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# Of Bentham, Wigmore, and Little Bo Peep: Where Evidence Lost Its Way, and a Map for Scholars to Find It (Review of Twining: *Rethinking Evidence-- Exploratory Essays*)

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## BOOK REVIEW

### **Of Bentham, Wigmore, and Little Bo Peep: Where Evidence Lost Its Way, and A Map For Scholars To Find It**

RETHINKING EVIDENCE—EXPLORATORY ESSAYS. By William Twining, Basil Blackwell, 1990.

*Paul Bergman\**

#### I. INTRODUCTION

Alas poor Evidence. In this collection of elegant essays written over a 16 year period, William Twining, the distinguished Quain Professor of Jurisprudence at University College, London, regards the entire field of evidence as “stagnant” (p. 1) and “dormant” (p. 342) for most of the 20th century, a veritable Bermuda Triangle of legal scholarship. Professor Twining suggests that evidence became becalmed when its leading exponents turned their backs on the proof process and became enamored of doctrine laid down by appellate courts. Bereft of direction, evidence scholars concentrated on rules at the expense of both empirical findings and intellectual developments in related fields (pp. 156-61, 347).

The essays stake out possible cures for what Jerome Frank termed “appellate court-itis” (p. 157). The book transports one to a sort of primordial evidence swamp, where ideas pertaining to reasoning about questions of fact are more significant than rules defining what it is that a judge or juror is allowed to reason about. Twining’s concern is with “philosophical questions about reason, reasoning and rationality in legal processes” (p. 359). For him, “the logic of proof [is] anterior to the rules which [can] by and large be treated as being exceptional, artificial constraints on free enquiry and natural reason” (p. 351). In this context, the

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\* Professor of Law, UCLA School of Law. I am indebted to my colleagues Al Moore, Carrie Menkel-Meadow and Ken Graham for their perceptive comments, and to William Twining for producing the intriguing essays.

Bentham who developed "the most ambitious and fully developed theory of evidence and proof in the history of legal thought" (p. 39) is of more interest than the Bentham who railed against any and all rules of evidence.<sup>1</sup> Likewise, the Wigmore who wrote the largely-ignored *Science of Judicial Proof*<sup>2</sup> looms as a more important figure than the Wigmore who wrote the storied rules treatise.<sup>3</sup>

As the subtitle "Exploratory Essays" suggests, Twining does not pretend to present "a Brand New Theory of Evidence for the Modern Age" (p. 10). His claim is simply to chart "a mapping theory that . . . indicates the main points of connection between . . . many different lines of enquiry" (p. 10). On Twining's map, the writings of those who produce what Professor Richard Lempert has termed "The New Evidence Scholarship"<sup>4</sup> are a welcome return to the core subject matter of the field of evidence: fact analysis and the proof process.

## II. THE RATIONALIST TRADITION

The map that the essays provide is charmingly written and sweeping both in historical depth and comparative breadth. Chapter 3, for example, "The Rationalist Tradition of Evidence Scholarship," traces the development of what Twining describes as a "Rationalist Model of Adjudication" (p. 72). Reviewing the major contributors to the intellectual history of evidence (with special emphasis on Bentham, Thayer and Wigmore), Twining concludes that they were almost uniformly "optimistic rationalists" who "were fairly complacent about the general operation of the adversary system in their own jurisdiction in their day" (p. 75). That is, they believed that by weighing evidence in a rational and impartial manner, decision-makers provided justice by "accurately determining the true past facts" (p. 73).

Then, in Chapter 4, "Some Scepticism About Some Scepticisms," Professor Twining adopts the attitude of a "Thursday Sceptic": one who instinctively believes that knowledge is possible and that reason is good, but whose sleep is regularly dis-

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1 J. BENTHAM, *RATIONALE OF JUDICIAL EVIDENCE* (J.S. Mill ed. 1827).

2 J. WIGMORE, *SCIENCE OF JUDICIAL PROOF* (3d ed. 1937).

3 J. WIGMORE, *A TREATISE ON THE SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW* (3d ed. 1940).

4 See Lempert, *The New Evidence Scholarship: Analyzing the Process of Proof*, 66 B.U.L. REV. 439 (1986).

turbed by doubts. From this perspective, Twining examines whether any of a variety of breeds of skeptics (such as hard-nosed practitioners, philosophical skeptics, phenomenologists, fact-skeptics and mathematical probabilists) have significantly undercut the dominant rational tradition. Fortunately for those who would not relish rethinking their understanding of the entire Anglo-American system of justice, Twining concludes that "the central underlying assumptions of our Rationalist forefathers have stood up rather well in the face of a series of potentially destructive or subversive intellectual truth"<sup>5</sup> (p. 128).<sup>6</sup>

Despite this conclusion, Professor Twining's discussion suggests that his skepticism is not limited to Thursday nights. He explains how much of what passes for objective truth at trial may be simply socially constructed knowledge. Choosing an "absurd example" (and perhaps an unfortunate one), Twining imagines a jurisdiction in which people "know" that homosexuality is linked to earthquakes. In such a jurisdiction, homosexuals might rationally be convicted of fomenting earthquakes. Our culture, notes Twining, "knows" that nothing links the two events, and hence we would regard such a conviction as impossible (p. 114).

Extending Professor Twining's discussion to less absurd examples ought to make fitful sleepers of us all. Today, it is easy to deride the supposedly rational triers of fact in Salem, Massachusetts, who a couple of centuries ago relied on evidence such as "sick cows" and "lumps of earth in the hearth" as proof that women were witches. But what of our modern reliance in toxic torts cases on experts who use epidemiological studies to "prove" causative links between environmental hazards and human diseases?<sup>7</sup> Given researchers' almost daily about-face on whether drinking coffee is a good or bad thing to do, much of the science we accept as truth in court today may seem rather primitive in future years. And what of more routine non-scientific cultural truths,

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5 Apparently, none of the contributors to the Rationalist tradition were women.

6 However, the rationalist tradition does not win a complete victory. Twining recognizes that fact-finding at trial is often less than strictly rational, and that the tradition is overly simplistic, particularly in its tendency to "conflate all types of proceeding, all types of tribunal, all types of case and all the stages in each type of proceeding within a single model of adjudication" (p. 129). Thus, if the core concepts of the rationalist tradition remain firm, "particular conceptions associated with this tradition are not the only possible ones and appear somewhat simplistic and old-fashioned today" (p. 8).

7 For an interesting analysis of the difficult judgments trial judges face when confronted by such experts, see Nesson, *Agent Orange Meets the Blue Bus: Factfinding at the Frontier of Knowledge*, 66 B.U.L. REV. 521 (1986).

such as that a trier of fact can discern (a) whether a testator "intended" to disinherit an heir; (b) whether an accused acted "willfully;" (c) whether a person's reliance on the statement of another was "reasonable;" or (d) the monetary value of a wrongfully-taken life? In a century or two, such everyday truths may seem as misguided as those of Salem do today.<sup>8</sup>

Still sleeping like a baby? Then consider that aside from producing truths that another society or age might regard as naive, the ability of our justice system to produce even our own cultural truth is dubious. Our justice system relies on evidentiary rules to render information presented to factfinders in court more trustworthy than that offered to guests at dinner parties. By and large, however, the Evidence Rules Beast slumbers until suddenly roused into action by a dispute having successfully run a pretrial gauntlet of motions, negotiation and time delays. Over this period, witnesses' memories are likely to fade or alter, spontaneously or with the encouragement of litigants or their lawyers.<sup>9</sup> Moreover, no judge or juror "can be completely neutral or impartial" (p. 97). The result may be that, as Jerome Frank pointed out, though the certainty with which legal rules are applied depends heavily on the accuracy of fact-finding, fact-finding typically consists of guesses about past events.<sup>10</sup>

Professor Twining evidently shares Frank's concerns about "the difficulties of attaining accurate accounts of the past" (p. 111).<sup>11</sup> However, he concludes that those concerns do not "seriously and consistently (challenge) any of the central assumptions of the Rationalist Tradition" (pp. 111-12). The tradition is resilient enough to accommodate factual fallibility: "The pursuit of

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8 Cf. Woody Allen's movie *Sleeper* (United Artists 1973) in which the central character awakens in the 21st century to learn that healthy habits include smoking and eating beef fat.

9 It is hardly reassuring that most disputes are resolved through negotiation rather than trial. What really happened often has little to do with negotiated outcomes. Lawyers frequently influence outcomes with arguments such as, "My client and I don't care what really happened. Your client looks like a sleaze and I think my client will win in front of a jury;" or, "Whether or not Marion Barry, the Mayor of Washington D.C., is guilty of numerous counts of possessing drugs, there is no way a Washington D.C. jury will convict him of those crimes." (The argument for Mayor Barry's success relies more on juror bias than a rational weighing of evidence. See Kornheiser *Jury Pool: Twelve Happy Sheep*, Wash. Post, June 8, 1990, at B1; York & Thompson, *Barry Guilty on 1 Count, Cleared on 1; Mistrial Declared on 12 Other Charges*, Wash. Post, Aug. 11, 1990, at A1.)

10 See J. FRANK, *COURTS ON TRIAL* 15-16 (1949).

11 Twining credits Frank's "legal realism" as one of the "starting points" of the essays (p. 366).

truth . . . commands a high, but not necessarily an overriding priority as a social value" (p. 74). Truth is an aspiration of our justice system, but one not always realized (p. 116).

But what if judicial robes were like emperors' clothes, which when stripped away revealed that truth was but a random result of triers' deliberations?<sup>12</sup> That would make it difficult to maintain that we were upholding a rationalist tradition. Hence, Twining is sorely troubled by the breed of skeptic he terms the "Hard-nosed Practitioner" (p. 96). He perceives a potential conflict between rationalist values such as "truth" and "reason" and the Hard-nosed Practitioners' emphasis on "winning" and "gamesmanship" (p. 98). Twining believes that the Hard-nosed Practitioner may be "subversive of rationalist aspirations," but concludes that the practitioner's "folk wisdom" needs to be "academicized" before he can fully reply (p. 98).

Even recognizing the existence of gamesmanship techniques, it is disconcerting to think that the Hard-nosed Practitioner is potentially subversive of rationalist aspirations. After all, if Twining is right that the rationalist tradition has weathered the centuries, the Hard-nosed Practitioner deserves a good deal of the credit. If it is difficult to imagine *Hamlet* without the Prince, it is even more difficult to imagine the Anglo-American system of justice without lawyers.

Thus, one response to Professor Twining's discomfort with the Hard-nosed Practitioner may be that the adversarial form of dispute resolution is as much a value of the Rationalist Tradition as "truth, reason and expetive justice" (p. 346).<sup>13</sup> Indeed, the more we recognize that objective truth may be unobtainable, and at any rate may exist only in a culture's belief systems, the greater the value of the adversary system. With objective truth unavailable, each party's commitment to victory, to gilding its own lily while attempting to tarnish the other's, is what compels judges and jurors to exercise reason and produce what the culture regards as justice.<sup>14</sup> Far from being potentially subversive of the

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12 This thought is at the heart of litigators' frequent warnings to their clients that trials are crashshoots.

13 Note that Twining's "Rationalist model of adjudication" (p. 73) does not refer to the adversary system, and indeed is completely silent about the role of lawyers.

14 I am saying only that adversariness is itself a part of our rationalist tradition, not that the adversary system is the only way of producing justice. As Professor Twining recognizes, continental lawyers might argue that truth and rationality are better served by inquisitorial systems. (See pp. 81-82).

rationalist tradition, I suggest that the Hard-nosed Practitioner has maintained and nurtured it.<sup>15</sup>

Acknowledging the chinks in the rationalist armor, Twining concludes that while few inroads have been made on the concepts of the rationalist tradition, the particular conceptions associated with it are debatable and "rather old-fashioned and simplistic" (p. 128). But which conceptions have rotted out, and with what sort of timber can we replace them? On these questions, Professor Twining retreats to his mapping stance: "To return to the mapping analogy, these charts are like town plans that indicate a number of stations and other points of departure without providing much information about what destinations might be reached by precisely what routes" (p. 131).

### III. WIGMOREAN CHARTS

In Chapter 8, "Anatomy of a *Cause Célèbre*," Professor Twining employs "modified Wigmorean analysis" to examine evidence in the trial of Edith Thompson, who in 1922 was (along with her paramour) convicted and hanged for murdering her husband.<sup>16</sup> In a remark that demonstrates the facility with which he can move between abstract analysis and personal commentary, Twining acknowledges that as teacher and theorist he has exploited Edith Thompson over the years (p. 293). His relish for fact analysis and his sympathy for the unfortunate Edith is evident in his colorful and dramatic analysis of selected portions of the evidence.<sup>17</sup>

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15 Interestingly, during a discussion in Chapter 8 of the trial and conviction of Edith Thompson, Twining notes that Edith contributed to her downfall by refusing to heed the advice of her own counsel that she not testify (p. 277). Though Twining evidently would have given the same advice, he seems not bothered by the possibility that keeping Edith off the stand might have subverted truth in the interest of winning. My point is that he is right not to be bothered: "winning" and "gamesmanship" are integral parts of the rationalist tradition.

16 As Twining notes, amazingly enough it was but 100 days between commission of the crime and the hanging.

17 One of the essays' subthemes is that while "narrative" plays an important role in factual analysis, many commentators have exaggerated its importance at the expense of the virtues of close textual analysis. Chapter 9, "Thompson and Wigmore: Fresh Evidence and New Perspectives," is a fascinating examination of the relative merits of these two methods. In it, Twining compares his Wigmorean analysis of Edith Thompson's guilt or innocence with the narrativist account set forth in a biography written by Rene Weis, a University College colleague of Twining's. Recording a happening with which we can all empathize, Twining notes that though he and Weis are colleagues, "over a period of five years neither of us knew that the other was working on the case" (p. 308).

An ardent admirer of Wigmorean analysis, Professor Twining has recently co-authored a work which attempts to ignite interest in Wigmore's "Chart Method" of analyzing evidence.<sup>18</sup> Thus, the significance of this essay in *Rethinking Evidence* is at least two-fold. First, its presence (along with Chapter 1, "Taking Facts Seriously" and Chapter 7, "Lawyers' Stories") reinforces one of Twining's themes: that analysis of facts is no less important an enterprise than analysis of appellate court rulings. Second, it allows one to consider how successful Twining might be in stimulating interest in the chart method. To what extent does he demonstrate that Wigmorean analysis is "a powerful tool for organizing and mapping complex arguments based on masses of evidence?" (p. 280 (emphasis in original)).

My own work shows a great indebtedness to Wigmore.<sup>19</sup> Wigmore's ideas about proof are no less powerful today than they were a half century ago. For example, his notions that what an advocate sets out to prove are not abstract legal principles, but particular factual propositions (what Wigmore termed "ultimate probanda"),<sup>20</sup> and that advocates use experientially-based generalizations to analyze the inferential connections between individual items of evidence and the ultimate probanda they tend to prove, are the foundation to a claim that our method of adjudication is rational.

Nevertheless, most lawyers and legal scholars have long managed to suppress their enthusiasm for Wigmore's Chart Method. Twining's essay seems unlikely to cause them to realize the error of their ways. Wigmore's analysis of the logical underpinnings of the proof process has several major shortcomings. For example, long before computers gave many of us an additional reason to feel inadequate, Wigmore devised a pictograph system that was not user friendly. The symbols, something of a cross between ancient Egyptian hieroglyphics and a diagram of the single wing football formation, are devices that only an archaeologist could love.

Moreover, despite his enthusiasm for charting, Professor Twining is able to thoroughly analyze evidence pertaining to Edith and to communicate that analysis without resorting to Wigmore's complex symbolism.<sup>21</sup>

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18 T. ANDERSON & W. TWINING, *ANALYSIS OF EVIDENCE* (1991).

19 See D. BINDER & P. BERGMAN, *FACT INVESTIGATION* (1984).

20 J. WIGMORE *supra* note 2, at 101.

21 See D. BINDER & P. BERGMAN, *supra* note 19 (capitalizes on many of Wigmore's

Finally, Wigmorean analysis is limited by its resemblance to the fulcrum in a see-saw: while the analysis may be important, all the action in litigation tends to be on either side of it. As in the case of Edith, Wigmorean analysis offers a method of analyzing a mass of evidence that is already in hand. Thus, on the one side it does not incorporate methods of identifying and acquiring evidence during the discovery and investigatory phase of litigation. Wigmore's analysis is without doubt relevant to that phase, but it does not by itself translate into prescriptive behavior. And, on the other side, Wigmore's analysis does not prescribe a method for presentation of evidence at trial. Even after all the charts are in place, an advocate is entirely on her or his own in deciding what type of presentation is likely to have the greatest persuasive impact. Hence, for all its detailed complexity, Wigmorean charts afford little constructive help to litigators in their two major areas of activity.<sup>22</sup>

#### IV. MATHEMATICAL APPROACHES TO INFERENCE-DRAWING

Scattered throughout the various essays (but given particular prominence in Chapter 4) are Professor Twining's comments on one of the New Evidence Scholarship's pet themes: the propriety of evaluating garden variety fact-finding in terms of various models of mathematical probability. Many "mathematical probabilists" argue that legal standards such as "preponderance of the evidence" and "beyond a reasonable doubt" rest on mathematical probabilities. In their view, much of what passes for rational fact-analysis is in fact irrational, as it lacks an empirical base and is not "notionally translatable into mathematical form" (pp. 119-120).

Consistent with his general approach, Twining reminds us that for purposes of his essay, "the validity . . . of the various arguments is not in issue," (p. 119) and that his "concern is to map a series of different positions" (p. 121). His map marks out two types of arguments made by the mathematically-oriented "Pascalians." One type of argument states that in order to qualify as rational, fact-finding must be based on estimates of objective frequency. The other, more flexible "Bayesian" mathematical argument is that rationality permits resort to subjective probabilities.

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ideas also without resort to charts and symbols).

<sup>22</sup> Twining forthrightly recognizes some of the shortcomings of Wigmorean analysis. (See p. 348).

He then contrasts each of these mathematical approaches with "Baconian" (non-mathematical) inductivist reasoning.<sup>23</sup>

The resulting sketch is a masterful summary of the basic contours of the inferential debate. Professor Twining translates concepts that mathematicians tend to express only through abstract symbolic notation into language that non-mathematicians can understand.<sup>24</sup> Twining's discussion will undoubtedly leave those readers new to the debate uncertain about the differences between Pascalians and Baconians, and about how fact-finding would be affected if trials were conducted according to Pascalian precepts.<sup>25</sup> However, this is not due to any expository weakness on the part of Professor Twining, but to the abstract and conflicting nature of the mathematicians' arguments. For example, as one prominent player in the inferential debate put it after reviewing a number of mathematical approaches to inference, "[e]ach of the five views . . . considered has its own particular language and/or concepts, and translations from one system to another are not always possible."<sup>26</sup>

Professor Twining quite correctly rejects the arguments of those Pascalians who argue that fact-finding must be based on empirically accurate, objective frequencies. He terms them "disappointed absolutists" who set "very strict standards for rationality which are rarely attainable in practice" (p. 122). To understand why, recognize that a frequentist probability is "an objective fact about a repeatable event; it is the long-run frequency with which the event happens."<sup>27</sup> Few human events, especially those which culminate in litigated disputes, are reducible to objective frequencies. For one thing, the events are incapable of being repeated.<sup>28</sup> For another, we have no way of compiling empirically accurate data bases. For example, assume that a trier is attempting to de-

23 Schum, *Probability and the Processes of Discovery, Proof, and Choice*, 66 B.U.L. REV. 825, 875 (1986).

24 For a comprehensive exploration of the debate, see *Symposium: Probability and Inference in the Law of Evidence*, 66 B.U.L. REV. 377-952 (1986).

25 Many Pascalians offer a mathematical approach primarily as an analytical tool and stop short of advocating its use in actual trials. See, Schum, *supra* note 23, at 875. However, advocates of actual use are around and about. See Fienberg & Schervish, *The Relevance of Bayesian Inference for the Presentation of Statistical Evidence and for Legal Decisionmaking*, 66 B.U.L. REV. 771, 795 (1986).

26 Schum, *supra* note 23, at 873.

27 Shafer, *The Construction of Probability Arguments*, 66 B.U.L. REV. 799, 801 (1986).

28 Even if they were capable of being repeated, we would not know which party's version of events to repeat.

termine whether to infer guilt from a defendant's running away from the scene of a crime. In making its determination, the trier is likely to rely on "general experience [and] common sense generalizations" (p. 242). There is no such thing as an empirically accurate data base of the percentage of people who flee the scene of a crime who are guilty.<sup>29</sup>

Though he spurns the arguments of the Pascalians who equate rationality with objective frequencies, Professor Twining does not fully champion the non-mathematicists' cause. He adopts a "tentative position" that "there is a valid form of non-mathematical probability and that this mode of reasoning is appropriate to many arguments about evidentiary issues" (p. 119). But he also refers to the arguments of L. Jonathan Cohen, one of the leading Baconian theorists, as "overstated . . . and not as dispositive as he [Cohen] suggests" (p. 119). Moreover, in an afterword to Chapter 4, Twining remarks that in the years since the essay was written, he has "developed a more sympathetic appreciation of the flexibility of certain kinds of statistical analysis" (p. 134). Thus, Twining's map stakes out potential future routes consisting of mathematical approaches based on subjective frequencies, such as Bayes' Theorem.

In general, the Bayesian approach permits triers to evaluate evidence as they do now, using everyday common experience, and incorporates their determinations into the mathematical calculus known as Bayes' Theorem.<sup>30</sup> In part, Bayesians argue that triers of fact routinely (and from the Bayesians' perspectives, irrationally) ignore "prior probabilities" when resolving factual disputes.<sup>31</sup>

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29 Even if there were, the data base would itself constitute a generalization. To arrive at a truly objective frequency, we would need to know what percentage of people who flee the scene of a crime in *circumstances identical to those shown to exist at the defendant's trial* are guilty. But since each set of factual circumstances is unique, we do not know whether any individual defendant is guilty until the jury issues its verdict. Hence, the arguments of the objective frequentists are circular.

30 There exists an extensive literature on the applicability of Bayes' Theorem to legal issues. The essay largely responsible for stimulating the debate on mathematical approaches to inference was Finkelstein & Fairley, *A Bayesian Approach to Identification Evidence*, 83 HARV. L. REV. 489 (1970). Laurence Tribe wrote a spirited reply in Tribe, *Trial By Mathematics: Precision and Ritual in the Legal Process*, 84 HARV. L. REV. 1329 (1971), and the debate was underway. For later discussions, see generally *Symposium, supra* note 24; Schum & Martin, *Formal and Empirical Research on Cascaded Inference in Jurisprudence: A Summary*, 17 LAW & SOC. REV. 105 (1982).

31 A "prior probability" is simply an existing likelihood is true or false. For example, if a sack contains 10 marbles, 9 of which are red, the prior probability that the first marble drawn from the sack will be red is .9.

They illustrate their argument with the well-known "green cab" hypothetical.<sup>32</sup> In this hypothetical, a cab strikes and injures a pedestrian in a hit-and-run accident at night. Two cab companies, the Green and the Blue, operate in the city where the accident occurred. Eighty-five percent of the cabs in the city are green; fifteen percent are blue. The sole witness testifies that the cab involved in the accident was blue; repeated tests demonstrate that the witness can correctly identify the color of the cab 80% of the time. Question: What is the probability that the cab involved in the accident was blue?

Most people confronted with this hypothetical reply that there is an 80% probability that the cab was blue. Their reasoning is probably along these lines: "The witness said the cab was blue. The witness is correct 80% of the time. We're not given any basis to think that the witness is less correct when a cab is blue than when it is green. So the probability that the witness is correct this time is .80."

Such reasoning, argue the Bayesians, is fallacious. It ignores the prior probability (based on the large percentage of green cabs) that the cab was green. Bayes' Theorem, they point out, takes account of the assessment that the witness was correct 80% of the time, and of the fact that most cabs are green.<sup>33</sup> The resulting Bayesian probability that the witness is correct is .41. In other words, even after the witness testifies that the cab was blue, the probability according to Bayes' Theorem is less than 1 in 2 that the cab was blue.

Empirical research supports the Bayesian charge that people routinely ignore prior probabilities.<sup>34</sup> But triers of fact are often correct in doing so. For example, the green cab hypothetical's Bayesian outcome depends on two (usually unstated) assumptions. First, the witness must always reply either that the cab was blue or green. The witness can never say "brown," or some other color. Second, the witness must never claim uncertainty or inability to remember. Only if these two assumptions are made is the "cor-

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32 The hypothetical may be found in D. KAHNEMAN, P. SLOVIC & A. TVERSKY, JUDGMENT UNDER UNCERTAINTY 156-58 (1982).

33 Note that in the blue cab hypothetical, the conclusion that the witness was correct 80% of the time was based on objective testing. However, Bayes' Theorem is amenable to subjective analysis as well. For example, the Bayesian outcome would be the same if a trier were to subjectively conclude that the witness who testifies that the cab was blue is 80% reliable.

34 See D. KAHNEMAN, P. SLOVIC & A. TVERSKY, *supra* note 32.

rect" probability .41.<sup>35</sup>

Professor Twining's discussion of legal storytelling in Chapter 7, "Lawyers' Stories," helps to demonstrate why the assumptions underlying the Bayesian calculation do not operate in actual trials. Twining notes that empirical evidence suggests that triers interpret testimony in story terms (p. 239). He states that "narrative . . . has some important, legitimate contributions to make to rational argument" (p. 220). When resolving a factual dispute, a trier formulates a story of "particular events" (p. 223). To be credible, a story must correspond with a trier's beliefs about how events between specific parties occurred (p. 242).

The prior probabilities that Bayesians value so highly are often of little relevance to a trier seeking to formulate a story about what the trier believes happened between specific parties on specific occasions. For instance, assume that a trier of fact is evaluating the credibility of Kevin's statement, "I flipped a coin three times, and each time it landed on heads." The mathematical "prior probability" that Kevin is telling the truth is only one-eighth (since the chance that a coin will come up heads on any one throw is .5, the "product rule of probability" means that the chance heads will come up three consecutive times is  $.5 \times .5 \times .5$ , or .125). As in the green cab case, Bayesian methodology would automatically discount whatever subjective estimate of Kevin's believability the trier arrived at to reflect the one-in-eight prior probability.

But in formulating its story about whether Kevin is believable in this particular instance, a trier might rationally give little or no weight to the mathematical probability of one-in-eight.<sup>36</sup> For example, a trier shown evidence that Kevin had no motive to lie

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35 The Bayesian calculation goes like this. Assume that there are a total of 100 cabs, and that the witness has 100 trials at determining a cab's color. Since the witness is right 80% of the time, the witness will wrongly state the color of the cab 20 times. Assume that the errors are randomly distributed. Because 85% of the cabs are green, 17 of the 20 mistakes will be, "The cab was blue." ( $20 \times .85 = 17$ ) Thus, there are fewer blue cabs (15) than there are incorrect statements about blue cabs (17). Hence, the probability that any one "the cab was blue" statement is correct is less than 50%.

In actual trials, where these assumptions do not apply, the Bayesian calculation cannot be made. Assume that the witness can say, "The cab was brown," or, "I didn't get a good enough look to tell you." The possibility of such responses eliminates the mathematical probability that there will be more incorrect "cab is blue" statements than there are blue cabs.

36 Of course, a trier would be hard put to ignore overwhelming mathematical probabilities. Assume Peter had said, "I flipped a coin 50 times, and each time it came up heads." Here, the mathematical and the believability judgments are likely to coincide.

and that he carefully observed each flip might rationally determine that *on this particular occasion*, the prior probability is irrelevant.<sup>37</sup>

Indeed, a trier might rationally weigh a prior probability in exactly the opposite direction as Bayes' Theorem would dictate. For instance, as Twining points out, "the primary task of the advocate is to persuade this tribunal to decide in favour of this client in respect of previously defined issues of . . . fact" (p. 221). Assume that in the "heads three times in a row" case, an advocate argues along these lines:

Kevin's testimony is especially credible. Aware as we all are that the odds against heads coming up three times in a row are small, he nevertheless told you that is what happened. If he were going to make up a false story, surely he'd make up a better one. Thus, the odds against 3 heads in a row is actually favorable to Kevin's believability.

Whether a trier would accept this argument would undoubtedly depend on all of the circumstances of the particular case, but the trier could certainly do so rationally. In formulating a story of what happened on a particular occasion, a trier may weigh evidence in exactly the opposite direction than use of mathematical methodology would dictate.

One of Professor Twining's goals in Chapter 7 is to explore the role of stories in rational persuasion (p. 227). Though he opines that the importance of narrative is often overstated, he concludes that "'narratology' has something potentially significant to contribute—not least in stimulating lawyers to re-examine their conceptions of rationality" (p. 250). If Twining's hopes are to be realized, it may be that the Pascalians' mathematical arguments will be an important stimulus.

## V. CONCLUSION

Professor Twining recognizes that the map of evidence is one which scholars of various stripes would like to have a hand in drawing. However, many of these scholars have little more regard for legal intricacies than dramatists who use trials as a convenient

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<sup>37</sup> To arrive at that conclusion, the trier implicitly ignores the Bayesian assumption that Kevin could say only "three heads" or "three tails." Since Kevin might have given a range of responses, the trier's evaluation of Kevin's credibility allows the trier to determine whether Kevin was correct on this occasion.

backdrop for stirring melodramas. Hence, to those outside the field of law who have suggested evidentiary back roads, if not yet main highways—"ethnomethodologists, phenomenologists, semiologists, structuralists of many fashions, deconstructionists, literary theorists, hermeneuticists, and other inelegantly labelled academic entrepreneurs" (p. 251)—Twining issues a warning about law's complexities (pp. 365-66).

But Twining addresses these essays primarily to those within the field of law (with the possible exception of law students looking for a quick review of evidence rules before a bar examination). And as a "realist" (p. 366) who initially embarked upon the project embodied in these essays "to test and explore the implications and applications of some of his more general ideas at less abstract levels," (p. 1) one measure of Twining's success will be whether the essays stimulate lawyers and legal scholars to re-examine evidentiary doctrine. Despite the depth of the analysis and the elegance of the writing, the essays' success in that regard is not assured.

For one thing, the breadth of inquiry that Twining suggests that would-be reformers need to undertake may appear to some more like an unwieldy atlas rather than a manageable map. The late 20th century is a time of specialization. Even those social worthies known as law professors specialize. As one of my colleagues put it not long ago, "I seem to write more and more about less and less." Yet, quoting Bentham, Twining tells us that, "[t]he field of evidence is no other than the field of knowledge" (p. 341). It is one thing to warn diverse groups of non-lawyers that the law is more complex than it may initially appear; it is another to suggest that would-be evidence reformers within the field of law must be "polymaths" (p. 361). Twining has been previously chided for not sufficiently respecting the "division of labour."<sup>38</sup> He mounts a defense against the charge (pp. 361-65), but may leave some who study his map looking for more direct routes.

Second, one looking at a map often hopes to discover the features of the landscape that have to be crossed, *e.g.*, does the terrain consist of mountains or desert? In the context of these essays, the potential landscape features consist of specific reforms of evidence doctrine which might be undertaken. However, Professor Twining's map tends to leave these features indistinct. For

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38 Calligan, *More Scepticism About Scepticism*, 8 OX. J. LEG. ST. 249, 251 (1988).

example, he chides evidentiary doctrine and traditional evidence scholarship for being unempirical. This I take to mean such things like rules of evidence that make "dying declarations" admissible as an exception to the hearsay rule without any empirical guarantee that such statements really are more trustworthy than statements made by people in the bloom of good health.

But just how are such empirical investigations to be made? Makers of dying declarations, for example, are a notoriously poor lot for after-the-fact inquiries into truthfulness. More importantly, judges and jurors, in effect, conduct empirical investigations, of a sort, whenever they decide cases. Rules making evidence admissible do no more than determine that information is eligible for a trier's consideration. As Twining notes, we rely on triers of fact to evaluate evidence in the light of their everyday experiences (p. 242). The question of whether evidence is trustworthy is perhaps more convincingly answered in the context of a specific case than in general empirical surveys.

Also, Twining reproves evidence scholarship for its narrow focus on rule-making in the context of jury trials. For example, in Chapter 5, "Identification and Misidentification in Legal Processes: Redefining the Problem," Twining notes that the rationalist tradition approaches the issue of eyewitness identification as if it arose only during jury trials. He states,

It is also important to remember that information provided by eyewitnesses is relevant to a number of other decisions in criminal process—for example, the decision to hold an identification parade, the decision to prosecute, the decision to charge, the decision to plead guilty or not guilty, the decision whether or not to call a particular witness and so on . . . an adequate model would include all the standard decisions and events which might have [identification] consequences (pp. 165-67).

While every rational person deplors misidentification, it is unclear how torturing out misidentification's potential harms will help correct the problem. Professor Twining asks a legitimate question: "How can the reliability of identification parades be improved?" (p. 162) What he fails to make clear is how substituting an "information model" for an "evidentiary model" (p. 174) helps one answer it.

In *Rethinking Evidence*, Professor Twining maps the potentially vast future domain of evidence. In terrain so extensive, most of us need a tour guide as well as a map. One therefore hopes that

Twining continues escaping the "sabbatical blues" (p. 5) and begins to adorn his map with specific landscape features. Be warned, however, that skepticism will never be out of season. For Twining tells us, "[w]e may have to wait many years for a new theory of evidence to emerge . . . . If it does . . . it will not be difficult to show up the flimsiness of its foundations, whatever its particular form and content" (p. 10).