

THE THEORY OF PROBABILITY: SOME COMMENTS ON LAPLACE'S THÉORIE ANALYTIQUE*

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1. *Introduction.* Laplace's work on probability has been surrounded by a great deal of misinformation. This situation is due to the mistakes of one historian having been passed on by others who have not gone to the originals. My purpose is to point out some of these errors before they come to be regarded as unquestionable from constant reiteration. Such reiteration not only does injustice to Laplace but leads to confusion of thought in a subject wherein clear thinking is of paramount importance.

The contributions of the author of the *Mécanique Céleste* to the theory of probability and its applications began with a memoir published in 1774. Extending over a period of nearly half a century they terminated in the fourth supplement to the third edition of the *Théorie Analytique des Probabilités*; the first edition appeared in 1812.

The comments which I will submit today for your consideration have reference particularly to the mature work of Laplace as expounded in the two books which constitute the *Théorie Analytique*. Except where one of the three editions of this great classic is explicitly mentioned, the comments apply equally to the first and third editions and, presumably, to the second edition also.

In his eulogy of Laplace, Fourier said:†

“On ne peut pas affirmer qu'il lui eût été donné de créer une science entièrement nouvelle, . . . : mais Laplace était né pour tout perfectionner, pour tout approfondir, pour reculer toutes les limites, pour résoudre ce que l'on aurait pu croire insoluble. Il aurait achevé la science du ciel, si cette science pouvait être achevée.

“On retrouve ce même caractère dans ses recherches sur l'analyse des probabilités, science toute moderne, immense, dont l'objet souvent méconnu a donné lieu aux interprétations les plus fausses, mais dont les applications embrasseront un jour tout le champ des connaissances humaines.”

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† Fourier, *Éloge Historique de M. Le Marquis de Laplace*, prononcé dans la séance publique de l'Académie Royale des Sciences, le 15 Juin 1829.