ENCYCLOPÉDIE OU *DICTIONNAIRE* RAISONNÉ DES SCIENCES, DES ARTS ET DES MÉTIERS

JEAN D'ALEMBERT

ABSENT

ABSENT (*Calculus of probabilities*) When M. Nicolas Bernoulli, nephew of the celebrated Jacques & Jean Bernoulli, defended in Basel, in 1709 his thesis for Doctor of Laws; as he was a great geometer, as well as jurisconsult, he did not forbid himself to choose a matter which admits of geometry. He took therefore for subject of his thesis *de usu artis conjectandi in Jure*, that is to say, *On the application of the calculus of probabilities to the matters of Jurisprudence*, & the third chapter of this thesis treats of times where *an absentee must be reputed for dead*. According to him he must be counted such, when the odds are two times as great that he is dead than living. Therefore suppose a man left his country at the age of twenty years, & we see, following the theory of M. Bernoulli, by which time he is able to be reputed dead.

According to the tables given by M. Deparcieux of the Royal Academy of the Sciences, of 814 persons living at the age of 20 years, there remains of them to the age of 72 years only 271, which is nearly the third of 814; therefore there died of them two-thirds from 20 until 72; that is to say in 52 years; therefore at the end of 52 years the odds are two times more for the death than for the life of a man who absents himself & who disappears at age 20 years. I have chosen here the table of M. Deparcieux, & I have preferred it to the one which M. Bernoulli seems to have used, satisfying myself to apply here his reasoning: but I believe our calculation too strong on this occasion in a certain consideration, & too feeble in another; because 1°. on the one hand the table of M. Deparcieux had been made on some annuitants of tontines who, as he himself notices it, live customarily more than the others, because one ordinarily applies to the tontine only when one is well enough constituted to be flattered with a long life. On the contrary, the odds are that a man who is absent, & who for a long time has not given news of himself to his family, is at least in misfortune or in destitution, which, combined with the tiredness of the travels can hardly fail to shorten the days. 2°. On the other hand, I don't see that it is sufficient that a man is reputed dead, when the odds are only two against one that he is dead, especially in the case in question. For when there is a question to dispose of the wealth of a man, & to divest him of it without other motive than his long absence, the law must always suppose his certain death. This principle appears me so evident & so just, that if the table of M. Deparcieux was not made on some people who live customarily a longer time than the others, I would believe that the absentee must be reputed dead only in the time where there no longer remains any of the 814 persons aged twenty years, that is to say to 93 years. But, since the table of M. Deparcieux would be, in this case, too favorable to the absentees, one will be able, it

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Translated by Richard J. Pulskamp, Department of Mathematics and Computer Science, Xavier University, Cincinnati, OH .

seems there to me, to make a compensation, by taking the year where there remains only the quarter of the 814 persons, that is, about 75 years. This question would be easier to decide if one had some tables of mortality of travelers: but these tables are lacking to us yet, because they are very difficult, & perhaps impossible in implementation.

Mr. Buffon has given at the end of the third volume of his Natural History, some tables of the length of life, more exact & handier than those of M. Deparcieux, in order to resolve the problem in question, because they had been made for all the men without distinction, & not for the annuitants only. However these tables could be perhaps again a little too favorable to the travelers, who must generally live less than the other men: this is why instead of it taking $4/5$ of them as we did in the tables of M. Deparcieux, it would be good to take only $5/6$ of them, or perhaps $7/8$ of them. The calculation of it is easy to make; it was sufficient for us to have indicated the method. (*M. d'Alembert*)