T. Kavanagh: Enlightenment & the Shadows of Chance
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# Toward a Novel of Experience



The year 1678 saw the publication of two works that redefined their respective genres and changed the way we think of chance. Madame de La Fayette's *La Princesse de Clèves* is most often cited as the first fully formed example of the modern French novel. Wilhelm Gottfried Leibniz's *De aestimatione* is a seminal study of probability theory that not only built on the work of Pascal and Huygens but argued that a deductive, computational ethics was possible within the context of that new science. The coincidence of their publication dates symbolizes a fundamental congruence, perhaps even a monadic harmony, between these two cultural phenomena: the rise of the novel and the elaboration of a science of probability. Working in the same direction, both were linchpins in what was to become modernity's predominant attitude toward chance. Each, when examined in the context of the other, tells us something that would otherwise go unrecognized.

Addressing the question whether there actually was any specific period or succession of works that might be referred to as a "probabilistic revolution," Ian Hacking describes the development of probability theory from the 1650s to the 1930s (when Kolmogorov's work effectively redefined the field)[1] as "the great philosophical success story" of those centuries: "Other philosophical ideas have waxed and waned and sometimes grown again, but probability has been monotone. It has waxed and waxed, shone and shone. It has been a success in metaphysics, epistemology, and pragmatics, to mention three of the classic philosophical fields."[2]

Hacking's claim underlines the important role probability theory was to play throughout the eighteenth century in consolidating the consensus within the scientific community that chance was an illusion, that the physical and even the moral world was ruled by strict laws of cause and effect whose workings could be successfully fathomed once we had sufficiently refined our instruments and protocols of observation. While some would see the workings of a divine principle within that order and others would opt for a pure materialism, both groups shared a belief in an ultimately knowable order of causality. The universality of probability theory's triumph brought, however, its own ambiguities. Could so unrelenting a denial of chance have occurred had it not been rooted in an abiding fear that the world of men and of things might in fact remain intractable to the calm domination of knowable and predictable laws?

The novel, more than any other literary genre, reflects this ambiguity of the eighteenth century's attitude toward chance. The novel of that period always tells two stories. On the one hand, it speaks of a deterministic universe in which actions are followed by reactions. On the other, it tells the story of how, within that predictability, the chance event may at any moment redefine the individual's place within the world's apparently ordered sequences of cause and effect. Prévost's *Manon Lescaut* tells the story of three parallel worlds each of which is in itself perfectly predictable: the worlds of the provincial nobility, of the monied bourgeoisie, and of a recently urbanized proletariat. Yet the real story of des Grieux and Manon is that of a chance encounter threatening the predictability of each of those worlds.

Probability theory and the novel worked together to consolidate a bulwark against chance. Grasping what was at stake in that collaboration can best begin by contrasting their shared vision of causality to the earlier understanding of chance and its role in human affairs that it replaced. That earlier view of chance is well illustrated in a woodcut





from the early sixteenth century, a woodcut serving as the frontispiece to the 1524 French edition of Petrarch's *Remède de l'un et l'autre fortune prospère et adverse.* This image speaks of an absolute separation between chance and wisdom, between *fortuna* and *sapientia.* At the left of the woodcut, Fortuna sits under the head of the unwise man, the *insipiens,* who proclaims: *Te clamus fortuna dea celoque locamus* ("We proclaim you a Goddess, O Fortune, and place you in the heavens"). To the right, Wisdom sits under the head of the wise man, the *sapiens,* who proclaims: *Fidite virtuti: Fortuna fugatior undis* ("Confide in virtue; Fortune is more fleeting than the waves").

The figure of Fortune is blindfolded. She holds before her an ever-turning wheel over which none of the figures arrayed around it exercises any control. The reigning king, momentarily imperious at its summit, will soon, like the plummeting figure below him, be toppled by the figure rising from the right. Traditionally, these figures were tersely but eloquently designated as Regno, Regnavi, Regnabo, and Sum Sine Regno. Wisdom, to the contrary, calmly contemplates the mirrored image of her own virtue, a wisdom undistracted by the vicissitudes of human endeavor. The figure of Fortune sits on the *sedes fortune rotunda.* Her rounded throne totters precariously on the edge of a triangular base, itself at an angle formed by the wedge upon which it rests. The figure of Wisdom sits on the *sedes virtutis quadrata,* the solid throne of virtue. Rigorously squared, that seat rests firmly on two flat and stable planes.

This woodcut stands as a Renaissance summary of the classical and scholastic understanding of the human situation. Sapientia sits as a metaphor for *scientia,* for a knowledge that, like wisdom, is concerned only with universal, unchanging truths susceptible to logical demonstration and in no way contingent on specific circumstances that change over time. While individuals will come to apprehend such knowledge at a specific time and in a specific

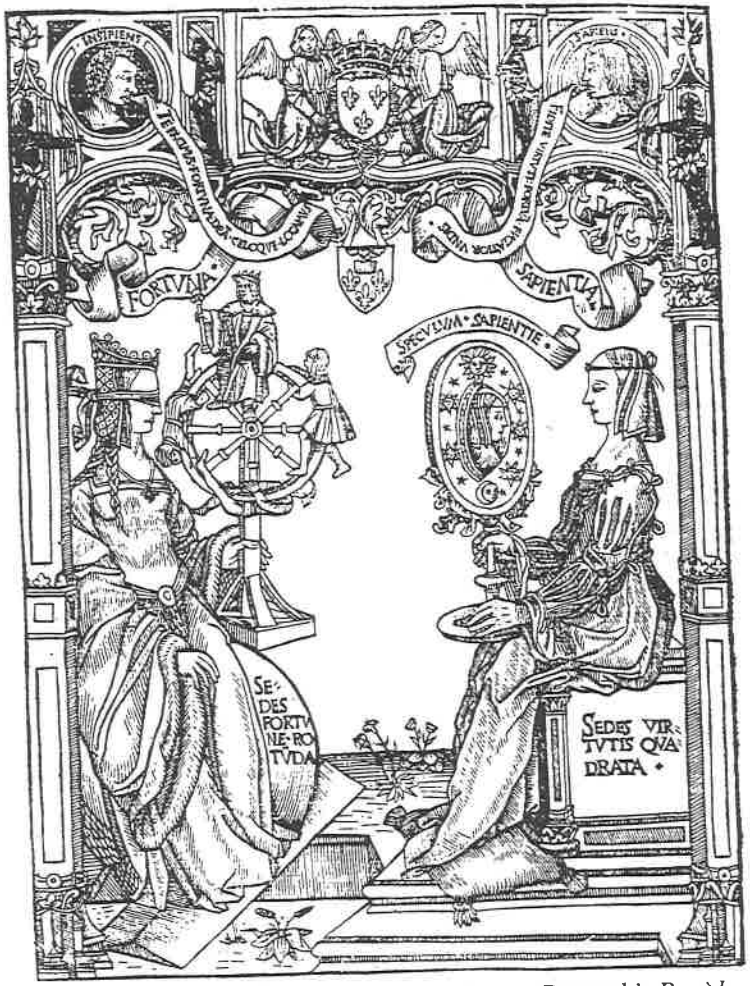


Fig. 2. Fortuna and Sapientia. Frontispiece to Petrarch's *Remède de l'un et l'autre fortune prospère et adverse.* Courtesy of Bibliothèque Nationale, Paris.





place, the truths so perceived lift them out of that specificity to the realm of the atemporal and the unchanging, because they exist independently of the circumstances of their perception. As J. G. A. Pocock has expressed it: "Reality of this order consisted of universals, and the activity of reason consisted of the intellect's ascent to recognition of the timeless rationality of universals."[3] The disciplines through which these truths came to be apprehended were the abstract sciences of philosophy and logic.

To the left, Fortuna sits as a metaphor of *opinio*—the base, uncertain, ever-changing opinions we have of everything situated in and dependent on the specific moment and the particular place. Opinion is circumstantial rather than demonstrable, accidental rather than necessary, temporal rather than eternal. As philosophy and logic were the elected disciplines for the discovery of science's universal truths, so rhetoric, the cunning ability to sway men's minds, was the vehicle of the always partial interpretations leading individuals to form their opinions of events.[4] The eyes of the figure representing wisdom are downcast and nearly closed both as a gesture of stoic humility and because true wisdom refuses any concern with the realm of opinion and what it says of a world given over to change and fortune.

We have, with this woodcut, returned to a world operating on premises totally different from our own. What we today think of as "factual" and therefore true was to be dismissed as meaningless circumstance. What we would instinctively distrust as vague abstraction was seen as bearing therein the hallmark of universal truth. The most important seventeenth-century modification of this paradigm came with Descartes' attempt to redeem a knowledge of the real by proposing its submission to the rigors of mathematical investigation, thus preparing the development of previously oxymoronic "physical sciences." Working in astronomy, optics, and geometry, Descartes argued that only the universality, abstraction, and logical rigor of a mathematized real could allow the newly emerging sciences of

the physical world to present themselves as something more than a ludicrous contradiction in terms.

For Descartes, mathematics allowed an attention to the real that respected the classical hierarchy of genres. Philosophy, logic, and now a mathematized analysis of the real world occupied the summit by reason of their shared foundation in universal categories of the unchangingly true. At the other extreme, mired in the limiting specificity of circumstance, history and all forms of narrative offered only moment-to-moment depictions of what may have existed at one moment but would inevitably cease to do so in the future. This devaluation of history and narrative reflects an allegiance to the traditional Aristotelian doctrine of the incommensurability of wisdom and chance, of the universal and the contingent, of knowledge and opinion, of logic and rhetoric, of philosophy and story. All was to be apportioned to one or the other of these contrary realms. Nothing was intermediate. Nothing was shared.

What we refer to as the Enlightenment, the Age of Reason, but also the age of probability theory and the novel was nothing less than a previously unthinkable merging of these categories, a multiplication of knowledge and control of the real flowing from a systematic erasure of the once uncontested boundaries between chance and science. Rather than a world divided between the eternally true and the fortuitously factual, the Enlightenment saw the birth of a mixed, resolutely intermediate world in which even the aleatory would become the object of a science claiming to offer all but certain knowledge.

If Fortune was brought so docilely to heel, if the woodcut accompanying Petrarch's text represents a world-view antithetical to the eighteenth century's, it is because the Enlightenment redefined the status and implications of chance. No longer Rome's blind goddess of Fortune or the Christian figure of providence, chance came to be seen as the reactionary illusion that there exists a point beyond which human knowledge could not extend. Laplacian optimism promised an all-conquering advance in our knowl-





edge of a deterministic world in which chance would have no role to play.

Probability theory and the novel played complementary and mutually sustaining roles in the Enlightenment's evacuation of chance. The events with which the nascent science of probability dealt most effectively were of a specific kind. As we saw, the doctrine of chances grew out of the analysis of gambling, of wagers decided by the turn of a card or the roll of a die. What made cards and dice so precious for gambling was the fact that as randomizers, they have no memory. A given roll of the dice is never, in other words, part of a "well-told story," a story in which what precedes the roll as event can determine what point will appear. Buffon, in the same *Essai d'arithmétique morale* in which he defined his concept of "moral certainty," used the example of a simple dice game called passe-dix—a game in which the player wins by throwing a total of ten or more points with three dice—to explain how the events analyzed by probability theory differ from those of our everyday lives. The chance event for Buffon is characterized by its lack of any causal relation to past or future, by the absence of any relation to what has gone before as cause or to what will come after as effect. The chance event exists outside determinism, outside any concatenation of cause and effect providing the armature of narrative. Describing the situation of the passe-dix player before each throw, Buffon insists that "each such experiment yields results quite unlike those produced by experiments involving natural effects. I would call it a certitude as to the inconstancy rather than the constancy of causes [la certitude de l'inconstance au lieu de celle de la constance des causes]."[5]

The chance event is recalcitrant to narrative. A story exists, is cogent, and achieves meaning only to the extent that it coaxes its reader into discovering some coherence of cause and effect, some rationality of the narrated events.

To read narrative is to participate in a movement of understanding toward which each event beckons the readers as they participate in its illusions of discovery and comprehension. The proudest claim of the new science of probability was that it would eliminate the irrationality of chance's capricious abruptness. In so doing, probability theory paralleled the novel's similar ability to elaborate representations of life's chaos where causal sequence vanquished the threat of chance.

What is less obvious about the relation between narrative and probability theory is the way that new science, as it set out to analyze chance, itself depended on narrative frames providing contextualizations of the fortuitous event. The birth of probability theory is, as we saw, usually dated to Pascal's 1654 essay on the arithmetic triangle. The specific problem Pascal addressed in that work was that of 'partitions', of how one might equitably divide the stakes in a game of chance when the contest is interrupted before its conclusion.

In his study of pre-Pascalian treatments of such problems, Ernest Coumet stresses the fact that there is no single self-evident and obviously superior approach to the resolution of such problems.[6] He offers as an example the straightforward problem of partitions, first treated by the Italian mathematician Luco Paccioli in his *Summa de arithmetica* (1494). An elderly landowner visiting his country estate offers a prize of one hundred ducats to the first of two young peasants to win six games in a contest in which both players have an equal chance of winning each round. When the score stands at five games for A and three for B, the game is interrupted. How should the stake be divided?

One approach to the problem assumes that only the games actually played should be considered in dividing the prize. Eight games were played, with A winning five and B, three. On that basis Paccioli decides that five-eighths of the stakes should go to A, and three-eighths to B. As logical as that approach seems, it in fact ignores the contest's basic premise: the prize will be awarded only when one of the





players has won six games. A second approach thus insists on considering the games not yet played. Assuming that there could be no more than a total of eleven games (six for the winner and a maximum of five for the loser), this approach suggests that A has moved five-elevenths of the way along this longest possible path toward the prize, whereas B has moved only three-elevenths of the way. A should clearly be awarded five-elevenths of the hundred ducats, and B, three-elevenths. There still remain, however, three-elevenths, more than a quarter of the whole, for which, as it were, no contest has as yet taken place. Given that line of reasoning, one could argue that the remaining three-elevenths should be divided proportionately to the number of games each player has already won, with A receiving roughly twice the share of the remaining three-elevenths as B.

To divide the prize that way would, however, be to assume that chance must continue to act in the future exactly as it has in the past—hardly a self-evident assumption. Coumet cites an argument offered by Lorenzo Forestani in his *Pratica d'aritmetica* (1682) in favor of an equal split of the remaining three-elevenths on the premise that since fortune can reverse itself at any moment, B as the apparent loser might well have gone on to win the next three rounds and thus the entire prize. From that perspective, an equal distribution of the undisputed remainder would most respect the unpredictability of the chance event. The important thing to understand about these analyses is that each depends not so much on the facts of what happened—that A won five games and B, three—as on the way those facts are woven into different narrative contexts. Each version of the narrative, by ordering and emphasizing the facts in a different way, motivates a different outcome.

Pascal's solution to this problem, one all probabilists have adopted after him, involved still another way of telling the story. We must, Pascal insisted, look at the five-to-three score as an unfinished story, as a story that will be complete only when the contest is played through to its

conclusion and one player has actually won six games. This can happen with a minimum of one additional game (if A wins it) or with a maximum of three additional games (if B wins them all). For each additional but unplayed game the probability that A or B will win remains one-half. There are, then, three chances for A to win: by winning the first new game, the second, or the third. A's overall probability of winning the contest is thus the sum of the probabilities of his winning each of those three possible rounds ($.5 + .5^2 + .5^3$), or seven-eighths, and B's probability of winning is the remaining one-eighth. Narrativized in this way, the prize should be divided such that seven-eighths goes to A and one-eighth goes to B.

The crucial innovation in Pascal's approach came in his insistence that to solve the riddle of the unfinished game, the prize must be divided upon any interruption in such a way that were it to become possible for the players to continue the game, the provisional partition of the prize would guarantee that both players saw it as being in their interest to play the game out to its originally defined conclusion. The split at any moment before the original conditions for closure have been met must, in other words, provide odds that motivate both players to complete the game's narrative as it was originally scripted. Pascal's solution is "correct" because it reflects the fact that were the game to be resumed, A would only have to win one additional round in three tries to take the prize, while B would have to win all three. After the interruption, then, A must hold a share sufficient to allow him to offer his considerably disadvantaged opponent the seven-to-one odds B would need for it to be in his self-interest to risk the one-eighth he already holds and finish the game.

Pascal's change of perspective on this classical problem is fraught with implications. In their earlier resolutions, Paccioli and Forestani had confined their analyses to a purely retrospective view of the games already played as a finished process cut off from any possible future. Pascal's innovation came as he enlarged the narrative frame. For





him, the moment of the game's interruption had to be approached, not as the end of the story, but as one point in an ongoing narrative—as a present moment to be understood through its relations to future expectation as well as past performance. An adequate resolution of the problem had to involve not only a memory of the past but an anticipation of the future, an assurance that both players would be motivated to complete the scenario as originally written.

In their study of the role of mathematics in contemporary life, Philip J. Davis and Reuben Hersh point out that the field of probability analysis has undergone an enormous extension. Beginning as a theory, it was "mathematical, axiomatic, deductive. [Its] statements [had] the same epistemological status as in any branch of pure mathematics."[7] Its significance grew, however, because of the ease with which that pure theory extended its apparently validating mantle over ever broader sectors of individual and public decision making. As the science of probability assumed extended applicability, its methodology became distinctly different from what had characterized it as a mathematical theory. Probabilistic analyses were "accomplished by art, cunning, experience, persuasion, misrepresentation, common sense, and a whole host of rhetorical, but non-mathematical devices" (24). As probability theory merged with practice, it depended more and more on effects that could be achieved only by an encompassing and motivating narrative fitting the theory's abstract present to a relevant past and projected future.

Like probability theory, the novel imposed itself during the eighteenth century as a form privileging a representation of the present as the movement from a known past to an uncertain future. Like probability theory, the novel depended for its significance on an ability to solicit the reader's identification with its rationalized and causally integrated sequencing of events. Like probability theory, the novel promised a greater understanding and mastery of life's apparently random events.

The novel shares with probability theory the assumption that individuals act within a world of preexisting causal sequences, of multiple determinisms compelling their reactions. Parallel to probability theory's rationalizing of chance, the focus of novelistic representation shifted away from the purely evenemential and giddy unpredictability we find in the picaresque *nouvelles* and *contes* of the early seventeenth century to a didactic analysis of moral character within an ultimately rational world. The novel of experience became for its audience the cornerstone of a new individuality and a new identity. Characters existed not so much in terms of what they did as in terms of their awareness of the reasons why they acted as they did. The novel's narrative of choice became the story of a reflexive self-awareness moving along determined and compelling pathways. Narrative man became cerebral man, the individual marked by and existing through an acute awareness of self. More than any other single work of the period, Diderot's *Paradoxe sur le comédien* stands as a foundational text for the age of the novel. Speaking of the theater, it argues that the most effective actor on the world's stage is the person who, rather than empathizing with and losing himself in the role he plays, stands entirely outside it, watching, analyzing, and adjusting every aspect of his *jeu* to its effect on the audience for which he plays. Diderot's actor incarnates the self-conscious and always self-regarding posture of novelized, narrativized man. The script is written, and its actions decided. Our one prerogative is to analyze and learn from the effects of our individual inflections as we execute that script's commands.

Probability theory and the novel of experience shared a didactic vocation consolidating their popularity as responses to the needs of an audience forced to live within ever larger and more complex social contexts. Daniel Defoe, in the same year that he published *Robinson Crusoe*, wrote a short pamphlet entitled *The Gamester*. A satiric de-





piction of the widespread gambling in the London of 1719, it ends with Defoe's claim that a firm knowledge of the probabilities governing the various games he discusses has now become as essential a part of the young gentleman's education as was once the study of law: "As several of our gentlemen of great estates bred up their sons to know something of the law, to enable them the better to keep their estates when they came to inherit them, so they should now think it equally necessary that they should study the mathematics, at least so far as to understand the Law of Chance, to make a just computation in all games, to prevent their losing them at play, and being bubbles to sharpers."[8]

On the other side of the channel, the entry "Probabilité" in Diderot and d'Alembert's *Encyclopédie* promised far broader and less satiric benefits from an understanding of this new science. Once adequate records of such events as epidemics, fires, and shipwrecks are kept, once death registers include the facts of the decedent's age, condition, temperament, and cause of death, the calm regularities of laws imperceptible at the scale of the single event but irrefutable at the scale of society as a whole will banish all belief in "what people quite inappropriately call the effect of chance."[9] The didactic value of these laws will be such that once their lessons are perceived, they will close even the gap between youth and experience by their power to "give to attentive young people all the experience of age" (3:105).

The consolidation of the novel's didactic function during the late seventeenth and eighteenth centuries was most apparent in its refusal of the term 'novel'. The word *roman* was unacceptable because it carried with it the liability of evoking the rough comedy of works such as Scarron's *Roman comique* and Furetière's *Roman bourgeois*. Centered on the serial adventures of picaresque heroes exuberantly open to the eruption of the chance event, such novels entertained their readers with the vitality and humor of their socially marginal heroes as they rose to the challenge of

any predicament chance might throw at them. As in today's James Bond or Kung-fu films, the center of interest lay not in the logic of plot but in the cartoonlike resilience of a central character surviving even the most perilous hazards.

The new novel of experience as it developed alongside probability theory was something entirely different. Insisting on its status as *histoire,* it refused the arbitrary concatenation of events so prevalent in the earlier forms of the genre. Rather than a stringing together of episodes, this new form depended on a coherence of plot and character justifying the genre's claim to inform and mold the reading public by revealing the workings of the world as it actually was. Realism became a paramount value within the novel, because it was only to the extent that its characters and situations were perceived as pertaining to the same world as the reader's that they could become the vehicle of a moral lesson. In his preface to *Manon Lescaut,* Prévost claims for the novel a didactic value equal to, if not surpassing, that of life itself. The story we are about to read will supplement the reader's limited experience through narrations so well drawn that they will teach lessons equally as vivid and equally as valid as those the reader has learned from life itself. Analyzing the importance to the novel of what he calls "the incomparable didactic value of the concrete example," Georges May underlines the abiding importance of this function to the eighteenth-century novel by quoting a text as late as Restif de la Bretonne's preface to *Les Françaises* (1786): "What is a novelist? He is a moralist who, rather than imperiously commanding 'Do this! Do that!,' acts as a skillful Nestor setting forth the actions of other men and other women whose conduct, good or bad, and often both at the same time, he traces out for you. The novelist holds a map in his hand and shows us the way."[10] Unlike its picaresque predecessors, the novel of experience justifies itself, not by the pleasure of its read, but by the value of its lesson.

Probability theory and the novel share the claim to show





the world as it is and to provide their audiences with a more complete understanding of how it works. As probability theory developed through its elaboration of the law of large numbers and its mutation into the science of statistics, it effectively defined itself as the novel of experience par excellence, as the novel of novels, whose central character was none other than that perfect average representing all its potential readers. Adolphe Quételet, the father of statistics, pointed with pride to the necessarily fictive status of the *homme moyen* at the center of his new science: "The person I am considering here is analogous within society to the center of gravity within an object. He incarnates the average around which individual social beings oscillate. He is, if you will, a fictive being for whom everything will happen in accordance with averages valid for society as a whole."[11] The novel of experience shared with probability theory and statistics the intention of revealing society's multiple determinisms and intersecting causalities in such a way that its audience might draw from them a more complete and more effective mastery of its world. Not only would the novel add to the reader's limited experience but, because its representation of events was susceptible to infinite analysis and clarification, it would provide a supplement more reliable, more eloquent, and more valuable than those experiences too often lived as little more than mute chaos.

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I have tried to describe here a number of crucial parallels between the emergence of the novel and the probabilistic revolution. Both, I argue, worked toward a domestication of chance, toward the elimination of its threat to the Enlightenment's faith in a rational and knowable world. There is, however, no single or simple relation between the actual practices of the eighteenth-century French novel and the protocols of probability theory. The shape of the novel as it developed throughout this period was far too varied to allow any direct equation of content with form

or theme with genre. The rest of this study is therefore devoted to the analysis of specific novels and how they exemplify the divergent forms of the genre's relation to the conquest of chance. While the majority of the works I consider clarify that subversion of chance, others, fewer in number but equally significant, work in the opposite direction—toward a celebration of chance necessarily challenging the conventions of the novel of experience and problematizing the form of the genre.



# 5

# Jean de Préchac and the Noble's Wager

Historians of gambling like to find patterns in the changing fashions of the games people play. Following Philippe Ariès's thesis that the seventeenth century's increasing moralization of everyday activities led to a stigmatizing of games played for money in a family context, Thierry Depaulis argues that the *ancien régime* saw an evolution away from betting and bluffing games of pure chance such as glic, flux, and prime (all mentioned by Rabelais as part of Gargantua's pedagogy and usually recognized as ancestors of modern poker) toward more mathematically complex games based on an accumulation of tricks where skill and calculation played a far larger role than aggressive betting.[1] According to this view, nineteenth-century whist and contemporary bridge represent the highest stages of this evolution. While pure betting games are now rare in the context of family pastimes that interested Ariès, the continuing popularity of blackjack, poker, baccarat, and other casino-style games makes it difficult to agree that there was any general evolution away from one pole of Depaulis's opposition to the other.

It is true, however, that card games come into and pass out of fashion as part of a broader social praxis involving such diverse elements as the game's identification with a particular milieu or class, foreign influences, and police repression. With regard to the period that interests us here, the intertwining of gambling with the larger social fabric is nowhere more evident than in the case of the game called basset, *la bassette*. One of the most popular card games of the seventeenth and eighteenth centuries,