A
TRANSLATION

OF THE

THREE FIRST CHAPTERS

OF THE

SECOND PART, OR BOOK,

OF

Mr. JAMES BERNOULLI's EXCELLENT TREATISE,

INTITLED

ARS CONJECTANDI;

OR

" THE ART OF FORMING PROBABLE CONJECTURES
CONCERNING EVENTS THAT DEPEND ON CHANCE."

Publiſhed in a ſmall Quarto Volume at BASIL, òr BASLE, in
Switzerland, in the Year 1713.

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THE PROŒMIUM, OR PREFACE, TO THE SECOND PART OF THE SAID
TREATISE

DE ARTE CONJECTANDI.

IT is eaſy to perceive that the prodigious variety which
appears both in the works of nature and in the actions of
men, and which conſtitutes the greateſt part of the beauty of
the univerſe, is owing to the multitude of different ways in
which its ſeveral parts are mixed with, or placed near, each
other. But, becauſe the number of cauſes that concur in pro-
ducing a given event, or effect, is oftentimes ſo immenſely
great, and the cauſes themſelves are ſo different one from an-
other, that it is extremely difficult to reckon up all the different
ways in which they may be arranged, or combined together,

it

it often happens that men, even of the beſt underſtandings and greateſt circumſpection, are guilty of that fault in reaſoning which the writers on logick call *the inſufficient, or imperfect enumeration of parts, or caſes :* inſomuch that I will venture to aſſert, that this is the chief, and almoſt the only, ſource of the vaſt number of erroneous opinions, and thoſe too very often in matters of great importance, which we are apt to form on all the ſubjects we reflect upon, whether they relate to the knowledge of nature, or the merits and motives of human actions. It muſt therefore be acknowledged, that that art which affords a cure to this weakneſs, or defect, of our underſtandings, and teaches us ſo to enumerate all the poſſible ways in which a given number of things may be mixed and combined together, that we may be certain that we have not omitted any one arrangement of them that can lead to the object of our inquiry, deſerves to be conſidered as moſt eminently uſeful and worthy of our higheſt eſteem and attention. And this is the buſineſs of *the art, or doctrine of combinations.*

Nor is this art or doctrine to be conſidered merely as a branch of the mathematical ſciences. For it has a relation to almoſt every ſpecies of uſeful knowledge that the mind of man can be employed upon. It proceeds indeed upon mathematical principles in calculating the number of the combinations of the things propoſed : but by the concluſions that are obtained by it, the ſagacity of the natural philoſopher, the exactneſs of the hiſtorian, the ſkill and judgment of the phyſician, and the prudence and foreſight of the politician, may be aſſiſted ; becauſe the buſineſs of all theſe important profeſſions is but *to form reaſonable conjectures* concerning the ſeveral objects which engage their attention, and all wiſe conjectures are the reſults of a juſt and careful examination of the ſeveral different effects that may poſſibly ariſe from the cauſes that are capable of producing them. And, I preſume, it was from a ſenſe of the great and general utility of this doctrine that ſeveral very eminent mathematicians have undertaken to treat of it in their public writings ; and particularly Mr. Van Schooten (the learned commentator on Des Cartes's geometry), Mr. Leibnitz, Dr. Wallis, and
Monſieur