

which elaborated the principles of Newton into a system of the universe, and attacked the intricate mathematical problem which this system presented, gave to the world likewise the first complete treatise on that calculus which comes into play if we eliminate from the apparently most arbitrary region of phenomena, that of human life and history, all regard for final or efficient causes, for providential design and freewill, for human error, human malice and benevolence—in fact, all notice of that element which from another and equally important point of view forms the subject of greatest interest—the inner life of the individual. It was proposed, and it has since been carried out, to look upon human beings and human events not as things possessed of an inner world of thought and freewill, but as lifeless units, more uniform and regular than the balls thrown into the urn at an election, or the counters in a game of chance. By overstepping with one bound the great field of human activity, full of so much confusion and so much interest, it was proposed to investigate what knowledge would result from a purely mathematical inspection, in which human beings figured merely as units and symbols.¹ This attempt, which has since

&c., 1812) is now extensively employed. Of this branch of mathematics Bertrand says: "Les plus grands géomètres ont écrit sur le calcul des probabilités; presque tous ont commis des erreurs: la cause en est, le plus souvent, au désir d'appliquer des principes à des problèmes qui par leur nature échappent à la science." In the hands of Clerk Maxwell the calculus has acquired an additional interest and importance through the distinction which he made between what he termed the "histori-

cal" and the "statistical method" of treating phenomena, and the application of the latter to the kinetic theory of gases (see *Life*, pp. 438, 562). This subject will occupy our attention in a special chapter.

¹ The beginnings of the science of statistics belong likewise to the age that produced the higher mathematics. More extensive "countings" seem to have been contemporaneous with more refined calculations. Hermann Conring, professor at Helmstädt, a friend of Leibniz (see *Leib-*