

on the use of vector methods in the determination of orbits, written to Hugo Buchholz; and a short abstract, bearing the date 1884, of a communication to the American association for the advancement of science on the subject of statistical mechanics, which shows that even at that early date the author was tolerably far advanced on the investigations which he published only in 1902. It is regrettable that some account of the later researches on multiple algebra were not available for publication, in particular the matter concerning double products which constitutes an important advance in the general theory. Professor Gibbs seems to have kept this, like many other ideas certainly in an advanced state of development, in his mind rather than on paper. For this reason his published work which has now appeared contains practically all that the world can ever hope to know of his investigations.

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*Leibnizens Nachgelassene Schriften physikalischen, mechanischen und technischen Inhalts.* Herausgegeben von DR. ERNST GERLAND. Leipzig, Teubner, 1906, vi + 256 pp.

THE volume contains hitherto unpublished papers of Leibniz on physics and mechanics, mostly written during the interval 1670 to 1686, or between the 24th and 40th year of his life. They are partly in Latin, partly in German and partly in French. The editor has supplied historical and explanatory notes. These articles are of interest, not only as showing that Leibniz sometimes touched upon questions which have since become of fundamental importance, such as the conservation of energy, but also as showing the progress of his ideas and his method of work.

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