

19.
Laplace.

meaning and attracted much popular attention in France and Belgium through the dominating influence of Laplace. He had not only collected in his abstract and very difficult 'Analytical Theory of Probabilities' all that himself and others had done in this line of research, but he had in a similar manner to that adopted in his 'Celestial Mechanics' tried to bring the substance of the theory home to the non-mathematical student in his 'Essai Philosophique sur les Probabilités.'

The analytical formulæ of probabilities can, he maintained, "be regarded as the necessary complement of the sciences which are founded on a mass of observations which are subject to error. They are indeed indispensable for solving a large number of questions in the natural and moral sciences. The regular causes of events are mostly either unknown or too complicated to be submitted to calculation: frequently also their effect is disturbed by accidental and irregular causes, but it always remains impressed on the events produced by all these causes, and it brings about changes which a long series of observations can determine. The analysis of probabilities shows these modifications: it assigns the probability of their causes, and it indicates the means of increasing their probability more and more."¹ Then, referring to the phenomena of the weather, Laplace proceeds: "Moreover, the succession of historical events similarly shows us the constant action of the great moral principles in the midst of the diverse passions and interests which agitate society in every direction. It is remarkable how a science

¹ 'Essai Philosophique,' p. 271.