I conclude this review by expressing the hope that the important new views on the foundations of geometry opened up in this memoir may soon become generally known and be introduced into the teaching of elementary geometry.

<div style="text-align:right">J. SOMMER.</div>

GÖTTINGEN, OCTOBER, 1899.

KOENIGS' LECTURES ON KINEMATICS.

Leçons de Cinématique professées à la Sorbonne par GABRIEL KOENIGS, avec des notes par M. G. DARBOUX et par MM. E. et F. COSSERAT.   Paris, Hermann, 1897.   8vo., x + 499 pp.

WITH this book Professor Koenigs begins the publication of a treatise consisting of two or three volumes, which is to present the development of a course of lectures on kinematics delivered annually either at the École Normale or the Sorbonne for the last eight years.   The first volume, the first ten chapters of which were printed in 1894, is devoted to theoretical kinematics ; the rest of the work will be occupied with applied kinematics.

Kinematics as a distinct science is of comparatively recent origin.   The formulæ which give the variations of the coördinates of the points of a movable solid in space were published by Euler in 1750.   D'Alembert suggested the importance of studying the laws of movements separately. Ampère drew a definite demarcation between mechanics and the geometry of movement, but his object was to develop kinematical science solely for its use in the theory of mechanisms ; the term kinematics is due to Ampère.   Previously, in his geometry of position, Carnot predicted a much wider career for this science then to be, by calling attention to the fact that mechanics and hydromechanics would be infinitely simplified if the theory of geometrical motions were thoroughly investigated, since then the analytic difficulties encountered in the study of equilibrium and motion would be reduced to the general principle of the communication of motions, which is only another form of the principle of action and reaction.   In 1838 Poncelet included the geometric properties of moving bodies in his course at the Faculty of sciences of Paris ; with the exception of the notions of Chasles, we owe to Poncelet the theory of the continuous motion of a solid in space.   Willis, of