flowing at any instant through a definite area or relative to a fixed body presents serious difficulties, but is of considerable importance in connexion with many scientific and practical problems. The first edition of Mr. Ower's book, in which various types of instruments used for determining air flow velocities were described and the theoretical basis of their design discussed, met a real need. Advantage has been taken of the new edition to make revisions and add certain new matter, the most important of which gives details of the German standard nozzle for measuring air flow along a pipe. A table of coefficients is given for various ratios of the area of the nozzle and the area of the pipe, and the limiting values of vd/ν for which these coefficients are stated to be reliable, within an accuracy of 0·5 per cent, is given.

It is unfortunate from the point of view of the reader that the coefficient given in the table is not clearly defined, and the reader must refer to earlier pages to find a definition. He is likely to be a little embarrassed by the correct definition given on p. 74 not being apparently the same as that given on p. 105, but an examination of the mathematics given in the earlier part of the same chapter as that in which the instrument is described, will make the matter quite clear.

The book is well and suggestively written, is clearly illustrated and to the scientific worker the very complete bibliography will be of real value.

Wireless Over Thirty Years. By R. N. Vyvyan. Pp. xiv + 256 + 16 plates. (London : George Routledge and Sons, Ltd., 1933.) 8s. 6d. net.

THIS account of 'wireless' by the builder of the pioneer stations of Cape Cod and Glace Bay, colleague of Marconi since 1900, protagonist of 'imperial wireless communications', and recently engineer-in-chief of the Marconi Co., is full of interest and colour ; it will be widely read and enjoyed. A picture of Marconi's early and heroic work has not been readily pieced together from other sources ; here it will be found vividly and satisfactorily drawn, with appendixes of technical detail. There are, among others, interesting and suggestive chapters on modern commercial stations, wireless in war—on land, at sea and in the air— and wireless to the rescue at sea. One of the most valuable chapters, since it contains financial data usually difficult of access, is that on wireless as a career, which merits assimilation by all who are interested in the place of the technical 'expert' in modern life.

No normal mind could have given full service to one great enterprise for thirty exciting years without the sustained stimulus of a loyalty which, from another angle, may be called partisanship.

The book is undisguisedly a "Marconi" book ; were it anything else it would be far less enjoyable —the gain in scientific and technical balance would not offset the loss in warmth and colour.

Mathematics

Principles of Descriptive Geometry. By Dr. E. L. Ince. Pp. viii + 152. (London : Edward Arnold and Co., 1933.) 8s. 6d. net.

DESCRIPTIVE geometry as an art is of great antiquity, but, as an exact science, it is comparatively very young, and this excellent volume is probably one of the first English works to deal with the fundamental principles of the subject. Hitherto authors have been content to discuss practical applications mainly, without any reference to the principles upon which such applications depend.

Dr. Ince's book, founded upon a course of lectures given to students of the Egyptian University, develops the subject in the true spirit of mathematics. The treatment is thoroughly sound and lucid, and the text is well illustrated with clearly drawn diagrams. The seven chapters culminate in the discussion of simpler polyhedra, curved surfaces being excluded from a first year course. As the author states, "There is one sure way, and only one, of learning descriptive geometry, and that is on the drawing board." An ample supply of interesting and practical exercises has therefore been provided in order to give the student a firm grounding in first principles. The book is a valuable addition to mathematical literature and should inspire a much-needed appreciation of the importance of the theory of descriptive geometry.

Differential and Integral Calculus. By Prof. J. H. Neelley and Prof. J. I. Tracey. Pp. viii + 496. (New York : The Macmillan Co., 1932.) 20s. net.

To plan a course in the calculus satisfactory alike to the pure mathematician and the practical student is a problem of some difficulty. The authors of this volume, however, have shown how such a problem may be successfully solved. Here we have a really stimulating work adapted alike to general academic requirements and to those of technical students. Rigorous proofs of certain theorems have not been used, but all the necessary assumptions have been pointed out and the student warned to examine these suppositions more critically at a later stage.

The text is illustrated by the solution of many very interesting practical problems, and the diagrams, particularly those associated with multiple integrals, are exceptionally clear. These should lead to a thorough understanding of the analytical processes underlying the problems of multiple integration.

The book is well stocked with exercises for the reader to solve, and is excellently printed. It may be confidently recommended to all students of the calculus.