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Free Proof and its Detractors

The idea that the law should not assign probative weight to items of information, or degrees of credibility to its bearers, is widely extolled as one of the cornerstones of enlightened factfinding in adjudication.[1] Despite momentous changes that have occurred in the administration of justice in this century, the idea continues to command widespread allegiance — especially in the area of criminal procedure. This is not to say, however, that no challenges appeared to the idea in recent years. The first challenge stems from the increased employment over the past few decades of exclusionary rules of evidence. Their application generates frequently overlooked strains with the factfinder's freedom in analyzing evidence. The second challenge is posed by socio-cultural ramifications of technological and scientific advances made in this century. Although for the most part only latent, this second challenge is potentially quite serious and far-reaching. As we near the next millennium, the question is thus worth asking whether free proof is still as firmly entrenched in justice systems as it appears on the surface of things — even in the stronghold of free proof rhetoric, that is, in criminal procedure.

An initial difficulty in addressing this question is that attitudes toward the relation of the law to the analysis of evidence are not exactly alike in the Anglo-American and continental European legal traditions. Failure to take account of these differences is capable of muddling clarity of thought on the subject. To remedy this initial difficulty, I begin by outlining different approaches to free proof in the two branches of the Western legal tradition.

I. Continental and Common Law Attitudes

As is well known, continental views on free proof evolved against the background of criticism of *ancien régime*'s evidence law at the time of the French Revolution. The main object of this criticism were rules of Roman-canon provenance that assigned weight to specified

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1. For civil law systems, see Rudolf Schlesinger, et al., *Comparative Law* 425 (5th ed. 1988). To some commentators, free evaluation of evidence is an "irreversible stage" in the evolution of proof systems. See Massimo Nobili, *Il Principio del Libero Convincimento del Giudice* 5-6 (1974).

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classes of evidence. These rules were castigated for their potential to compel the court to decide questions of fact contrary to what it believed was true. As a reaction to the ills of the Roman-canon system — ills, by the way, that were greatly exaggerated by its critics[2] — the principle was espoused that the law should refrain from regulating the probative effect of evidence, or the necessary quantum and quality of proof. The validity of proof was to be left to the legally unconstrained judgment of the trier of fact — to his *conviction intime*. Rules of weight, including rules of corroboration, were thus gradually eliminated from evidence law.[3]

For the sake of subsequent discussion it is important to examine the background assumptions of this post-revolutionary understanding of free proof. The law's retreat from regulating the analysis of evidence rested on the belief that the probative force of evidence is too contextual to be properly determined *ex ante* by categorical legal rules. On the epistemic level, then, the embrace of free proof was an act of resignation, the choice of the second best. If it were possible to devise a reliable scheme for the measurement of probative value — as early Enlightenment philosophers believed to be the case — powerful arguments would have had to have been advanced in favor of converting this scheme into mandatory legal regulation.[4] On the political plane, however, the embrace of free proof was more than a *faute de mieux* solution: removing "legal chains" from evidence processing was thought necessary to introduce desirable forms of lay participation in the administration of justice. Since legal expertise is not required for the decision on facts, so went the argument, ordinary

2. Most conspicuous among the distortion was the degree to which rules of legal proof compelled outcomes. In reality, the application of the Roman-canon scheme left so much free play to the judge that he was seldom, if ever, required to convict against his better judgment. The main effect of the scheme in criminal cases of most continental jurisdictions was negative: it sometimes prevented imposition of the most serious corporal punishments in the absence of legally specified evidence. For a well-documented analysis, see Karl Gross, *Das Beweisverfahren im canonischen Process* 291-94 (1880). See also Damaška, "Hearsay in Cinquecento Italy," 1 *Studi in Onore di Vittorio Denti* 59, 70-73 (1994).

3. There were exceptions, however. In Holland, for example, the rule survives to the present day that a conviction cannot be based on the statement of a single witness. As a reaction against the ancient view that the defendant's confession is "the queen of proof," several jurisdictions also require that a conviction cannot rest on the confession alone. But all these surviving corroboration rules are of little practical importance.

4. Voltaire provides a good example. He was in the forefront of attack on the Roman-canon proof scheme, suspicious of what he said were "abstruse calculations of probative weight" by jurists. Yet he worried that justice could stray if the only rules of proof were those of the factfinder's conscience and good sense. Voltaire, "Prix de la Justice et de la Humanité," 30 *Oeuvres Completes* 535, 578 (1880). The free proof's potential for abuse was not ignored even in the midst of heated debates in the French Revolutionary Assembly leading to the rejection of Roman-canon evidentiary regulation. See Schioppa, "La Giuria all' Assemblea Constituente Francese," in *The Trial Jury in England, France, Germany* 118 (Antonio P. Schioppa ed. 1987).

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citizens — imagined at the time as representatives of "the sovereign people" — could replace the politically suspect career judges as factfinders.

But the enthusiasm for untutored people as independent triers of fact did not last very long; their verdicts were soon disparaged as erratic and contrary to the weight of evidence. The newly introduced jury system went into decline, and was gradually replaced in most continental countries by mixed tribunals on which amateurs decide factual and legal issues jointly with professional judges. For these tribunals, as well as for the remaining purely professional criminal courts, another concept of free evaluation of evidence evolved. According to this concept, the factfinder's freedom was interpreted as no more than freedom from legally binding rules concerning the weight of evidence: the freedom did not include dispensation from canons of rational inference, nor a license to disregard accepted maxims of experience. Trial judges were hence required in a reasoned opinion to demonstrate rational support for their findings. The invocation of the factfinder's *conviction intime* was no longer sufficient to save a verdict from reversal by superior courts; the judge's conviction had to be *"raisonné"*.[5]

Appellate review of trial court's opinions soon generated standards as to what constitutes adequate evidentiary support for factual findings. When observed from the common law perspective, these standards could easily be characterized as a new form of legal interference with free evaluation of evidence — an interference exercised by superior judges, rather than by legislators, or by scholarly authority. But through the lens of continental legal doctrine things did not appear this way: as precedents were not regarded (and are still not regarded) as a binding source of law, appellate standards were construed as an "extra-legal" insistence on fidelity to logical reasoning and maxims of experience. The purity of the free proof ideal was thus preserved.

It is important for my purposes to note that the sphere in which logic and experience were to exert their influence on the trier of fact always remained somewhat uncertain. Some commentators claimed that logic and experience govern the factfinder's mental operations leading to the formation of belief. Others maintained, however, that the primary task of logic and experience was to make these beliefs inter-subjectively acceptable. The continuing uncertainty is most clearly reflected in disagreements about the precise character of the trial court's opinion on the facts. Many authorities insist that this opinion calls for an account of mental operations performed by the judge in arriving at his beliefs. The implied assumption is, of course,

5. On the development of this newer understanding of free proof in Germany, see Gerhard Walter, *Freie Beweiswürdigung* 69-73 (1979).

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that logic and experience govern these operations. According to another school of thought, the genesis of the factfinder's decision on facts includes volitional and intuitive components which cannot fully be expressed in propositional form. The primary role of logic and experience is thus to guide the trial judge in demonstrating that his belief states — no matter how causally formed — enjoy firm support in the canons of valid reasoning.[6] Despite these differences the two schools of thought are in agreement that the factfinder's inner acceptance of the decision is by itself insufficient to sustain factual findings.[7] The verdict must also be supported by prevailing conventions on what constitutes valid reasoning about facts, conventions capable of making factual determinations inter-subjectively acceptable. Disagreements between these two schools concern mainly the plane on which logic and experience restrain the trial court's decision-making freedom.

Anglo-American attitudes toward free proof were shaped in vastly different historical circumstances. To begin with, the absence of rules regulating evidence processing was not regarded as needed to introduce a functioning system of lay participation in the administration of justice. Remember that Angevin juries dispensed justice in England long before formal evidence law crystalized.[8] And as these self-informing juries retreated before juries which required instruction in court, evidentiary doctrine evolved (partly) in the desire to influence decision-making by occasional, amateur triers of fact. Corroboration rules, for example, were always numerous and acceptable in a variety of contexts. So were mandatory instructions to the jury on evidentiary matters. Whether one is prepared to accord precedential value to these instructions or not, they obviously are tools of the legal system aimed at influencing the factfinder.[9] Common law was thus never averse to legal instruments specifically designed to affect the analysis of evidence.

6. On disagreements among Continental commentators concerning the role of reasons in factfinding, see the broad comparative survey in Michele Taruffo, *La Prova dei Fatti Giuridici* 408 (1992); J. Wroblewsky, *Meaning and Truth in Judicial Decisions* 55, 71, 136 (1983).

7. As a sufficient condition for the verdict, *conviction intime* seems to enjoy vestigial support only in Belgium and France. In many other countries, however, it remains a necessary condition: appellate courts are likely to reverse a trial court's decision if it fails explicitly to express the court's conviction that the facts ascertained are true. For Germany, see the judgment of the *Bundesgerichtshof* of April 28 1987, reprinted in 10 *Neue Zeitschrift fur Strafrecht* 476 (1987).

8. On these juries, see James Bradley Thayer, *A Preliminary Treatise on Evidence at the Common Law* 130-74 (1898).

9. To be sure, the need to instruct the novice decisionmaker arises in continental mixed tribunals as well. But because in these tribunals professional and lay judges jointly decide all issues, and the former can exert their influence on the latter as together they tackle specific issues, there is no need for rule-like advance instructions on what constitutes proper argument about evidence.

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A related difference vis-à-vis the Continent is the common law's de-emphasis of personal conviction as a decisional criterion. This orientation surfaces most clearly in standards for sufficient proof that stress external yardsticks rather than subjective belief states: jurors are invited most of the time to consider what a reasonable person would decide on legally competent information, rather than to surrender to personal beliefs. Thus, for example, the criminal defendant is entitled to acquittal not upon any doubt experienced by the factfinder, but only upon doubts that are interpersonally defensible (i.e., "reasonable"). It is not even inappropriate for the judge under some circumstances — such as deadlock in jury deliberations — to urge recalcitrant jurors to abandon their actual beliefs if they fail to satisfy the test of reasonableness.[10] In sum, evidentiary standards of the common law tend to be more "detached", or "impersonal" than their continental analogues in which personal conviction still plays a prominent role.[11]

We can now begin to see why the rhetoric of free proof resonates differently in continental and common law jurisdictions. In the former, free evaluation of evidence has been elevated to the rank of a regulative principle of considerable importance in legal argumentation against binding rules of weight.[12] In common law countries, on the other hand, free proof lacks normative status and is not even a term of art. The legal system openly aspires to guide triers of fact in their analysis of evidence. If despite all these features common law can still be associated with free proof, it is mainly because unexplained jury verdicts are, in fact, largely immune from challenge. They can be final even when they lack support in canons of valid reasoning.[13] In this descriptive sense, common law factfinders are indeed eminently "free" in reaching their decision.

Considering the outlined differences between continental and common law attitudes, there remains only one understanding of free

10. This, at least, is the case with so-called "supplemental" instructions in American jurisdictions. The leading case is Allen v. United States, 164 U.S. 492 (1896). I am not overlooking that some common law authority can be found requiring actual persuasion on the factfinder's part. See, e.g., Rex v. Kritz [1950] 1 K.B. 82, 89 (1949); Briginshaw v. Briginshaw, 60 C.R.L. 336 (Austrl. 1938).

11. The common law's emphasis of "detached" criteria is related to its concern with influencing group deliberations of amateurs acting under the unanimity rule. Where you strive to contribute to the genesis of a collective decision under these conditions, the stress of inter-subjectively acceptable grounds is easy to understand. Observe that the contrasting continental emphasis of personal belief has its source in the Roman-canon curial environment in which the judge decided alone, worrying about the impact the decision on his "conscience". The emphasis on deciding *motu animi sui* is in this situation scarcely surprising. See, e.g., *Bartolus de Saxoferrato* on the *Digest*, at D. 12.2.31. nos. 15-23. The view that Roman-canon proof system was "mechanical" in nature is problematic on this ground alone.

12. Observe that the principle is sometimes enshrined in procedural codes.

13. This is most obvious, of course, in the case of verdicts of acquittal in criminal cases.

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proof that can safely be employed across Western legal systems. On this view, free proof rhetoric expresses the preference for a factfinding regime in which adjudicators are permitted to use ordinary processes of cognition, free to follow the same procedures as the informed public in arriving at the verdict. Both continental and common law jurisdictions seem to subscribe to this preference — at least in principle, or as a prima facie matter — as an organizing schema for technical arrangements.[14] And in considering challenges to free proof, a task to which I now turn, I shall have this understanding in mind.

II. THE ENFORCEMENT OF EXCLUSIONARY RULES

Exclusionary rules, long associated with common law as its idiosyncrasy, have mushroomed over the last few decades in continental criminal procedure as well. This applies, however, mainly to those rules of exclusion that are motivated by the concern that the search for the truth proceed in socially acceptable ways.[15] In the aftermath of the traumatic totalitarian experience, the sensitivity to values such as human dignity, or privacy, has impelled most continental jurisdictions to accept the idea that probative material should be rejected when obtained in violation of certain human rights.[16] But even exclusionary rules designed to maintain the accuracy of factfinding, truly native to common law, can sporadically be encountered on the Continent.[17] *Pari passu* with the spreading of exclusionary rules, the discrepancy grows between actually probative information and information that can legitimately be used in adjudication.

This discrepancy seems at first blush unrelated to the factfinders' freedom in analyzing evidence: exclusionary rules only narrow the pool of information available to them and have nothing to

14. A British philosopher regards it, rightly I think, as "an ethico-political presumption" in favor of non-regulation. See Cohen, "Freedom of Proof," in *Facts in Law*, 16 *Archives for Philosophy of Law and Social Philosophy* 1-6 (William Twining ed. 1983).

15. Wigmore has termed them "rules of extrinsic policy". See 4 John Wigmore, *Evidence* § 1171, 368 (Chadbourn rev. 1972)

16. For a brief country-by-country survey of more recent developments in this areas, see Gautier, "Die Beweisverbote," 193 *Zeitschrift für die gesamte Strafrechtswissenschaft* 796 (1991).

17. Wigmore has termed them "rules of auxiliary probative policy". Supra n. 14, id. A comprehensive list of Continental exclusionary rules of this genre has yet to be compiled, however. Italy has recently gone so far as to adopt a broad exclusionary formula concerning hearsay evidence. See Damaška, "On Hearsay and its Analogues," 76 *Minn. L. Rev.* 425, 447, n. 63 (1992). But aside from this radical innovation of uncertain future, rules of auxiliary probative policy are no stranger to continental system. It is mainly their potential of creating strains with the free proof that keeps them in dimly lit corners of evidence law. Consider only jurisdictions that exhaustively enumerate acceptable means of proof. The consequence of this enumeration is that valuable information cannot legitimately be used at trial that emanates from sources the law fails to recognize.

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do with information-processing. Yet if one's vision embraces the enforcement of evidentiary rules (rather than merely their analytical structure) a tension becomes apparent between these rules and free proof. For what is the proper response of the justice system to the situation when factfinders become exposed to credible but inadmissible information? A reaction that comes to mind, of course, is to replace the original adjudicators with those untainted by forbidden knowledge. While certainly effective, this remedy is prohibitively costly, however. For this reason both continental and common law systems prefer another response: they demand that the trier of fact disregard, or ignore, the inadmissible information. Of long pedigree in Anglo-American jury trials, where it is incorporated in judicial instructions to the jury, this demand is now increasingly encountered on the Continent as well.[18] But consider the import of this demand that many find hard to acknowledge. The demand implies that the justice system, desirous of effectively pursuing the policy of exclusion, embraces *sub rosa* rules of weight — a species thereof that assigns zero probative value to inadmissible information. These rules, of course, clearly run counter to the principle that the probative effect of evidence should not be regulated.

The effect of the law's demand that evidence be disregarded deserves closer scrutiny. According to the conventional view, the demand is meant to govern individual belief formation: triers of fact must arrive at the verdict by neglecting the forbidden knowledge. But provided that this knowledge is persuasive to them, can they really follow the law? This is an empirical question whose answer depends on the character of psychological operations involved in adjudicative factfinding. If triers of fact make up their minds in an "atomistic" fashion — that is, by attributing probative force to distinct informational items and reaching the final determination by aggregating these separate values — the law's demand can be obeyed. If, on the other hand, they arrive at the decision "holistically" — that is, without assigning specific weight to discrete items of information, or if they are unable to disentangle the weight of a discrete item from global judgments — the law's aspiration to govern individual belief formation is quixotic.[19]

Psychologists and cognitive scientists disagree on the precise character of processes involved in belief formation, and no agreement

18. Here it is spelled either by the legislator or by high courts. For the first variant, see arts. 195(3) and 500(3) of the 1988 Italian *Codice di Procedura Penale*. On German court decisions incorporating this demand, see Hofmann, "Beweisverbote im Strafprozess," 7 *JuS* 585, 588-593 (1992). The attitude of French courts is discussed in Pierre Bouzat, *La loyauté dans la recherche des preuves, Problèmes contemporains de procédure penale* 155ff. (1964).

19. On "atomistic" and "holistic" processing of evidence, see William Twining, *Theories of Evidence, Bentham and Wigmore* 3, 183-85 (1985); Michelle Taruffo, op. cit. supra n. 6, at 293.

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is likely to emerge soon.[20] But despite the continuing controversy, it seems intuitively implausible that triers of fact can identify and isolate the impact on their minds of inadmissible but persuasive information — except perhaps in atypically simple probative situations.[21] If this is indeed the case, then factfinders can seldom neutralize ("disregard") the impact of inadmissible information. In attempting to comply with the law's mandate, they can only engage in thought-experiments, guessing at what they would have believed had they not been imparted the forbidden knowledge. But if they switch to this "third-person" viewpoint, their findings no longer rests on personal convictions. Nor are their decisions expressive of personal commitments that these convictions entail. In fact, the detached perspective may in many circumstances call for a decision contrary to what they believe to be true.

It should be realized, however, that the enforcement of exclusionary rules does not interfere in equal measure with free proof in common law jury trials and in the continental forensic setting. The most important reason for this difference is a consequence of the contrast between the bifurcated jury court and unitary continental tribunals. In the former environment, the enforcement of exclusionary rules is in the hands of the trial judge, who can rule on the admissibility issue outside of the hearing of the jury. As a result, factfinders can remain ignorant of legally invalid information. In unitary continental courts, on the other hand, where the same person (persons) is called upon to decide both on the admissibility of evidence and on its value, the implementation of exclusionary rules is psychologically difficult and easily acquires an aura of unreality. Imagine the enforcement in continental courts of the standard common law rule rejecting evidence of high shock but low probative value. Upon careful analysis of the probative weight and the potential for prejudice of an item of evidence, continental judges would have to say to themselves: "We must exclude this item because its prejudicial impact on us may be too strong." But how can they dispel this impact from their minds?

Admittedly, Anglo-American jurors can also acquire knowledge of inadmissible information — despite the insulation potential pro-

20. The controversy in Anglo-American literature is insightfully discussed by Allen, "The Nature of Juridical Proof," 13 *Cardozo L. Rev.* 373, 383-96 (1991). For the flavor of Continental thinking on this subject, see Robert Weimar, *Psychologische Strukturen richerlicher Entscheidung* 16-29, passim (1969); H. Crombag, P. van Koppen & W. Wagenaar, *Dubieuze zaken* (1992).

21. Consider also that there is considerable support in psychological literature that belief generating processes include intuitive and volitional factors that are not entirely transparent to the cognizer. See, e.g., Weimar, op. cit., supra n. 16, 80, 126-29. Blaise Pascal may thus have been right: *"le coeur a ses raisons que la raison ne connait point."* (Pensees IV, 277).

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vided by the division of the tribunal into two parts.[22] But when this exposure takes place, the law's demand that forbidden knowledge be ignored is still more meaningful in the setting of the jury room than the corresponding demand in the context of the continental unitary court. The judge's request to the jury that it disregard an item of information, or forego a compelling inference, is mainly designed to affect small-group deliberations: the justice system is rightfully concerned about what passes as legitimate argument among novice adjudicators. In this deliberative context the demand to disregard an item of information translates as a ban on its use as an argumentative weapon. Now because jurors are often uncertain about what to decide, waiting to make up their minds in the course of exchanges in the jury room, the foreclosure of an effective line of argumentation can make a difference — at least in close cases. In continental unitary courts, meanwhile, the towering presence of the presiding judge and the absence of the unanimity rule conspire to reduce the importance of exchange and argumentation during deliberations. The law's request that an item of information be ignored operates mainly at the level of individual cognition where it is, as suggested, difficult or even impossible to satisfy.

It should also be noted that the factfinders' exposure to forbidden but convincing information constitutes a more serious irritant to continental than to Anglo-American understanding of proper decision-making procedures. As will be remembered, the common law's proof standards set great store by the viewpoint of reasonable persons faced with legally competent evidence. This hospitality to detached external criteria makes it easier for factfinders confronted with inadmissible knowledge to turn to impersonal standards and decide the case on inter-subjectively acceptable grounds. On the Continent, however, the turn to this "third-person" perspective is bedeviled by proof standards that insist on personal belief as a prerequisite for most fact determinations. Hence the law's therapy for contamination with inadmissible evidence ("attribute zero-weight to it") drives the judges to try to exclude the illicit knowledge from their calculus of decision. But in this attempt to dismantle what has been learned the clash becomes inevitable with the free proof principle as understood on the Continent. Factfinders bent on obeying the law may even be driven to decide the case in a way contrary to what they believe.

What conclusions can be drawn from the foregoing discussion?

The discrepancy between actually probative and legally competent information appears to create difficulties to all justice systems,

22. While this exposure can occur inadvertently, it is also the intended by-product of evidentiary rules, such as those on limited admissibility. For example, the law mandates in some situations that information about a person's prior crime be considered only as it relates to his credibility of a witness but not as it relates to the merits of the case.

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provided, of course, that factfinders come into contact with forbidden knowledge. The source of these difficulties is the fact that in this situation the law prevents the court to decide on what it actually knows; the adjudicators are not free to decide the case according to what they think is true. Quite understandably, then, all systems strive to eliminate this type of illicit information before the court comes into contact with it. But we saw that this goal can more easily be achieved in bifurcated jury courts than in other procedural environments. In jury courts, triers of fact need not be contaminated by forbidden knowledge even if admissibility issues arise while informational sources are being tapped in court. The jury can acoustically be separated by *voir dire* from the judge who alone decides on the exercise of the exclusionary option. Even if jurors learn what they are not supposed to know, the law's mandate to ignore the incompetent information is not without effect in group deliberations. In continental collegial courts, by contrast, the rejection of convincing but inadmissible information must occur before the onset of the trial to be effective.[23] And when a case is decided by a single judge, the meaning of the law's demand that forbidden knowledge be ignored is at its nadir: the social dimension of decisionmaking is completely absent.

It is now easy to understand why most Anglo-American exclusionary rules ring so hollow in bench trials. The standard explanation for this "softening" of evidentiary regulation invokes the absence of amateur adjudicators for whose benefit admissibility rules were presumptively fashioned. But the more plausible explanation is the apparent difficulty for any person — lay or professional — to "unbite" the apple of knowledge. All in all, unless the justice system is prepared to embrace a detached method of decisionmaking, or unless atomistic evaluation of evidence is shown to be psychologically feasible, it seems wise to keep exclusionary rules at a minimum.

IV. The Scientization of Inquiry

Potentially much more serious challenges to the factfinder's freedom of processing evidence arise from the scientific and technological transformations of social life that have taken place in the course of the present century. In their wake, technical methods of factfinding increasingly compete with traditional modes of factual inquiry in a variety of areas, including the administration of justice. The reliance on ordinary processes of cognition — a basic precondition for the free evaluation of evidence — is thus no longer as firmly anchored in social practice as it used to be.

Consider some symptoms of this tendency.

23. This partly explains the continental dislike of exclusionary rules, such as hearsay, that often require application while the trial is in progress. See the insightful remarks of Hammelman, "Hearsay Evidence, A Comparison," 67 *Law Q. Rev.* 67, 77 (1951).

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To begin with, many facts of importance for adjudication can now be established only by sophisticated instruments, rather than directly by the human sensory apparatus.[24] The findings of some of these instruments appear so reliable that sporadic court decisions can be found according conclusive weight to the instrument's "silent testimony".[25] To some appellate courts it already seems problematic to permit factfinders to establish certain facts by conventional means of proof rather than through scientific procedures.[26] In short, the importance of human sensing for factual inquiries is declining as the gulf grows between reality as perceived by our senses and reality as revealed by prosthetic devices designed to discover the world beyond the reach of our senses.

We also witness a dramatic widening of the range of matters on which expert help is sought in adjudication. Experts have thus been enlisted in establishing background information that provides the factfinder with the interpretive lens through which to evaluate evidence presented in court.[27] Many nuggets of social wisdom and maxims of sedimented experience, routinely used in making sense of evidence, are no longer safe from challenge. Even judgments concerning the credibility of witnesses can now become a matter of expert opinion.[28] But potentially most subversive of ordinary cognitive practices are doubts raised in some quarters about the match between native probability judgments and accepted statistical methodology.[29] If this mismatch indeed exists and ordinary intuitions of empirical relationships can be a source of systematic error, science should perhaps be enlisted in developing formal techniques to minimize these errors. Such radical scientization of evidence processing is not likely to occur in the near future, however. What is more likely to happen in

24. Microscopic particles are a practically important example.

25. These decisions can be encountered even in jurisdictions which regard the free evaluation of evidence as foundational to their factfinding arrangements. In several continental countries, for example, appellate courts accord conclusive weight to fingerprinting tests to establish identity, blood tests to ascertain impaired driving capacity, etc. For Germany, see the court decisions cited in Friedrich-Wilhelm Krause, *Grenzen richertlicher Beweiswürdigung im Strafprozess, Festschrift für Karl Peters* 323, 327 (1974).

26. Take a prosecution for incest as an example in which the trier of fact refuses to give credence to serological tests excluding paternity, relying instead (for the opposite finding) on the admission of cohabitation in the critical period. A different attitude might prevail, however, if the opposite finding rested on scientific evidence of successful vasectomy.

27. To cite an American example, experts may testify, contrary to widespread popular belief, that victims of rape frequently fail to report the crime immediately. See Murphy, "Assisting the Jury in Understanding Victimization," 25 *Colum. J.L. & Soc. Probs.* 277, 281 (1992).

28. For the use of lie-detection tests and "psychological profiles" in American courts, see John W. Strong (gen. ed.), *McCormick on Evidence* 372-78 (4th ed. 1992).

29. See, e.g., Richard Nisbett & Lee Ross, *Human Inference: Strategies and Shortcomings of Social Judgment* (1980); Saks & Kidd, "Human Information Processing and Adjudication: Trial by Heuristic," 15 *Law & Doc.* 123 (1980-1981).

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the short run is the further growth of rules demanding that certain factual findings be made in light of scientific and technical knowledge. This means, of course, that common sense and conventional sources of information will increasingly compete with scientific data.

Unfortunately, this marriage of conventional and scientific information is not without its share of problems: it is not easy to bring scientific and classical evidence under a common denominator. Consider the frequent case in which scientific findings require statistical inference to determine the findings' significance. In this situation triers of fact are often confronted with both statistical and anecdotal testimony on the same point. But how should they combine the witness' narrative account of an event with information about its statistical frequency? How are they to conjoin the two into a single scheme of evidence evaluation? At what point should they suspend belief based on what happens much more frequently because of contrary contextual information?[30] Observe that statistics and anecdotal testimony speak to different dimensions of reality. While the former expresses quantified regularities, the latter relates unique occurrences; while the former expresses correlations, the latter invites causal explanations.

To be sure, strategies have been developed to cope with this problem.[31] At least for the moment, however, they cannot be employed in a typical civil or criminal case: reliable data are not available to make the proposed decisional models work, and calculations which these models require are too complex to be practical. Even if these strategies were fully operational, moreover, their use in the administration of justice would be questionable on independent grounds. Take the venerable Bayes' scheme for updating belief as an illustration. The scheme permits the incorporation of the factfinder's prior subjective belief into a probability calculus that also contains frequentist ("objective") probabilities.[32] But if Bayes' scheme were embraced by the law as a postulated method for arriving at the verdict, the institutional environment would have to be drastically changed in which

30. Problems of this sort have exercised commentators from the first theoretical attempts to quantify what happens "incomparably more often" and use the results of quantification to establish whether conventional testimony warrants belief. If we know that out of one thousand notarized documents, 999 are correctly dated, asks a seventeenth century hypothetical, what should we do with the information that the notary involved in the case has a bad reputation and stands to profit by predating the document? See Antoine Arnauld & Pierre Nicole, *La Logique ou l'Art de Penser* 349-50 (Clair & Girbal, eds. 1695). For an American example of this problematic, see United States v. Rogers, 769 F. 2d 1418, 1425 (9th Cir. 1985).

31. For the history of their development, see Lorraine Daston, *Classical Probability in the Enlightenment* 33-46 (1988).

32. On Bayes' Theorem, see Richard Lempert & Stephen Saltzburg, *A Modern Approach to Evidence* 157-60 (1982). A more recent model of belief-updating, proposed by Hillel Einhorn and Robin Hogarth, is interestingly discussed in Alvin I. Goldman, *Epistemology and Cognition*, supra n. 17, at 344-58 (1986).

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justice is presently administered. At a minimum, the adjudicators — lay or professional — would have to be surrounded by experts in belief updating schemes. The verdict would then arise from a process in which factfinders would seek a "reflective equilibrium" between global outcomes acceptable to them, and outcomes proposed by experts "aggregating" data on factfinders' subjective probability assessments with frequentist probabilities. All things considered, then, no satisfactory method is on offer combining scientific and conventional proof.

How factfinders actually relate statistically based information to anecdotal testimony is insufficiently known. It may be that they follow the zeitgeist of reliance on specialists' knowledge, and accord statistical information undue weight.[33] But the fear of confusion by statistical information, or its over-valuation, has induced very few courts to exercise the exclusionary option.[34] Only with respect to the assessment of witness' credibility do courts seem determined to protect ordinary judgments against inroads of technically exploitable knowledge.

A further increase in the use of probabilistic information might expose another, presently submerged, discord between the scientization of proof and conventional factfinding arrangements. This can best be seen on the example of criminal justice. As presently constituted, it requires information about concrete, unrepeatable events in the past, and diverse, often incommensurable qualities. After all, the criminal defendant continues to be treated by the legal system as a participant in the world of unique events. Yet this attachment to the singular and the unique is not easy to reconcile with reliance on information about quantified regularities conveyed by experts who disclaim any knowledge about the concrete circumstances of the event subject to proof. It is true that reliance on probabilistic information would minimize erroneous outcomes in the long run of cases. But this is not the presently acknowledged objective of criminal trials. We profess our readiness to sacrifice over-all accuracy of outcomes for the sake of minimizing the incidence of false findings of guilt; better to have many guilty defendants acquitted than to convict an innocent person.

To what extent, one wonders, does the scientific transformation of factual inquiries affect the adjudicator's decisional freedom? For the moment, not very much. Sporadic low-visibility rules assigning conclusive weight to the results of some scientific tests, and — in a minor way — provisions calling for the mandatory enlistment of ex-

33. See, e.g., the disagreement between the trial and appellate court on statistical probabilities of paternity testing in Cole v. Cole, 328 S.E. 2d 446 (N.C. Ct. App. 1985).

34. For a rare example, see the decision of the Minnesota Supreme Court in State v. Carlson, 267 N.W. 2d 170, 176 (1978).

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perts, can admittedly impinge on this freedom.[35] Yet, they seldom compel the trier of fact to arrive at a verdict contrary to his beliefs. In a typical case the evidentiary material is so complex, requiring so many choices, that an isolated mandatory finding is hardly ever dispositive. Even if a fingerprinting test, for example, conclusively establishes that the accused touched the instrument of crime, many additional facts remain to be proved before the guilty verdict can be returned in a homicide prosecution. Only where the decision turns on an isolated fact as the ultimate issue — a rare occasion indeed — could conclusive test results mandate a particular outcome. But even then this mandate need not necessarily signal a clash with the adjudicator's personal convictions: the authority of science, coupled with the absence of alternative sources of information, is likely to make the legally required finding appear persuasive.

It should be acknowledged, however, that the situation could change: as science advances by leaps and bounds, reliable instruments and strategies might soon be developed whose employment justifies greater interference with the factfinder's decisional freedom.[36] Is this a prospect to be deplored? Faced with the fruits of scientific progress justice cannot become obscurantist, closing its doors to new technologies and methods of investigation. As suggested before, free proof is not an intrinsic value: absence of legal regulation in the sphere of evidence processing is epistemically justified only so long as good rules cannot be framed on the subject.[37] If it appears that the accuracy of factual findings can be improved by technically exploitable knowledge, a provision requiring its employment is warranted — provided that values collateral to the truth (such as privacy or human dignity) are not violated.[38] Even the employment of ordinary methods of cognition, the bedrock of present fact-finding arrangements, can be defended only so long as some alternative strategy of decisionmaking is not generally accepted as superior.

35. That the engagement of experts can have an impact on decisional freedom can be seen on the example of those continental jurisdictions that deny the trial judge the power to substitute his or her opinion for that of the expert with whose testimony the court is dissatisfied. The trial judge is left with the option of either accepting the original expert opinion, or appointing another expert. See, e.g., the judgment of the German *Bundesgerichtshof*, as reported in 14 *NJW* at 2061 (1961).

36. As noted, courts are presently reluctant to accept expert opinion on the credibility of witnesses. But an improved technical method of "lie-detection" could gradually affect a change in this attitude, especially if empirical studies continue to cast doubt on the capacity of ordinary people to evaluate honesty through demeanor evidence.

37. See supra n. 4 and surrounding text.

38. One should not assume, however, that these values will remain untouched by technological developments. Consider only that our sensibility to privacy invasions could already have been altered by the general acceptance of intrusive searches preceding the boarding of aircraft.

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Of course, the employment of ordinary processes of cognition is not merely a matter of epistemic preference, but also of political and ethical choice.[39] The continued incorporation of scientific proof in adjudication is therefore likely to generate serious strains on the administration of justice as presently structured. But these strains seem unavoidable, a reflection in the forensic sphere of larger conflicts between scientific progress and the social world we have inherited. In the closing years of the century we may thus be on the eve of great transformation in the law of procedure and evidence, transformations as momentous as those that occurred in the twilight of Middle Ages, when magical forms of proof came to be abandoned in favor of rational evidentiary arrangements.

It may well be that Anglo-American justice will be capable of absorbing parturient proof technologies with fewer disruptions than continental procedural systems. This is suggested not only by the greater readiness of the former to regulate the analysis of evidence and espouse external proof standards. Among additional reasons for greater ease of assimilation suffice it to invoke, before closing, the contrast between Anglo-American expert witnesses and continental experts selected and commissioned by the court. Presented with the opinion of their expert, continental judges can easily be induced to surrender to his specialized knowledge. Anglo-American adjudicators, on the other hand, are regularly subjected to conflicting expert testimony, and compelled to decide whom to believe by engaging their ordinary judgments of witness' credibility. The use of normal cues to trustworthiness may in this situation be criticized as inappropriate.[40] But even if the point is well taken, the opportunity to use ordinary judgment suggests that the Anglo-American trial is not only open to a wider range of scientific views, but also capable of absorbing them with fewer threats to ordinary sources of cognition than is possible in continental procedure. In short, while the Anglo-American way of reacting to the coming changes in proof technologies is likely to be more gradual and evolutionary, the continental way could once again be more abrupt and revolutionary.[41]

39. See Cohen, op. cit. supra, n. 14, id.

40. See Lempert, "Civil Juries and Complex Cases," in *Verdict, Assessing the Civil Jury System* 181, 193-94 (Robert Litan ed. 1993).

41. I say "once again" because of different ways in which the Continent of Europe and England reacted to the disintegration of medieval forms of magical proofs. The Continent reacted in a "revolutionary" fashion, by introducing a system of methodical collection of witness testimony by the investigating judge, coupled with an elaborate evidentiary regulation. England, by contrast, responded to the change in an "evolutionary" manner. It substituted the inscrutable *vox dei* expressed in trials by ordeal with the inscrutable *vox populi* expressed in jury verdicts. No formal evidence law was developed for several centuries. See R. C. van Caenagem, "History of European Civil Procedure," in XVI *International Encyclopedia of Comparative Law*, Chapt. 2, 2-15 (1972).

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