

*Shop Problems in Mathematics.* By W. E. BRECKENRIDGE, S. F. MERSEREAU, and C. F. MOORE. Boston, Ginn and Company, 1910. vii + 280 pp.

INTENDED for use in trade schools, the book is divided into two distinct portions, the earlier and major part consisting essentially of problems from the pattern shop, forge, foundry, and machine shop; and the remainder in the presentation of a review of certain parts of elementary mathematics which are involved in the earlier problems. Demonstrations are not presented, results only being desired. A chapter on the slide rule is also included, in which an error in statement is implied which may lead the reader to believe that much of slide rule work is exact. The volume gives the impression of a lack of organized sequence in the arrangement of the material in the individual chapters.

C. F. CRAIG.

*The Integrals of Mechanics.* By O. C. LESTER. Boston, Ginn and Company, 1909. vi + 67 pp.

THE author has collected many of the integrals found in theoretical mechanics and presents them with very little physical interpretation. After an introductory chapter reviewing the applications of the integral calculus to lengths of arc, area, etc., the subjects of center of gravity, moment of inertia, and ellipsoids of inertia are treated in order. Stress is laid on the presentation of formulas for many of the special cases and on theorems derivable from special examples. The general formulas as well as the special ones are obtained by what are at best only semi-rigorous methods. Although the volume is intended as an introduction to theoretical mechanics, most of the material seems usable as an introduction to applied mechanics.

C. F. CRAIG.

*Annuaire du Bureau des Longitudes pour l'An 1911.* Paris, Gauthier-Villars.

SEVERAL improvements are noticeable in the issue for the current year. The section on the classification of stellar spectra has been rewritten by M. de Gramont; the elements of the moon and major planets are referred to the epoch 1900 instead of 1850; and M. Schulhof contributes a résumé of the information obtained during the last two years concerning Halley's

comet and the comets of 1909. Tables of variable stars have been dropped because the number has become too great for record in a volume of this kind. Minor improvements have also been made in the sections: geography and statistics, coinage, weights and measures, and meteorology.

The appendices contain an account of the sixteenth meeting of the international geodetic association written by M. Poincaré in his well-known luminous and entertaining style. The eclipse 1912 April 17 is treated by M. G. Bigourdan. The central line passes across France; unfortunately the calculated maximum duration of totality is only six seconds and it is doubtful whether even this small interval will be attained. In certain parts the eclipse will be annular, in others total. Obituary notices of Bouquet de la Grye and Paul Gautier are contributed by MM. Poincaré and Baillaud.

ERNEST W. BROWN.

*Leçons élémentaires sur le Calcul des Probabilités.* Par R. DE MONTESSUS. Paris, Gauthier-Villars, 1908. vi + 191 pp.

THERE is perhaps not much chance for striking novelties, whether of material or of arrangement, in elementary texts on the theory of probabilities; the general model, especially in France, seems deservedly to be Bertrand's excellent *Calcul des Probabilités*. The present author has on numerous occasions manifested his interest in various questions concerning probability, and in particular in regard to the proper definition of chance; he does not approve of the scheme of founding the laws of chance upon ignorance as to what may happen and upon the law of sufficient reason, but he believes rather that the laws should be developed out of the experience that in the long run certain things do happen in a particular way for a definite percentage of the total number of ways they may happen. This seems to us, as to the author, somewhat more satisfactory than the older method; it is better to say that in tossing coins heads are found to come half the time and hence the probability of heads is one half, rather than to say that there is no reason why heads should fall rather than tails and hence heads will fall half the time.

Not only in his introductory remarks but throughout the book the author discloses philosophical as well as mathematical tendencies. Moreover, the subjects which he touches are numerous; it is not usual to find mention of insurance and of