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

speculation in addition to the discussion of various games of chance and other such canonical subjects for treatises on probabilities. As many topics are touched upon, they can naturally not all be more than merely touched, and the author has been good enough to indicate many references where the different subjects may be further pursued. The elementary character, the clear style, the varied topics, the careful references, all combine to make the work useful and thoroughly to be recommended to a wide range of readers who have some, not necessarily much, knowledge of mathematics.

E. B. WILSON.

NOTES.

THE April meeting of the AMERICAN MATHEMATICAL SOCIETY will be held at the University of Chicago on Friday and Saturday, April 28–29. At this meeting Professor MAXIME BÔCHER will deliver his Presidential Address, the provisional title of which is: "Charles Sturm's Published and Unpublished Work on Differential and Algebraic Equations." Except for the summer meetings, this will be the first united meeting of the whole Society since 1896. A large attendance is expected from all sections of the country. Titles and abstracts of papers to be presented at this meeting should be sent to the Secretary of the Society at an early date.

THE January number (volume 12, number 2) of the *Annals of Mathematics* contains the following papers: "Rationality groups in prescribed domains," by S. EPSTEEN; "Envelopes of one parameter families of plane curves," by W. J. RISLEY and W. E. MACDONALD.

AT the meeting of the London mathematical society held on February 9 the following papers were read: By E. CUNNINGHAM, "The application of the mathematical theory of relativity to the electron theory of matter"; by G. B. MATHEWS and W. E. H. BERWICK, "The reduction of arithmetic binary forms which have a negative discriminant"; by H. BATEMAN, "Certain vectors associated with an electromagnetic field and the reflection of light at the surface of a perfect conductor."