geometry, lines in a plane, general plane curves, conics, cubics, general space geometry, algebraic surfaces, families of surfaces, quadrics, twisted curves ; line geometry, transformations in a plane ; differential geometry of the plane and of space; probabilities, errors, numerical calculations, graphics, vector analysis and quaternions. The other headings mentioned are equally fully treated. Many topics have a place assigned for future exposition. In a few years this small encyclopedia will be almost a necessity for student, teacher, and investigator.

The book is illustrated with a portrait of Lord Kelvin, and his biography opens the introduction. The properly " yearbook " topics are a calendar, astronomical data, lists of journals and proceedings and transactions of learned societies, new books, necrology for 1908, lists of teachers of mathematics and physics in Germany. The errors in the book are few, so far as the reviewer noticed in his reading; those existing are noticeable at once and doubtless will disappear in the next volume.

JAMES BYRNIE SHAW.

Statistique Mathématique. Par H. LAURENT. Paris, Octave Doin, 1908. vi + 272 + xii pp.

THE author states that, for him, the object of mathematical statistics is to indicate and investigate methods of making good observations, when the point in question is to make numerical estimates concerning matters which interest economists. He has thus limited his purposes to matters which relate to specific applications. This fact may account, in part, for the entire omission of that important body of mathematical statistics which has been developed in close connection with applications to biology. However, these methods have been applied by others to problems of economics.*

It is well stated in the preface that it is a very common error to suppose that those who direct statistical investigations do not need to know mathematics. The author remarks that official statistics are not good, in general, because those who direct statistical investigations are not prepared for the work, and that if it is not necessary to exact of the statistician that he have a command of universal science, it is necessary, at least, that he should have surveyed the field of scientific knowledge.

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* See Yule, *Journal of the Royal Statistical Society,* vol. 60, pp. 812–854. Norton, Statistical Studies in the New York Money Market.