Gambling Superstitions.

It might be supposed that those who are most familiar with the actual results which present themselves in long series of chance-games would form the most correct views respecting the conditions on which such results depend,—would be, in fact, freest from all superstitious ideas respecting chance or luck. The gambler who sees every system—his own infallible system included—foiled by the run of events, who witnesses the discomfiture of one gamester after another that for a time had seemed irresistibly lucky, and who can number by the hundred those who have been ruined by the love of play, might be expected to recognize the futility of all attempts to anticipate the results of chance combinations. It is, however, but too well known that the reverse is the case. The more familiar a man becomes with the multitude of such combinations, the more confidently he believes in the possibility of foretelling,—not, indeed, any special event, but the general run of several approaching events. There has never been a successful gambler who has not believed that his success (temporary though such success ever is, where games of pure chance are concerned) has been the result of skilful conduct on his own part; and there has never been a ruined gambler (though ruined gamblers are to be counted by thousands) who has not believed that when ruin overtook him he was on the very point of mastering the secret of success. It is this fatal confidence which gives to gambling its power of fascinating the lucky as well as the unlucky. The winner continues to tempt fortune, believing all the while that he is exerting some special aptitude for games of chance, until the inevitable change of luck arrives; and thereafter he continues to play because he believes that his luck has only deserted him for a time, and must presently return. The unlucky gambler, on the contrary, regards his losses as sacrifices to ensure the ultimate success of his "system," and even when he has lost his all, continues firm in the belief that had he had more money to sacrifice he could have bound fortune to his side for ever.

We propose to consider some of the most common gambling superstitions,—noting, at the same time, that like superstitions prevail respecting chance events (or what is called fortune) even among those who never gamble.

Houdin, in his interesting book, *Les Tricheries des Grecs devoilées*, has given some amusing instances of the fruits of long gambling experience. "They are presented," says Steinmetz, from whose work, *The Gaming-Table*, we quote them, "as the axioms of a professional gambler and cheat." Thus we might expect that, however unsatisfactory to men of honest mind,

they would at least savour of a certain sort of wisdom. Yet these axioms, the fruit of long study directed by self-interest, are all utterly untrustworthy.

"Every game of chance," says this authority, "presents two kinds of chances which are very distinct,—namely, those relating to the person interested, that is the player; and those inherent in the combinations of the game." That is, we are to distinguish between the chances proper to the game, and those depending on the luck of the player. Proceeding to consider the chances proper to the game itself, our friendly cheat sums them all up in two rules. First: "Though chance can bring into the game all possible combinations, there are, nevertheless, certain limits at which it seems to stop: such, for instance, as a certain number turning up ten times in succession at roulette; this is possible, but it has never happened." Secondly: "In a game of chance, the oftener the same combination has occurred in succession, the nearer we are to the certainty that it will not recur at the next cast or turn up. This is the most elementary of the theories on probabilities; it is termed *the maturity of the chances*" (and he might have added that the belief in this elementary theory had ruined thousands). "Hence," he proceeds, "a player must come to the table not only 'in luck,' but he must not risk his money except at the instant prescribed by the rules of the maturity of the chances." Then follow the precepts for personal conduct:—"For gaming prefer roulette, because it presents several ways of staking your money—which permits the study of several. A player should approach the gaming-table perfectly calm and cool—just as a merchant or tradesman in treaty about any affair. If he gets into a passion it is all over with prudence, all over with good luck—for the demon of bad luck invariably pursues a passionate player. Every man who finds a pleasure in playing runs the risk of losing.* A prudent player, before undertaking anything, should put himself to the test to discover if he is 'in vein' or in luck. In all doubt he should abstain. There are several persons who are constantly pursued by bad luck: to such I say—*never play*. Stubbornness at play is ruin. Remember that Fortune does not like people to be overjoyed at her favours, and that she prepares bitter deceptions for the imprudent who are intoxicated by success. Lastly, before risking your money at play, study your 'vein,' and the different probabilities of the game—termed, as aforesaid, the maturity of the chances."

Before proceeding to exhibit the fallacy of the principles here enunciated —principles which have worked incalculable mischief—it may be well for us to sketch the history of the scamp who enunciated them,—so far, at least, as his gambling successes are concerned. His first meeting with Houdin took place at a subscription ball, where he managed to fleece

* This *naïve* admission would appear, as we shall presently see, to have been the fruit of genuine experience on our gambler's part: it only requires that, for the words "runs the risk," we should read "incurs the certainty," to be incontrovertible.

Houdin "and others to a considerable amount, contriving a dexterous escape when detected. Houdin afterwards fell in with him at Spa, where he found the gambler in the greatest poverty, and lent him a small sum—to practise his grand theories." This sum the gambler lost, and Houdin advised him "to take up a less dangerous occupation." It was on this occasion, it would seem, that the gambler revealed to Houdin the particulars recorded in his book. "A year afterwards Houdin unexpectedly fell in with him again; but this time the fellow was transformed into what is called a '*demi-millionaire*,' having succeeded to a large fortune on the death of his brother, who died intestate. According to Houdin, the following was the man's declaration at the auspicious meeting:—'I have,' he said, 'completely renounced gaming; I am rich enough; and care no longer for fortune. And yet,' he added proudly, 'if I now cared for the thing, how I could break those bloated banks in their pride, and what a glorious vengeance I could take of bad luck and its inflexible agents! But my heart is too full of my happiness to allow the smallest place for the desire of vengeance.'" Three years later he died; and Houdin informs us that he left the whole of his fortune to various charitable institutions, his career after his acquisition of wealth going far to demonstrate the justice of Becky Sharp's theory, that it is easy to be honest on five thousand a year.

It is remarkable that the principles enunciated above are not merely erroneous, but self-contradictory. Yet it is to be noticed that though they are presented as the outcome of a life of gambling experiences, they are in reality entertained by all gamblers, however limited their experience, as well as by many who are only prevented by the lack of opportunity from entering the dangerous path which has led so many to ruin. These contradictory superstitions may be called severally,—the gambler's belief in his own good luck, and his faith in the turn of luck. When he is considering his own fortune he does not hesitate to believe that on the whole the Fates will favour him, though this belief implies in reality the *persistence* of favourable conditions. On the contrary, when he is considering the fortunes of others who are successful in their play against him, he does not doubt that their good luck will presently desert them, that is, he believes in the *non-persistence* of favourable conditions in their case.

Taking in their order the gambling superstitions which have been presented above, we have first of all, to inquire what truth there is in the idea that there are limits beyond which pure chance has no power of introducing peculiar combinations. Let us consider this hypothesis in the light of actual experience. Mr. Steinmetz tells us that, in 1813, a Mr. Ogden wagered 1000 guineas to one that "seven" would not be thrown with a pair of dice ten successive times. The wager was accepted (though it was egregiously unfair) and strange to say his opponent threw "seven" *nine times running*. At this point Mr. Ogden offered 470 guineas to be off the bet. But his opponent declined (though the price offered was far beyond the real value of his chance). He cast yet once more, and threw "nine," so that Mr. Ogden won his guinea.

Now here we have an instance of a most remarkable series of throws, the like of which has never been recorded before or since. Before those throws had been made, it might have been asserted that the throwing of nine successive "sevens" with a pair of dice, was a circumstance which chance could never bring about, for experience was as much against such an event as it would seem to be against the turning up of a certain number ten successive times at roulette. Yet experience now shows that the thing is possible; and if we are to limit the action of chance, we must assert that the throwing of "seven" *ten* times in succession is an event which will never happen. Yet such a conclusion obviously rests on as unstable a basis as the former, of which experience has disposed. Observe, however, how the two gamblers viewed this very eventuality. Nine successive "sevens" had been thrown; and if there were any truth in the theory that the power of chance was limited, it might have been regarded as all but certain that the next throw would not be a "seven." But a run of bad fortune had so shaken Mr. Ogden's faith in his luck (as well as in the theory of the maturity of the chances) that he was ready to pay 470 guineas (nearly thrice the mathematical value of his opponent's chance) in order to save his endangered thousand; and so confident was his opponent that the run of luck would continue that he declined this very favourable offer. Experience had in fact shown both the players, that although "sevens" could not be thrown for ever, yet there was no saying when the throw would change. Both reasoned probably that as an eighth throw had followed seven successive throws of "seven" (a wonderful chance), and as a ninth had followed eight successive throws (an unprecedented event), a tenth might well follow the nine (though hitherto no such series of throws had ever been heard of). They were forced as it were by the run of events to reason justly as to the possibility of a tenth throw of "seven,"—nay, to exaggerate that possibility into probability; and it appears from the narrative that the strange series of throws quite checked the betting propensities of the bystanders, and that not one was led to lay the wager (which according to ordinary gambling superstitions would have been a safe one) that the tenth throw would not give "seven."

We have spoken of the unfairness of the original wager. It may interest our readers to know exactly how much should have been wagered against a single guinea, that ten "sevens" would not be thrown. With a pair of dice there are thirty-six possible throws, and six of these give "seven" as the total. Thus the chance of throwing "seven" is one sixth, and the chance of throwing "seven" ten times running is obtained by multiplying six into itself ten times, and placing the resulting number under unity, to represent the minute fractional chance required. It will be found that the number thus obtained is 60,466,176, and instead of 1,000 guineas, fairness required that 60,466,175 guineas should have been wagered against one guinea, so enormous are the chances against the occurrence of ten successive throws of "seven." Even against nine successive throws the fair odds would have been 10,077,595 to one, or

about forty thousand guineas to a farthing. But when the nine throws of "seven" had been made, the chance of a tenth throw of "seven" was simply one-sixth as at the first trial. If there were any truth in the theory of the "maturity of the chances," the chance of such a throw would of course be greatly diminished. But even taking the mathematical value of the chance, Mr. Ogden need in fairness only have offered a sixth part of 1,001 guineas (the amount of the stakes), or 166 guineas 17*s.* 6*d.*, to be off his wager. So that his opponent accepted in the first instance an utterly unfair offer, and refused in the second instance a sum exceeding by more than three hundred guineas the real value of his chance.

Closely connected with the theory about the range of possibility in the matter of chance combinations, is the theory of the maturity of the chances, —"the most elementary of the theories on probabilities." It might safely be termed the most mischievous of gambling superstitions.

As an illustration of the application of this theory, we may cite the case of an Englishman, once well known at foreign gambling-tables, who had based a system on a generalisation of this theory. In point of fact the theory asserts that when there has been a run in favour of any particular event, the chances in favour of the event are reduced, and, therefore, necessarily, the chances in favour of other events are increased. Now our Englishman watched the play at the roulette table for two full hours, carefully noting the numbers which came up during that time. Then, eschewing those numbers which had come up oftenest, he staked his money on those which had come up very seldom or not at all. Here was an infallible system according to "the most elementary of the theories of probability." The tendency of chance-results to right themselves, so that events equally likely in the first instance will occur an equal number of times in the long run, was called into action to enrich our gambler and to ruin the unlucky bankers. Be it noted, in passing, that events do thus right themselves, though this circumstance does not operate quite as the gambler supposed, and cannot be trusted to put a penny into any one's pocket. The system was tried, however, and instead of reasoning respecting its soundness, we may content ourselves with recording the result. On the first day our Englishman won more than seven hundred pounds in a single hour. "His exultation was boundless. He thought he had really discovered the 'philosopher's stone.' Off he went to his banker's, and transmitted the greater portion of his winnings to London. The next day he played and lost fifty pounds; and the following day he achieved the same result, and had to write to town for remittances. In fine, in a week he had lost all the money he won at first, with the exception of fifty pounds, which he reserved to take him home; and being thoroughly convinced of the exceeding fickleness of fortune, he has never staked a sixpence since, and does all in his power to dissuade others from playing." *

It may appear paradoxical to say, that there is chance that results right

* From an interesting paper entitled "*Le Jeu est fait*" in *Chambers's Journal.*

themselves—nay, that there is an absolute certainty that in the long run they will occur as often (in proportion) as their respective chances warrant, and at the same time to assert that it is utterly useless for any gambler to trust to this circumstance. Yet not only is each statement true, but it is of first-rate importance in the study of our subject that the truth of each should be clearly recognized.

That the first statement is true, will perhaps not be questioned. The reasoning on which it is based would be too abstruse for these pages; but it has been experimentally verified over and over again. Thus, if a coin be tossed many thousands of times, and the numbers of resulting "heads" and "tails" be noted, it is found, not necessarily that these numbers differ from each other by a very small quantity, but that their difference is small compared with either. In mathematical phrase, the two numbers are nearly in a ratio of equality. Again, if a die be tossed, say, six million times, then, although there will not probably have been exactly a million throws of each face, yet the number of throws of each face will differ from a million by a quantity very small indeed compared with the total number of throws. So certain is this law, that, it has been made the means of determining the real chances for an event, or of ascertaining facts which had been before unknown. Thus, De Morgan relates the following story in illustration of this law. He received it "from a distinguished naval officer, who was once employed to bring home a cargo of dollars." "At the end of the voyage," he says, "it was discovered that one of the boxes which contained them had been forced; and on making further search a large bag of dollars was discovered in the possession of some one on board. The coins in the different boxes were a mixture of all manner of dates and sovereigns; and it occurred to the commander, that if the contents of the boxes were sorted, a comparison of the proportions of the different sorts in the bag, with those in the box which had been opened, would afford strong presumptive evidence one way or the other. This comparison was accordingly made, and the agreement between the distribution of the several coins in the bag and those in the box, was such as to leave no doubt as to the former having formed a part of the latter." If the bag of stolen dollars had been a small one, the inference would have been unsafe, but the great number of the dollars corresponded to a great number of chance trials; and as in such a large series of trials the several results would be sure to occur in numbers corresponding to their individual chances, it followed that the numbers of coins of the different kinds in the stolen lot would be proportional, or very nearly so, to the numbers of those respective coins in the forced box. Thus in this case the thief increased the strength of the evidence against him by every dollar he added to his ill-gotten store.

We may mention, in passing, an even more curious application of this law, to no less a question than that much talked of, but little understood problem, the squaring of the circle. It can be shown by mathematical reasoning, that, if a straight rod be so tossed at random into the air as to

fall on a grating of equidistant parallel bars, the chance of the rod falling through depends on the length and thickness of the rod, the distance between the parallel bars, *and* the proportion in which the circumference of a circle exceeds the diameter. So that when the rod and grating have been carefully measured, it is only necessary to know the proportion just mentioned in order to calculate the chance of the rod falling through. But also, if we can learn in some other way the chance of the rod falling through, we can infer the proportion referred to. Now the law we are considering teaches us that if we only toss the rod often enough, the chance of its falling through will be indicated by the number of times it actually does fall through, compared with the total number of trials. Hence we can estimate the proportion in which the circumference of a circle exceeds the diameter, by merely tossing a rod over a grating several thousand times, and counting how often it falls through. The experiment has been tried, and Professor De Morgan tells us that a very excellent evaluation of the celebrated proportion (the determination of which is equivalent in reality to squaring the circle) was the result.

And let it be noticed in passing that this inexorable law—for in its effects it is the most inflexible of all the laws of probability—shows how fatal it must be to contend long at any game of pure chance, where the odds are in favour of our opponent. For instance, let us assume for a moment that the assertion of the foreign gaming bankers is true, and that the chances are but from $1\frac{1}{4}$ to $2\frac{1}{2}$ per cent in their favour. Yet in the long run, this percentage must manifest its effects. Where a few hundreds have been wagered the bank may not win $1\frac{1}{4}$ or $2\frac{1}{2}$ on each, or may lose considerably; but where thousands of hundreds are wagered, the bank will certainly win about their percentage, and the players will therefore lose to a corresponding extent. This is inevitable, so only that the play continue long enough. Now it is sometimes forgotten that to ensure such gain to the bank, it is by no means necessary that the players should come prepared to stake so many hundreds of pounds. Those who sit down to play may not have a tithe of the sum necessary—if only wagered once—to ensure the success of the bank. But every florin the players bring with them may be, and commonly is, wagered over and over again. There is repeated gain and loss, and loss and gain; insomuch that the player who finally loses a hundred pounds, may have wagered in the course of the sitting a thousand or even many thousand pounds. Those fortunate beings who "break the bank" from time to time, may even have accomplished the feat of wagering millions during the process which ends in the final loss of the few thousands they may have begun with.

Why is it, then, it will be asked, that this inexorable law is yet not to be trusted? For this reason, simply, that the mode of its operation is altogether uncertain. If in a thousand trials there has been a remarkable preponderance of any particular class of events, it is not a whit more probable that the preponderance will be compensated by a corresponding deficiency in the next thousand trials than that it will be repeated in that

set also. The most probable result of the second thousand trials is precisely that result which was most probable for the first thousand—that is, that there will be no marked preponderance either way. But there *may be* such a preponderance; and it may lie either way. It is the same with the next thousand, and the next, and for every such set. They are in no way affected by preceding events. In the nature of things, how can they be? But "the whirligig of time brings in its revenges" in its own way. The balance is restored just as chance directs. It may be in the next thousand trials, it may be not before many thousands of trials. We are utterly unable to guess when or how it will be brought about.

But it may be urged that this is mere assertion; and many will be very ready to believe that it is opposed to experience, or even contrary to common sense. Yet experience has over and over again confirmed the matter, and common sense, though it may not avail to unravel the seeming paradox, yet cannot insist on the absurdity that coming events of pure chance are affected by completed events of the same kind. If a person has tossed "heads" nine times running (we assume fair and lofty tosses with a well-balanced coin), common sense teaches him, as he is about to make the tenth trial, that the chances on that trial are precisely the same as the chances on the first. It would indeed have been rash for him to predict that he would reach that trial without once failing to toss "head;" but as the thing has happened, the odds originally against it count for nothing. They are disposed of by known facts. We have said, however, that experience confirms our theory. It chances that a series of experiments have been made on coin-tossing. Buffon was the experimenter, and he tossed thousands of times, noting always how many times he tossed "head" running before "tail" appeared. In the course of these trials he many times tossed "head" nine times running. Now, if the tossing "head" nine times running rendered the chance of tossing a tenth head much less than usual, it would necessarily follow that in considerably more than one half of these instances Buffon would have failed to toss a tenth head. But he did not. We forget the exact numbers, but this we know, that in about half of the cases in which he tossed nine "heads" running, the next trial also gave him "head;" and about half of these tossings of ten successive "heads" were followed by the tossing of an eleventh "head." In the nature of things this was to be expected.

And now let us consider the cognate questions suggested by our sharper's ideas respecting the person who plays. This person is to consider carefully whether he is "*in vein*," and not otherwise to play. He is to be cool and businesslike, for fortune is invariably adverse to an angry player. Steinmetz, who appears to place some degree of reliance on the suggestion that a player should be "in vein," cites in illustration and confirmation of the rule the following instance from his own experience:—"I remember," he says, "a curious incident in my childhood which seems very much to the point of this axiom. A magnificent gold watch and chain were given towards the building of a church, and my mother took three

chances, which were at a very high figure, the watch and chain being valued at more than 100*l.* One of these chances was entered in my name, one in my brother's, and the third in my mother's. I had to throw for her as well as myself. My brother threw an insignificant figure; for myself I did the same; but, oddly enough, I refused to throw for my mother on finding that I had lost my chance, saying that I should wait a little longer —rather a curious piece of prudence" (read, rather, superstition) "for a child of thirteen. The raffle was with three dice; the majority of the chances had been thrown, and 'thirty-four' was the highest." (It is to be presumed that the three dice were thrown twice, yet "thirty-four" is a remarkable throw with six dice, and "thirty-six" altogether exceptional.) "I went on throwing the dice for amusement, and was surprised to find that every throw was better than the one I had in the raffle. I thereupon said, 'Now I'll throw for mamma.' I threw thirty-six, which won the watch! My mother had been a large subscriber to the building of the church, and the priest said that my winning the watch for her was quite *providential*. According to M. Houdin's authority, however, it seems that I only got into 'vein,'—but how I came to pause and defer throwing the last chance has always puzzled me respecting this incident of my childhood, which made too great an impression ever to be effaced."

It is probable that most of our readers can recall some circumstance in their lives, some surprising coincidence, which has caused a similar impression, and which they have found it almost impossible to regard as strictly fortuitous.

In chance games especially, curious coincidences of the sort occur, and lead to the superstitious notion that they are not mere coincidences, but in some definite way associated with the fate or fortune of the player, or else with some event which has previously taken place,—as a change of seats, a new deal, or the like. There is scarcely a gambler who is not prepared to assert his faith in certain observances whereby, as he believes, a change of luck may be brought about. In an old work on card-games the player is gravely advised, if the luck has been against him, to turn three times round with his chair, "for then the luck will infallibly change in your favour."

Equally superstitious is the notion that anger brings bad luck, or, as M. Houdin's authority puts it, that "the demon of bad luck invariably pursues a passionate player." At a game of pure chance good temper makes the player careless under ill-fortune, but it cannot secure him against it. In like manner, passion may excite the attention of others to the player's losses, and in any case causes himself to suffer more keenly under them, but it is only in this sense that passion is unlucky for him. He is as likely to make a lucky hit when in a rage as in the calmest mood.

It is easy to see how superstitions such as these take their origin. We can understand that since one who has been very unlucky in games of pure chance, is not antecedently likely to continue equally unlucky, a superstitious observance is not unlikely to be followed by a seeming change of

luck. When this happens the coincidence is noted and remembered; but failures are readily forgotten. Again, if the fortunes of a passionate player be recorded by dispassionate bystanders, he will not appear to be pursued by worse luck than his neighbours; but he will be disposed to regard himself as the victim of unusual ill-fortune. He may perhaps register a vow to keep his temper in future; and then his luck may seem to him to improve, even though a careful record of his gains and losses would show no change whatever in his fortunes.

But it may not seem quite so easy to explain those undoubted runs of luck, by which players "in the vein," (as supposed) have broken gaming-banks, and have enabled those who have followed their fortunes to achieve temporary success. The history of the notorious Garcia, and of others who like him have been for awhile the favourites of fortune, will occur at once to many of our readers, and will appear to afford convincing proof of the theory that the luck of such gamesters has had a real influence on the fortunes of the game. The following narrative gives an accurate and graphic picture of the way in which these "bank-breakers" are followed and believed in, while their success seems to last.

The scene is laid in one of the most celebrated German Kursaals.

"What a sudden influx of people into the room! Now, indeed, we shall see a celebrity. The tall light-haired young man coming towards us, and attended by such a retinue, is a young Saxon nobleman who made his appearance here a short time ago, and commenced his gambling career by staking very small sums; but, by the most extraordinary luck, he was able to increase his capital to such an extent that he now rarely stakes under the maximum, and almost always wins. They say that when the croupiers see him place his money on the table, they immediately prepare to pay him, without waiting to see which colour has actually won, and that they have offered him a handsome sum down to desist from playing while he remains here. Crowds of people stand outside the Kursaal doors every morning, awaiting his arrival, and when he comes following him into the room, and staking as he stakes. When he ceases playing they accompany him to the door, and shower on him congratulations and thanks for the good fortune he has brought them. See how all the people make way for him at the table, and how deferential are the subdued greetings of his acquaintances! He does not bring much money with him, his luck is too great to require it. He takes some notes out of a case, and places maximums on *black* and *couleur*. A crowd of eager hands are immediately outstretched from all parts of the table, heaping up silver and gold and notes on the spaces on which he has staked his money, till there scarcely seems room for another coin, while the other spaces on the table only contain a few florins staked by sceptics who refuse to believe in the count's luck." He wins; and the narrative proceeds to describe his continued successes, until he rises from the table a winner of about one hundred thousand francs at that sitting.

The success of Garcia was so remarkable at times as to affect the

value of the shares in the *Privilegirte Bank* ten or twenty per cent. Nor would it be difficult to cite many instances which seem to supply incontrovertible evidence that there is something more than common chance in the temporary successes of these (so-called) fortunate men.

Indeed, to assert merely that in the nature of things there can be no such thing as luck that can be depended on even for a short time, would probably be quite useless. There is only one way of meeting the infatuation of those who trust in the fates of lucky gamesters. We can show that, granted a sufficient number of trials,—and it will be remembered that the number of those who have risked their fortunes at *roulette* and *rouge et noir* is incalculably great—there must *inevitably* be a certain number who appear exceptionally lucky—or, rather, that the odds are overwhelmingly against the continuance of play on the scale which prevails at the foreign gambling tables, without the occurrence of several instances of persistent runs of luck.

To remove from the question the perplexities resulting from the nature of the abovenamed games, let us suppose that the tossing of a coin is to determine the success or failure of the player, and that he will win if he throws "head." Now if a player tossed "head" twenty times running on any occasion it would be regarded as a most remarkable run of luck, and it would not be easy to persuade those who witnessed the occurrence that the thrower was not in some special and definite manner the favourite of fortune. We may take such exceptional success as corresponding to the good fortune of a "bank-breaker." Yet it is easily shown that with a number of trials which must fall enormously short of the number of cases in which fortune is risked at foreign Kursaals, the throwing of twenty successive heads would be practically *ensured*. Suppose every adult person in Britain—say 10,000,000 persons in all—were to toss a coin, each tossing until "tail" was thrown; then it is practically certain that several among them would toss twenty times before "tail" was thrown. Thus, it is certain that about five millions would toss "head" once; of these about one half, or some two millions and a half, would toss "head" on the second trial; about a million and a quarter would toss head on the third trial; about six hundred thousand on the fourth; some three hundred thousand on the fifth; and by proceeding in this way—roughly halving the numbers successively obtained—we find that some eight or nine of the ten million persons would be almost certain to toss "head" twenty times running. It must be remembered that so long as the numbers continue large the probability that *about* half will toss "head" at the next trial amounts almost to certainty. For example, about 140 toss "head" sixteen times running: now it is utterly unlikely that of these 140, fewer than 60 will toss "head" yet a seventeenth time. But if the above process failed on trial to give even one person who tossed heads twenty times running—an utterly improbable event—yet the trial could be made four or five times, with practical certainty that not one or two, but thirty or forty, persons would achieve the seemingly incredible feat of tossing

"head" twenty times running. Nor would all these thirty or forty persons fail to throw even three or four more "heads."

Now if we consider the immense number of trials made at gambling tables, and if we further consider the gamblers as in a sense typified by our ten millions of coin-tossers, we shall see that it is not merely probable but absolutely certain that from time to time there must be marvellous runs of luck at *roulette*, *rouge et noir*, *hazard*, *faro*, and other games of chance. Suppose that at the public gaming-tables on the continent there sit down each night but one thousand persons in all, that each person makes but ten ventures each night, and that there are but one hundred gambling nights in the year—each supposition falling far below the truth—there are then one million ventures each year. It cannot be regarded as wonderful, then, that among the fifty millions of ventures made (on this supposition) during the last half century, there should be noted some runs of luck which on any single trial would seem incredible. On the contrary, this is so far from being wonderful that it would be far more wonderful if no such runs of luck had occurred. It is probable that if the actual number of ventures, and the circumstances of each, could be ascertained, and if any mathematician could deal with the tremendous array of figures in such sort as to deduce the exact mathematical chance of the occurrence of bank-breaking runs of luck, it would be found that the antecedent odds were many millions to one in favour of the occurrence of a certain number of such events. In the simpler case of our coin-tossers the chance of twenty successive "heads" being tossed can be quite readily calculated. We have made the calculation, and we find that if the ten million persons had each two trials the odds would be more than 10,000 to 1 in favour of the occurrence of twenty successive "heads" once at least; and only a million and a half need have a single trial each, in order to give an even chance of such an occurrence.

But we may learn a further lesson from our illustrative tossers. We have seen that granted only a sufficient number of trials, runs of luck are practically certain to occur; but we may also infer that no run of luck can be *trusted* to continue. The very principle which has led us to the conclusion that several of our tossers would throw twenty "heads" successively, leads also to the conclusion that one who has tossed heads twelve or thirteen times, or any other considerable number of times in succession, is not more (or less) likely to toss "head" on the next trial than at the beginning. *About half*, we said, in discussing the fortunes of the tossers, would toss "head" at the next trial: in other words, *about half* would fail to toss "head." The chances for and against these lucky tossers are equal at the next trial, precisely as the chances for and against the least lucky of the ten million tossers would be equal at any single tossing.

Yet, it may be urged, experience shows that luck continues; for many have won by following the lead of lucky players. Now we might at the outset, point out that this belief in the continuance of luck is suggested by an idea directly contradictory to that on which is based the theory of the

maturity of the chances. If the oftener an event has occurred, the more unlikely is its occurrence at the next trial—the common belief—then contrary to the common belief, the oftener a player has won, (that is, the longer has been his run of luck), the more unlikely is he to win at the next venture. We cannot separate the two theories, and assume that the theory of the maturity of the chances relates to the play, and the theory of runs of luck to the player. The success of the player at any trial is as distinctly an event—a chance event—as the turning up of ace or deuce at the cast of a die.

What then are we to say of the experience of those who have won money by following a lucky player? Let us revert to our coin-tossers. Let us suppose that the progress of the venture in a given county is made known to a set of betting men in that county; and that when it becomes known that a person has tossed "head" twelve times running, the betting men hasten to back the luck of that person. Further, suppose this to happen in every county in England. Now we have seen that these persons are no more likely to toss a thirteenth "head," than they are to fail. About half will succeed and about half will fail. Thus about half their backers will win and about half will lose. But the successes of the winners will be widely announced; while the mischances of the losers will be concealed. This will happen—the like notoriously does happen—for two reasons. First, gamblers pay little attention to the misfortunes of their fellows: the professed gambler is utterly selfish, and, moreover, he hates the sight of misfortune because it unpleasantly reminds him of his own risks. Secondly, losing gamblers do not like their losses to be noised abroad; they object to having their luck suspected by others, and they are even disposed to blind themselves to their own ill-fortune as far as possible. Thus, the inevitable success of about one half of our coin-tossers would be accompanied inevitably by the success of those who "backed their luck, and the success of such backers would be bruited abroad and be quoted as examples; while the failure of those who had backed the other half, (whose luck was about to fail them), would be comparatively unnoticed. Unquestionably the like holds in the case of public gambling-tables. If any doubt this, let them inquire what has been heard of those who continued to back Garcia and other "bank-breakers." We know that Garcia and the rest of these lucky gamblers have been ruined; they had risen too high and were followed too constantly for their fall to remain unnoticed. But what has been heard of those unfortunates who backed Garcia after his last successful venture, and before the change in his luck had been made manifest? We hear nothing of them, though a thousand stories are told of those who made money while Garcia and the rest were "in luck."

In passing, we may add to these considerations the circumstance that it is the interest of gaming-bankers to conceal the misfortunes of the unlucky, and to announce and exaggerate the success of the fortunate.

We by no means question, be it understood, the possibility that money

may be gained quite safely by gambling. Granting, first, odds such as the "banks" have in their favour; secondly, a sufficient capital to prevent premature collapse; and thirdly, a sufficient number of customers, success is absolutely certain in the long run. The capital of the gambling-public, doubtless exceeds collectively the capital of the gambling-banks; but it is not used collectively; the fortunes of the gambling-public are devoured successively, the sticks which would be irresistible as a faggot, are broken one by one. We leave our readers to judge whether this circumstance should encourage gambling or the reverse.

It is also easy to understand why in the betting on horse-racing in this country and others, success ordinarily attends the professional bettor, rather than the amateur, or, in the slang of the subject, why "the ring" gets the advantage of "the gentlemen?" Apart from his access to secret sources of information, the professional bettor nearly always "lays the odds" that is, bets against individual horses; while the amateur "takes the odds," or backs the horse he fancies. Now if the odds represented the strict value of the horse's chance, it would be as safe in the long run to "take" as to "lay" the odds. But no professional bettor lays fair odds, save by mistake. Nor is it difficult to get the amateur to take unfair odds. For "backing" is seemingly a safe course. The "backer" risks a small sum to gain a large one, and if the fair large sum is a little reduced, he still conceives that he is not risking much. Yet, (to take an example), if the true odds are nine to one against a horse, and the amateur sportsman consents to take eight to one in hundreds, then though he risks but a single hundred against the chance of winning eight, he has been as truly swindled out of ten pounds as though his pocket had been picked of that sum. This is easily shown. The total sum staked is nine hundred pounds, and at the odds of nine to one, the stakes should have been respectively ninety pounds and eight hundred and ten pounds. Our amateur should, therefore, only have risked ninety pounds for his fair chance of the total sum stated. But he has been persuaded to risk one hundred pounds for that chance. He has therefore been swindled out of ten pounds. And in the long run, if he laid several hundreds of wagers of the same amount, and on the same plan, he would inevitably lose on the average about ten pounds per venture.

In conclusion, we may thus present the position of the gambler who is not ready to secure fortune as his ally by trickery. If he meets gamblers who are not equally honest, he is not trying his luck against theirs, but, at the best (as De Morgan puts it) only a part of his against more than the whole of theirs. If he meets players as honest as himself he must, nevertheless, as Lord Holland said to Selwyn, "be—in earnest and without irony—*en verité le serviteur très humble des événements*, in truth the very humble servant of events."