

Innocents at Risk: Adversary Imbalance, Forensic Science, and the Search for Truth

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I.	INTRODUCTION	894
II.	FAILURES TO PROTECT THE INNOCENT: DISPARITIES THAT DISADVANTAGE THE ACCUSED	897
	A. Disparities in the Ability to Develop Evidence	898
	B. Doctrinal Disparities that Put Innocents at Risk	908
	1. Rules that Purport to Protect Innocents	912
	2. Unbalanced Admissibility Standards and Practices	919
III.	THE SPECIAL CASE OF FORENSIC SCIENCES	929
	A. Adversary Failure	929
	B. Institutional Impediments to Proper Adversary Adjudication of Forensic Science Issues	945
IV.	LEVELING THE PLAYING FIELD	951
	A. First Steps	951
	1. Limiting the Scope of Forensic Evidence	951
	2. Regulating Crime Laboratories	951
	3. Independent Court-Appointed Experts	954
	B. A More Comprehensive Approach: A Forensic Science Oversight Commission	955
	1. The Scientific Oversight Model	955
	a. An Example: The Maguire Seven	957
	b. An Example: The Eyewitness Identification Blue-Ribbon Panel	958
	c. An Example: The NRC Forensic Science Studies	964
	i. Voiceprints	964
	ii. DNA	965
	iii. The Polygraph	967

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iv. Bullet Lead	967
2. Toward Institutionalized Oversight of Forensic Sciences	971
V. CONCLUSION	972

I. INTRODUCTION

Trials are about finding the truth. Truth-seeking is an essential function of trials under the “dominant official account of the trial and its proper purposes,” which scholars have referred to as, among other things, the “Search for Truth” model, the “Rationalist Tradition,” the “Rectitude of Decision” model, and the “Received View of the Trial.”¹ By truth, I mean here truth about historical fact—what happened, whether the defendant in a criminal case committed the acts charged. While trials also resolve other, softer questions of truth—normative, value-laden judgments about matters such as degrees of culpability, states of mind, and degrees of harm²—at their most fundamental level, trials are about resolving historical questions about who did what.³

But even on such questions of hard historical fact, truth will always be imperfect, and trials will always be imperfect mechanisms for ascertaining truth. Scholars have noted that determinations about past acts or events differ from determinations centered on moral or normative questions, such as issues about states of mind or degrees of

¹ D. Michael Risinger, *Unsafe Verdicts: The Need for Reformed Standards for the Trial and Review of Factual Innocence Claims*, 41 HOUS. L. REV. 1281, 1283–84 (2004). As others have observed, trials also serve other objectives, including dispute resolution, “justice,” and a host of other values, which sometimes conflict with the search for the truth. See, e.g., Susan Bandes, *Taking Some Rights Too Seriously: The State’s Right to a Fair Trial*, 60 S. CAL. L. REV. 1019, 1037–40 (1987) (noting that there are two different models of the Bill of Rights: a “search for truth” model and a “fair play” model); Janet C. Hoeffel, *The Sixth Amendment’s Lost Clause: Unearthing Compulsory Process*, 2002 WIS. L. REV. 1275, 1283 (“Ours is a ‘justice’ system, not a ‘truth’ system. Overall, it seeks justice for the accused, even if it means that in the occasional case, a guilty man may go free.”).

² And such questions can be especially vexing, posing, among other things, complicated questions of admissibility of expert testimony. See generally CHRISTOPHER SLOBOGIN, *PROVING THE UNPROVABLE* (2007).

³ As Michael Risinger has commented, questions of pure historical fact, when decided wrongly, are those that raise the most compelling cases of injustice: “Although I have some fairly strong views on what the limits of criminal responsibility ought to be as to age, impaired intelligence, etc., I don’t regard disagreements with juries on such issues as raising questions of injustice of the same magnitude as real factual innocence.” Risinger, *supra* note 1, at 1298. Errors regarding “complex, no-one-right-answer, normatively charged judgments” such as state-of-mind questions or questions related to degrees of culpability are “just not of the same type or moral magnitude as errors convicting the wrong person.” *Id.* at 1299.

culpability, because the latter turn on narrative accounts that are less susceptible to precise determination.⁴ But, while it is true that moral or value assessments are especially incompatible with notions of objective truth, issues of hard historical fact also turn on narrative accounts that can elude accurate or objective assessment. Lawyers are keenly aware that their ability to convince a jury of the “truth” of their client’s account of what happened turns on their ability to present the more compelling or credible narrative, the story that best accommodates the evidence and the values of their audience.⁵ There may be a ground Truth—a reality about what in fact happened—but the best a trial can do is reconstruct a facsimile of that reality. Yet the best-sounding story, the most compelling narrative, will not always be the true story. If nothing else has established this yet, the more-than-200 post-conviction DNA exonerations—cases in which scientific analysis has shown that the triumphant narrative at trial was wrong—demonstrate that error is real and inevitable, at least to some degree, even on hard, binary assessments such as determinations of whether the defendant committed the *actus reus* or not.⁶

If errors are inevitable, we must decide in which direction we want to skew the risk of error. Our criminal justice system ostensibly has decided that most risk of error should be borne by the prosecution. Hence, we put the burden of proof on the government, and impose the highest legal burden at that—proof beyond a reasonable doubt. As a corollary, we instruct juries that the defendant is presumed innocent, and we profess that it is better that ten (or one hundred) guilty go free than that one innocent be wrongly convicted.⁷ We load our trials up with procedural protections, comforting ourselves, as Justice O’Connor put it in 1993 (before most of the DNA exonerations had emerged), that “[o]ur society has a high degree of confidence in its criminal trials, in no small part because the Constitution offers unparalleled protections against convicting the innocent.”⁸

⁴ As Christopher Slobogin has written, “although ascertaining objective truth might be possible with respect to acts, *narrative thinking* dominates attempts to reconstruct mental state. Any description of mental state is closer to a story than a depiction of an observable event.” SLOBOGIN, *supra* note 2, at 44.

⁵ Randolph N. Jonakait, *Stories, Forensic Science, and Improved Verdicts*, 13 CARDOZO L. REV. 343, 346–47 (1991).

⁶ See The Innocence Project, <http://www.innocenceproject.org/news/Blog-More.php>. (last visited Apr. 2, 2008).

⁷ See Michael S. Pardo, *On Misshapen Stones and Criminal Laws’ Epistemology*, 86 TEX. L. REV. 347, 358 (2007); George C. Thomas III, *Bigotry, Jury Failures, and the Supreme Court’s Feeble Response*, 55 BUFF. L. REV. 947, 978 (2007).

⁸ *Herrera v. Collins*, 506 U.S. 390, 420 (1993) (O’Connor, J., concurring).

But contrary to that conventional assessment, our criminal justice system in fact does not put all—or in some respects, even a significant part—of the risk of error on the government. Our procedures and rules—from investigation through trial, appeal, and post-conviction review—do not always reflect a commitment to protecting the innocent. As Michael Scott and I have written previously, cognitive biases, institutional pressures, and systemic choices (including everything from police training to judicial rules of evidence and procedure) combine to enforce a type of tunnel vision, which makes it very difficult for a wrongly accused, and ultimately wrongly convicted, person to be vindicated.⁹ Add to that the unevenness of resources available to the defense and the prosecution, and it becomes clear that, in significant respects, the system is skewed toward putting substantial risk of error on the innocent individual, not the government.

Many of these skewing mechanisms begin before a case ever reaches court. Therefore, while the articles in this issue focus on evidence law, to a large extent, by the time questions relating to admissibility of evidence arise, it is too late to protect the innocent; the real skewing has already occurred at the investigation stages, casting the outcome in stone before the trial begins. But of course rules of evidence and procedure still matter, for in some respects those rules work in concert with pre-trial skewing to heighten, rather than diminish, the risk of wrongful conviction.

Presentation of expert testimony, and in particular evidence from the forensic identification “sciences,” illustrates well this confluence of factors that can skew the process and undermine truth and protection of the innocent. While *Daubert v. Merrell Dow Pharmaceuticals, Inc.*¹⁰ and *Kumho Tire Co. v. Carmichael*¹¹ promise protection from unreliable scientific or expert testimony, in practice they have offered little protection to criminal defendants; numerous commentators have noted that, under the *Daubert* regime, unreliable expert prosecution evidence is routinely admitted, often with little resistance, while some types of quite reliable defense expert evidence are routinely excluded.¹²

⁹ See Keith A. Findley & Michael Scott, *The Multiple Dimensions of Tunnel Vision in Criminal Cases*, 2006 WIS. L. REV. 291, 292.

¹⁰ 509 U.S. 579 (1993).

¹¹ 526 U.S. 137 (1999).

¹² See, e.g., Margaret A. Berger, *Expert Testimony in Criminal Proceedings: Questions Daubert Does Not Answer*, 33 SETON HALL L. REV. 1125, 1125 (2003); Peter J. Neufeld, *The (Near) Irrelevance of Daubert to Criminal Justice and Some Suggestions for Reform*, 95 AM. J. PUB. HEALTH S107 (2005); D. Michael Risinger, *Navigating Expert Reliability: Are*

There are many reasons for this imbalance. The barriers to adequate screening of forensic sciences include some that arise outside the litigation process, including the nature of crime laboratories and the historical foundations for the forensic sciences themselves. Others are inherent in the judicial process, including the incapacities of lawyers (poorly funded and poorly organized defense lawyers in particular) to raise adequate challenges, the paucity of available experts to assist the defense bar, and the limited ability of lawyers and judges (and juries) to understand and evaluate the sciences. Litigation of admissibility and related questions concerning forensic sciences in each case, dependent as it is on the abilities and resources of individual attorneys, judges, and “experts,” is a highly inefficient means of assessing “science,” one that is bound to get it wrong with some regularity.

Identifying these problems suggests a solution: less case-by-case, single-judge assessment of complex forensic science and more reliance on expert panels of scientists to help assess the validity of forensic sciences, establish the necessary protocols for reliable forensic science work in individual disciplines, define the limits of such scientific evidence, and recommend of cautionary instructions or guidelines accompanying such scientific evidence.

This Article considers these issues in several parts. Part II outlines impediments to criminal defendants’ ability to develop and present evidence of innocence, including both non-scientific and scientific evidence, at all stages of the criminal justice process. Part III focuses on the criminal justice system’s inability to assess and present scientific evidence, and how that inability undermines the search for the truth in criminal cases. Finally, Part IV suggests reforms that might mitigate these problems, including the creation of a national forensic science institute or advisory committees designed to assist courts in accurately assessing forensic sciences, and in some cases supplanting the adversary case-by-case process for addressing concerns about such sciences.

II. FAILURES TO PROTECT THE INNOCENT: DISPARITIES THAT DISADVANTAGE THE ACCUSED

A system truly committed to protecting the innocent as its highest value, to searching for a version of “truth” that is least susceptible to false positives, would look very different than the American crimi-

nal justice system. Despite all its procedural safeguards and professed concern for protecting the wrongly accused, the system is loaded with disparities at every stage of the process that put innocent defendants at risk.¹³

A. *Disparities in the Ability to Develop Evidence*

From the moment a criminal investigation begins, the accused is disadvantaged by lack of access to crime scene evidence and investigative resources. By the time a suspect is accused or charged, the crime scene has usually been fully processed by police and relevant evidence has been taken into police custody. Criminal defendants lack both access to the evidence and to police assistance in developing additional evidence. If the crime scene is to yield evidence of innocence, the defendant typically will have to rely on police and prosecutors to find, collect, develop, and disclose that evidence.

Relying on police to manage and control the crime scene and the crime scene evidence is necessary and appropriate. But it does carry costs to the innocent defendant's ability to prove innocence, particularly because of the way the role of the police is conceptualized in our criminal justice system. Police are an arm of the prosecution; they typically work closely with prosecutors, who, while theoretically charged with responsibility to "do justice," in practice often develop a conviction psychology in which catching and convicting the suspect is the highest value.¹⁴

As Michael Scott and I have described previously, police and prosecutors, as human beings, especially human beings in an adversary system, are susceptible to a type of tunnel vision that can obscure the truth.¹⁵ Natural cognitive biases can lead police and prosecutors to reach a conclusion about guilt prematurely, and then to filter all

¹³ Values other than truth are also served by our adjudicative process that conflict with the goal of seeking the truth. Those values, expressed for example through various exclusionary rules, include respect for "individual dignity, privacy, [and] freedom from unreasonable state regulation." Franklin Strier, *Making Jury Trials More Truthful*, 30 U.C. DAVIS L. REV. 95, 107 (1996). The presumption of innocence is itself a value that some suggest impedes the goal of determining objective truth, given that it ostensibly skews the risk of error in one direction. *Id.* But as I have noted, unlike many of the other competing values served at trial, it is a value premised expressly on an understanding that truth cannot be determined flawlessly; it does not so much serve values that compete with truth, but more reflects values about who should bear the costs of our inability to obtain perfect truth.

¹⁴ George T. Felkenes, *The Prosecutor: A Look at Reality*, 7 SW. U. L. REV. 98, 110–12 (1975); Findley & Scott, *supra* note 9, at 328; Stanely Z. Fisher, *In Search of the Virtuous Prosecutor: A Conceptual Framework*, 15 AM. J. CRIM. L. 197, 198 (1988).

¹⁵ Findley & Scott, *supra* note 9, at 307–31.

subsequent information through the lens of that conclusion. Cognitive biases such as confirmation bias and hindsight bias, among many others, can lead investigators with the best of intentions to err.¹⁶

Confirmation bias refers to the natural human tendency to seek, recall, and interpret facts that are consistent with a conclusion one has already formed.¹⁷ Confirmation bias means that police and prosecutors—as human beings—are likely, once they have identified a suspect or formed a theory of guilt, to seek confirming evidence and not seek disconfirming evidence. Accordingly, any ambiguous evidence is likely to be construed as incriminating, any incriminating evidence is likely to be viewed with heightened significance, and any inconsistent evidence is likely to be ignored or marginalized as insignificant or unreliable.

Likewise, hindsight bias—the “knew-it-all-along” effect—can skew judgments in ways that put innocent defendants at risk. With hindsight bias, investigators (or lawyer or judges or any human beings) are likely to take after-acquired information and project it back in time, so that an outcome will appear more likely or inevitable in hindsight than it really was.¹⁸ Hindsight bias can make it appear that judgments about the guilt of a suspect, or the outcomes of an investigation or of a trial, were obvious and inevitable from the beginning, so that alternative investigative paths, suspects, or trials, are difficult to imagine. If an initial judgment about guilt or a suspect is wrong, hindsight bias will obscure that fact and make it difficult to imagine how any different investigation or trial could have produced a different result.¹⁹

Institutional pressures on police and prosecutors to catch and convict the criminals add to the tunnel vision that can put innocent suspects at risk.²⁰ Unrealistic public and media expectations, especially in the wake of violent and sensationalized crimes, can and have resulted in pressure on police investigators to solve (“clear”) as many cases as possible so that the case clearance rates reported to the Federal Bureau of Investigation and the public are not so low as to erode public confidence in police.²¹ And public pressure on prosecutors to convict may even be more acute than the pressure on police, because the prosecutor’s role in society is generally viewed narrowly as being

¹⁶ *Id.* at 307–23.

¹⁷ *Id.* at 309.

¹⁸ *Id.* at 318.

¹⁹ *Id.* at 319–22.

²⁰ *Id.* at 323–31.

²¹ Findley & Scott, *supra* note 9, at 324.

to convict offenders, while police perform a wider range of public service duties.²²

Thus, the investigation and prosecution of cases in an adversary system has inherent biases that can help catch and convict the guilty, but also can produce flawed justice. And, as has become obvious in the wake of the 200-plus DNA exonerations in the last two decades, wrongly convicting the innocent also exacts a toll on public safety, because each wrongful conviction of an innocent person also represents failure to convict the guilty.²³

While initial investigations must be handled by police, a system that is truly interested in protecting the innocent and finding the truth would not make police an arm of the prosecution. Instead, police might be made neutral inquisitors who work for the court or both parties, and not just the prosecution. Police investigative files and crime scene evidence would then be made fully available fully to both parties, with appropriate safeguards to protect the safety of sensitive sources of information or the integrity of ongoing investigations. Some European countries do just that—they make the police investigative file fully available to both sides.²⁴

Those European countries have an inquisitorial system, not an adversary system like the American criminal justice system. To some commentators, the inquisitorial system is the superior system for finding the truth, because the inquisitorial system places truth as its highest value, while the adversary system, by placing control of the facts and the litigation in the hands of opposing parties (who may be more motivated to hide or slant the truth than to find it), primarily values dispute resolution.²⁵

While the United States is not going to adopt an inquisitorial system (and I'm not arguing that it should), police can be reconceptualized as neutral investigators in ways that draw on some of the proffered advantages of the inquisitorial system. As neutral investigators who serve the court and the parties roughly equally, police could play the role of neutral inquisitor during the investigative stages, leaving

²² *Id.* at 327.

²³ In thirty-seven percent of the DNA exonerations, the same DNA that exonerated the defendant also identified the true perpetrator. Brandon L. Garrett, *Judging Innocence*, 108 COLUM. L. REV. 55, 119 (2008). In many of these cases, the true perpetrator went on to commit other crimes that might have been prevented had the system not focused on the wrong person.

²⁴ Darryl K. Brown, *The Decline of Defense Counsel and the Rise of Accuracy in Criminal Adjudication*, 93 CAL. L. REV. 1585, 1623–24 (2005); Findley & Scott, *supra* note 9, at 390–91.

²⁵ See Brown, *supra* note 24, at 1588; Strier, *supra* note 13, at 103–05, 107–08.

the prosecution and defense to remain fully adversarial—but more equally positioned—in their use of the evidence at trial. By removing police as much as possible from the adversary process, and making them responsible in some measure to both competing adversaries in a case, some of the inherent cognitive biases might be muted to some extent.²⁶

Absent that shift, criminal defendants are at a vast disadvantage in their ability to investigate and develop evidence. For the most part, the only way defendants can now gain access to crime scene evidence is through discovery, which means they must depend on the prosecutor to identify and disclose such information as the prosecutor believes the defense is entitled to have.²⁷ But discovery is notoriously limited in criminal cases, especially when compared to the extensive and wide-open discovery available in civil cases.²⁸ Ironically, litigants fighting over money have far more access to the facts and evidence than does an innocent person wrongly accused and facing many years or life in prison, or even death.

Criminal defendants not only lack full access to the facts and evidence developed by the State, they also have very limited ability to develop evidence themselves. They have virtually no say in how or what police investigate; unlike prosecutors, they generally cannot ask police to look into alternative suspects or alternative sources of evidence.²⁹ And criminal defendants, who are largely poor, generally lack the resources to undertake investigations on their own that are at all comparable to the investigations undertaken by police.³⁰ While

²⁶ See Findley & Scott, *supra* note 9, at 355–96 (setting forth numerous recommended reforms for mitigating tunnel vision in the criminal justice system).

²⁷ Discovery in criminal cases arises from the prosecutor's duty to disclose *Brady* material—evidence identified by the prosecutor as material and exculpatory. See *Brady v. Maryland*, 373 U.S. 83, 87 (1963). For a critique of the *Brady* doctrine, see Stephanos Bibas, *Brady v. Maryland: From Adversarial Gamesmanship Toward the Search for Innocence?*, in *CRIMINAL PROCEDURE STORIES* 129–54 (Carol Steiker ed., 2005).

²⁸ See Mary Prosser, *Reforming Criminal Discovery: Why Old Objections Must Yield to New Realities*, 2006 WIS. L. REV. 541; see also Andrew D. Leipold, *How the Pretrial Process Contributes to Wrongful Convictions*, 42 AM. CRIM. L. REV. 1123, 1151–52 (2005) (listing some of the ways in which discovery in criminal cases is inadequate and “subordinate[s] the truth-seeking function to other interests”).

²⁹ As Andrew Leipold has observed, “prosecutors have enormous [investigative] authority: they have broad investigative jurisdiction, the assistance of professional law enforcement, statutory sanctions to encourage witness cooperation, and the credibility of the sovereign to support their efforts.” Leipold, *supra* note 28, at 1127.

³⁰ See Brown, *supra* note 24, at 1602 (arguing that “defense counsel have limited ability to extend investigations and prepare rigorous confrontations of evidence” because legislatures have so limited their funding); Leipold, *supra* note 28, at 1127 (noting that criminal defendants are unable to gather evidence adequately because

state resources give the prosecution a clear advantage in criminal cases under any system,³¹ the “wealth effect” is particularly pronounced in an adversarial process that puts the responsibility for generating evidence solely in the hands of the parties.³²

In one respect, some criminal defendants do have an advantage over the police—they, unlike police and prosecutors, were present and know what evidence there is and how to find it. But that, of course, generally applies only to *guilty* defendants. Innocent defendants—that is, those who played no part in the crime—usually have no unique access to case-specific information, and therefore are at the greatest disadvantage of all. The only evidence they have special access to is alibi evidence. But empirical evidence confirms what casual observers suspect, that alibi evidence is largely ineffectual.³³ Frequently, people cannot recall with any specificity what they did or where they were at some particular point in the past. Not only must the defendant recall, but the alibi witnesses also must recall, even though the date and event may have meant nothing special to them at the time. Any attempts by the defendant to remind her alibi witnesses will be exposed on cross-examination and cast as improper attempts to fabricate an alibi. And alibi witnesses are usually the people with whom the accused tends to spend the most time: family, lovers, and friends—the very people whose alibi testimony is viewed most skeptically as biased and manufactured.³⁴ Thus, the disparity reflected in the lack of access to crime scene evidence and knowledge about that evidence is a feature of the criminal justice system that applies with unique force to *innocent* defendants.

Moreover, pretrial detention makes the task of investigating even more onerous. Courts, legislatures, and commentators have all recognized that pretrial confinement makes investigation and defending oneself more difficult.³⁵ But decisions about pretrial release typically

“defense counsel are under funded, either because clients cannot afford high fees or because the State dollars to fund criminal defense work are spread too thin.”).

³¹ Strier, *supra* note 13, at 144.

³² Brown, *supra* note 24, at 1604.

³³ Elizabeth A. Olson & Gary L. Wells, *What Makes a Good Alibi: A Proposed Taxonomy*, 28 LAW & HUM. BEHAV. 157, 158 (2004).

³⁴ Empirical research confirms that alibi evidence is generally not effective if it is provided by people close to the defendant, such as girlfriends or family members, as is typical. *Id.*

³⁵ See 18 U.S.C. § 3142(i) (2000) (providing for the temporary release of a detained suspect “to the extent that the judicial officer determines such release to be necessary for preparation of the person’s defense”); CHARLES H. WHITEBREAD & CHRISTOPHER SLOBOGIN, CRIMINAL PROCEDURE 527–28 (4th ed. 2000) (stating that bail “facilitates preparation of a defense and prevents incarceration of a possibly innocent

are based upon values and interests entirely independent of the innocent defendant's need to assist in the investigation and preparation of his defense. Bail decisions are made on assessments of the defendant's risk of flight and risk to the public, not on considerations about the impact of detention on "the accuracy of the eventual trial."³⁶ As Andrew Leipold has observed:

The problem is that the *ex ante* decision of whether defendant will appear at trial or commit other crimes bears no necessary relationship to the degree of assistance that the accused can provide in preparing his case. Whether the defendant has ties to the community, a job, significant assets, or a criminal history tells us nothing about whether the suspect needs to help his lawyer with witness location, interviews, or other evidence gathering. We might, however, hypothesize that there is a positive correlation between the falsity of the accusation and the suspect's need to assist in the defense. It might be precisely when the wrong person has been charged that factual development, alibis, and hard-to-find evidence are the most vital to the case.³⁷

The risk of error is also skewed against the innocent defendant in other ways related to the ability to develop facts and investigate. Police investigators, for example, are free to lie or employ various forms of deception in their investigations. Police routinely use deception during interrogations of suspects,³⁸ or in undercover operations or ruses designed to gain access to homes or the inner circles of criminal enterprises.³⁹ But criminal defense attorneys may not em-

person"); Albert W. Alschuler, *Preventive Pretrial Detention and the Failure of Interest-Balancing Approaches to Due Process*, 85 MICH. L. REV. 510, 517 (1986); Leipold, *supra* note 28, at 1130 (citing 3 WAYNE R. LAFAYE ET AL., CRIMINAL PROCEDURE § 12.2(c) (2d ed. 1999)) ("There is little reason to doubt the proposition that pretrial detention has a significant adverse impact upon the ability of a defendant to vindicate himself at trial.").

³⁶ Leipold, *supra* note 28, at 1130.

³⁷ *Id.* Leipold also cites data indicating that the percentage of federal defendants who are released pretrial has dropped from sixty-two percent in 1990, to forty-five percent in 2002. *Id.* at 1131 (citing BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, COMPENDIUM OF FEDERAL JUSTICE STATISTICS I (2002)).

³⁸ See generally Richard A. Leo, *Inside the Interrogation Room*, 86 J. CRIM. L. & CRIMINOLOGY 266 (1996); Christopher Slobogin, *Lying and Confessing*, 39 TEX. TECH. L. REV. 1275 (2007); Welsh S. White, *Police Trickery in Inducing Confessions*, 127 U. PA. L. REV. 581 (1979); see also CRIMINAL INTERROGATION AND CONFESSIONS, at xii (Fred E. Inbau et al. eds., 4th ed. 2004) (influential police training manual that teaches the use of deception during interrogations); Leslie Griffy, *Fake Lab Reports Were Common*, MERCURY NEWS, Dec. 23, 2007 (describing common ruse employed by police in which they show suspects fake DNA reports in an effort to induce a confession).

³⁹ See, e.g., *State v. Moss*, 492 N.W.2d 627, 632-33 (Wis. 1992) (approving police use of pizza delivery ruse to gain entry to a dwelling to execute a search warrant); see

ploy private investigators to lie in the course of developing information—or at least they do so at some risk of peril under ethics codes—even if the deception might develop truthful information.

Two separate provisions of the ABA Model Rules of Professional Conduct bar deceit by attorneys—and, by extension, by investigators working under their supervision—but not by police, or even frequently (by custom) by investigators working under the direction of prosecutors. Rule 4.1(a) provides: “In the course of representing a client a lawyer shall not knowingly . . . make a false statement of a material fact or law to a third person.”⁴⁰ Rule 8.4(c) provides: “It is professional misconduct for a lawyer to . . . engage in conduct involving dishonesty, fraud, deceit or misrepresentation.”⁴¹ Rules 8.4(a) and 5.3(c)(1) provide that an attorney may not order or counsel another to do that which he or she could not do himself or herself. While these rules would seem to apply equally to both prosecutors and defense lawyers, in practice, as noted below, prosecutors routinely supervise law enforcement investigations that involve deceit without any risk of sanction.⁴² Moreover, police can operate independently of prosecutors and engage in extensive dissembling without violating the rule, but defense investigators never work independently of defense counsel, and therefore cannot escape the rule.⁴³

The disparity in practice is reflected in recent disciplinary proceedings against a defense attorney who used a carefully planned and limited ruse to get a witness to turn over exculpatory evidence to a defense investigator. The disciplinary referee wrote that the District

also Christopher Slobogin, *Deceit, Pretext, and Trickery: Investigative Lies by the Police*, 76 OR. L. REV. 775, 778–86 (1997).

⁴⁰ MODEL RULES OF PROF'L CONDUCT R. 4.1(a) (2004).

⁴¹ MODEL RULES OF PROF'L CONDUCT R. 8.4(c).

⁴² Although a few prosecutors have been disciplined for some egregious types of misconduct (such as impersonating a public defender, *see, e.g., In re Pautler*, 47 P.3d 1175 (Colo. 2002)), most of the disciplinary actions have been directed at private lawyers. *See* Eileen Libby, *When the Truth Can Wait*, A.B.A. J., Feb. 2008, at 26.

⁴³ Wisconsin has since modified its rules to permit *all* lawyers to supervise others who use deceit in the course of an investigation, so long as the activity is not otherwise barred by law. *See* WIS. RULES OF PROF'L CONDUCT 20:4.1 (2007) (“Notwithstanding [the general rule against deceit], a lawyer may advise or supervise others with respect to lawful investigative activities.”). Oregon has amended its rules to permit a lawyer to advise and supervise people who engage in deceit in the conduct of investigations of violations of civil law, criminal law, or constitutional rights if the lawyer “in good faith believes there is a reasonable possibility that unlawful activity has taken place, is taking place or will take place in the foreseeable future.” OR. CODE OF PROF'L RESPONSIBILITY R. 8.4(b) (2006). Alabama expressly permits *only* prosecutors to supervise deceitful investigations. ALA. RULES OF PROF'L CONDUCT R. 3.8(2)(a) (2008).

Attorney, who had filed the disciplinary complaint, “admitted in his testimony that ‘prosecutors frequently supervise a variety of undercover activities and sting operations carried out by non-lawyers who use deception to collect evidence,’ including misrepresentations as to identity and purpose. The Director of [the lawyer disciplinary board] agreed, calling it ‘normal practice.’”⁴⁴ Both the District Attorney and the director of the disciplinary board also “admitted to finding the conduct acceptable for prosecutors, but not for private attorneys.”⁴⁵ The referee noted that “[p]rosecutors are even praised for successful investigations involving dissemblance, the record shows, even though they are able to apply for *ex parte* warrants, and criminal defense attorneys are not.”⁴⁶

Likewise, police and prosecutors are free to offer inducements to witnesses for their testimony, but criminal defendants are not. Some of the most unreliable evidence presented at trials comes from jailhouse informants or codefendants—people who themselves are in

⁴⁴ Office of Lawyer Regulation v. Hurley, No. 07-AP-478-D (Wis. Feb. 1, 2008) (Referee’s Report and Recommendation at 22–23). After carefully considering alternatives, and determining that the contents of a computer possessed by a juvenile complainant likely contained exculpatory evidence that the witness would likely delete if the defense alerted the witness or police of their desire to analyze the computer, the lawyer arranged for an investigator to pose as a research company to offer the witness a free new computer in exchange for his old computer. The witness agreed to the exchange, and the witness’s computer did indeed contain exculpatory evidence. *Id.* at 5–10.

⁴⁵ *Id.* at 23.

⁴⁶ *Id.* The Referee ultimately concluded that the defense lawyer had not engaged in misconduct in this case because the deceit was not “material,” *id.* at 14, the rules both as written and enforced were vague, *id.* at 25, the rules were only meant to prohibit such deceit as would render an attorney unfit to practice law, *id.* at 21, and the defense lawyer’s Sixth Amendment duty to provide zealous representation trumped any restrictions that might otherwise have prevented this particular ruse, given that there appeared to be no alternative means for obtaining this evidence, and the sought-after evidence was at the time the linchpin of the defense. *Id.* at 27. The matter is presently pending final decision in the Wisconsin Supreme Court. As the Referee wrote:

Mr. Hurley was faced with a very difficult decision, with concurrent and conflicting obligations: should he zealously defend his client, fulfill his constitutional obligation to provide effective assistance of counsel, and risk breaking a vague ethical rule that, according to the record, had never been enforced this way? Or should he knowingly fail to represent [his client] in the manner to which he was entitled and hand him persuasive ground for appeal, an ethics complaint, and a malpractice claim? The Sixth Amendment seems to have broken the tie for Mr. Hurley. A man’s liberty was at stake. Mr. Hurley had to choose, and he chose reasonably, in light of his obligations and the vagueness of the Rules.

Id. at 29. Rarely would prosecutors be confronted with such a difficult choice.

trouble with the law—who testify for the State in return for promised or expected lenience or some other benefit in their own cases.⁴⁷ Yet, any attempt by a defendant to offer anything of value as an inducement for favorable testimony from a witness would be not only impermissible, but criminal.⁴⁸

Similarly, although police and prosecutors cannot force reluctant witnesses to talk with them, they can use the gravitas of their station and their position of authority to persuade witnesses to cooperate, either out of trust or fear of that authority. And they can grant immunity to obtain testimony or use the law to sanction uncooperative witnesses who impede their investigations by hiding evidence or providing untruthful information.⁴⁹ Criminal defendants and their investigators have neither advantage.

Finally, as developed more fully below, the criminal justice system skews the risk of error against the innocent defendant by giving the prosecution far superior access to forensic science and expert witnesses.⁵⁰ Empirical evidence demonstrates that forensic science can be tainted by biasing influences when analysts identify too strongly with law enforcement and are exposed to case investigative information that goes beyond what they need to know to conduct their analyses.⁵¹ Accordingly, many observers have cited the need to

⁴⁷ See Garrett, *supra* note 23, at 86 (finding that, of the first 200 DNA exoneration cases, 35 (18%) involved false testimony from an informant, jailhouse informant, or a cooperating alleged co-perpetrator); Alexandra Natapoff, *Snitching: The Institutional and Communal Consequences*, 73 U. CIN. L. REV. 645, 660–63 (2004); see generally Ian Weinstein, *Regulating the Market for Snitches*, 47 BUFF. L. REV. 563 (1999); Clifford S. Zimmerman, *From the Jailhouse to the Courthouse: The Role of Informants in Wrongful Convictions*, in *WRONGLY CONVICTED: PERSPECTIVES ON FAILED JUSTICE* 55 (Saundra D. Westervelt & John A. Humphrey eds., 2001) [hereinafter *WRONGLY CONVICTED*].

⁴⁸ See 18 U.S.C. § 201(c)(2) (2000) (“Whoever . . . directly or indirectly, gives, offers, or promises anything of value to any person, for or because of the testimony under oath or affirmation given or to be given by such person as a witness upon a trial . . . before any court . . . shall be fined under this title or imprisoned for not more than two years, or both.”). In *United States v. Singleton*, 144 F.3d 1343 (10th Cir. 1998), a panel of the Tenth Circuit held that a prosecutor’s offer of benefits in return for cooperation and testimony from a witness would also be illegal under § 201(c)(2). The court quickly reheard the case en banc, however, and reversed the panel, holding that the statute does not apply to the government’s traditional authority to offer inducements to witnesses as a law enforcement tool. *United States v. Singleton*, 165 F.3d 1297 (10th Cir. 1999) (en banc).

⁴⁹ See 18 U.S.C. § 1001 (2000) (making it a crime to give materially false statements to or conceal information from federal authorities); see also Leipold, *supra* note 28, at 1127.

⁵⁰ See *infra* Part III.

⁵¹ See generally D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1 (2002); see also Craig M. Cooley, *Reforming the Forensic Science Community to Avert*

make crime laboratories independent of law enforcement. Nonetheless, most crime laboratories are set up as an arm of law enforcement, either as a unit within a police department or within a State Department of Justice. This arrangement, which increases the likelihood of examiner error and hence can undermine the search for the truth, also makes the forensic sciences largely inaccessible to criminal defendants. Unlike the government, if the defendant wants forensic testing, she faces two obstacles: (1) she generally must seek prosecutor permission or court authorization to gain access to the evidence for testing; and (2) she must find a laboratory and the resources to conduct the testing, or in some circumstances get a court order for testing in government laboratories.⁵²

In sum, far from skewing the risk of error to guard against convicting the innocent, the investigative, evidence-collection, and analysis stages of the process give almost all advantage to the prosecution. If the presumption of innocence truly puts the risk of error on the government rather than the accused, that presumption will have to be effectuated in ways that compensate for the defendant's inherent disadvantage in the initial stages of a criminal case.

the Ultimate Injustice, 15 STAN. L. & POL'Y REV. 381, 422-23 (2004) (recommending independent crime labs); Paul C. Giannelli, *The Abuse of Scientific Evidence in Criminal Cases: The Need for Independent Crime Laboratories*, 4 VA. J. SOC. POL'Y & L. 439, 470 (1997) (recommending independent crime labs).

The point is made dramatically by a recent study in which five experienced fingerprint examiners who had previously analyzed fingerprints in a case and had all concluded that the latent prints matched a suspect's prints, were presented with the same prints five years later, but were told that other evidence had excluded the suspect. Unaware that they had previously called the prints a match, this time four out of the five examiners (eighty percent) either declared that the prints did not match (three of the four) or that the prints provided insufficient information to permit a definite decision (one examiner). Only one of the five examiners adhered to the original conclusion, calling the prints a match. Expectation effects caused by the insertion of non-domain-specific information altered the conclusions of these examiners. Itiel Dror et al., *Contextual Information Renders Experts Vulnerable to Making Erroneous Identifications*, 156 FORENSIC SCI. INT'L 74, 74-78 (2006). The researchers conducted a subsequent study in which six examiners were provided eight sets of prints and were given subtle, routine, day-to-day contextually biasing information after having initially drawn conclusions without the biasing information. Two-thirds of the examiners who received biasing contextual information made decisions inconsistent with their initial conclusions on at least one set of prints. Itiel E. Droer & David Charlton, *Why Experts Make Errors*, 56 J. FORENSIC IDENTIFICATION 600, 610 (2006); see also Larry S. Miller, *Bias Among Forensic Document Examiners: A Need for Procedural Changes*, 12 J. POLICE SCI. & ADMIN. 407 (1984); Larry S. Miller, *Procedural Bias in Forensic Science Examinations of Human Hair*, 11 LAW & HUM. BEHAV. 157 (1987).

⁵² See, e.g., WIS. STAT. § 165.77(2)(a)1.b (2007) (authorizing the State Crime Laboratories to perform DNA analyses for criminal defense counsel, but only if ordered by a court).

B. Doctrinal Disparities that Put Innocents at Risk

Certainly the presumption of innocence and the demand for proof beyond a reasonable doubt together create a significant advantage for the criminal defendant, helping to shift the risk of error to the government.⁵³ But are they and other trial protections enough, especially given the huge disadvantages that criminal defendants, particularly innocent defendants, have in investigating and gathering evidence? As has been observed many times, there is good reason to believe that jurors actually approach cases with a presumption of guilt, not a presumption of innocence, or at least in very fragile equipoise on the question of guilt or innocence, which is easily pushed to a presumption of guilt as soon as the first evidence is heard.⁵⁴ And others have noted that the burden of proving guilt beyond a reasonable doubt has become diluted over time, and that it too is inadequate, at least alone, to protect the innocent.⁵⁵ To evaluate the efficacy of the system's ability to protect the innocent, some accounting of other trial rules, particularly the rules of evidence, must be made.

If truth in the aggregate were the only or primary goal of the criminal justice system, then evidence might either be admitted evenly for both sides, without any or much screening by the courts, or it might be screened for reliability in ways that are equally applicable to both parties. But the American criminal justice system does neither.

Some scholars have argued that virtually all rules that exclude evidence inevitably jeopardize the search for the truth.⁵⁶ If evidence

⁵³ Indeed, some commentators suggest that, because of protections like the reasonable doubt standard and the double jeopardy bar, the criminal justice system is marked by "pro-defendant" procedural protections." Keith N. Hylton & Vikramaditya Khanna, *A Public Choice Theory of Criminal Procedure*, 15 SUP. CT. ECON. REV. 61, 62 (2007). While such rules are indeed "pro-defendant," my thesis is that such rules permit us to tell ourselves that we put all risk of error on the State, when on balance our system actually skews the risk of error largely against the accused.

⁵⁴ Findley & Scott, *supra* note 9, at 340–41; Michael J. Saks & D. Michael Risinger, *Baselines, the Presumption of Guilt, Admissibility Rulings, and Erroneous Convictions*, 2003 MICH. ST. L. REV. 1051, 1062 (citing Thomas M. Ostrom et al., *An Integration Theory Analysis of Jurors' Presumptions of Guilt or Innocence*, 36 J. PERSONALITY & SOC. PSYCHOL. 436 (1978)).

⁵⁵ See Steve Sheppard, *The Metamorphoses of Reasonable Doubt: How Changes in the Burden of Proof Have Weakened the Presumption of Innocence*, 78 NOTRE DAME L. REV. 1165, 1170 (2003); Lawrence M. Solan, *Refocusing the Burden of Proof in Criminal Cases: Some Doubt About Reasonable Doubt*, 78 TEX. L. REV. 105, 105–06 (1999).

⁵⁶ See 4 JEREMY BENTHAM, RATIONALE OF JUDICIAL EVIDENCE 490 (Garland Publishing, Inc. 1978) (1827) ("Evidence is the basis of justice: to exclude evidence is to exclude justice."); Mark P. Denbeaux & D. Michael Risinger, *Kumho Tire and Expert Reliability: How the Question You Ask Gives the Answer You Get*, 34 SETON HALL L. REV. 15,

is logically relevant to a material issue, they contend, keeping the evidence from the jury out of concern that the jury will misuse it in some way not only betrays distrust of the jury, but also unavoidably reduces the jury's ability to find the whole truth.⁵⁷ But admitting evidence without restriction upon either party ignores the other disparities in the system, the effects of tunnel vision, and the fact that under our system wrongful conviction of the innocent is not an "evil" equal to acquitting a guilty person.

If we accepted fully that our constitutional justice system prefers one particular version of truth, one invested as a highest value in protecting the innocent, then no relevant evidence offered by the defense would ever be excluded because exclusion of any relevant exculpatory evidence will always increase the risk of wrongly convicting the innocent. Indeed, Katherine Goldwasser has argued that, because a criminal defendant has unique constitutional rights, exclusion of any relevant evidence offered by a defendant based on reliability concerns is improper.⁵⁸ Excluding such relevant evidence because of concerns about its reliability, she argues, is incompatible with the defendant's constitutional right to present a defense,⁵⁹ and even more so with the right not to be convicted except upon proof beyond a reasonable doubt and the right to trial by jury.⁶⁰ Similarly, although somewhat more modestly, Janet Hoeffel has argued that, under the Sixth Amendment's Compulsory Process Clause, relevant evidence offered by a criminal defendant is not properly excluded based on any reliability concerns "unless it is 'always so untrustworthy and so immune to the traditional means of evaluating credibility [i.e., "cross-examination, presentation of witnesses, closing arguments, jury

22 (2003) (noting that "pure adversaryists . . . would say that truth best emerges in the clash of self-interested parties packaging whatever relevant information is available in the most persuasive way they can . . . and that, essentially the system would work best if there were no rules of evidence beyond a weak relevance check"); Strier, *supra* note 13, at 109 (arguing that most rules that exclude relevant evidence should be abolished or minimized because they all impede the search for the truth).

⁵⁷ Strier, *supra* note 13, at 109.

⁵⁸ Katherine Goldwasser, *Vindicating the Right to Trial by Jury and the Requirement of Proof Beyond a Reasonable Doubt: A Critique of the Conventional Wisdom About Excluding Defense Evidence*, 86 GEO. L.J. 621 (1998); see also Eleanor Swift, *Narrative Theory, FRE 803(3), and Criminal Defendants' Post-Crime State of Mind Hearsay*, 38 SETON HALL L. REV. 975 (2008).

⁵⁹ Goldwasser, *supra* note 58, at 622.

⁶⁰ *Id.* at 623.

instructions . . . ,”⁶¹] that it should disable a defendant from presenting her version of the events for which she is on trial.”⁶²

If accepted, these principles would reflect a commitment to protecting the innocent as an institutional value of the highest order.⁶³ Excluding defense and prosecution evidence on the same footing out of doubts about the reliability of the evidence might, on balance, increase the chances of getting the truth in the greatest number of cases in aggregate. But because some of that defense evidence, excluded as unreliable, might in fact have been entirely accurate in some unknown percentage of cases, excluding such evidence as a category will mean that some innocent people will be convicted who might not have been if their evidence had been heard by the jury.⁶⁴

⁶¹ Hoeffel, *supra* note 1, at 1289.

⁶² *Id.* at 1352 (quoting *Rock v. Arkansas*, 483 U.S. 44, 61 (1987)). Hoeffel argues that “the purpose of the [Compulsory Process] Clause was to allow for the introduction of evidence by the accused through the adversarial process[,]” and that “[t]he Clause aids in the search for truth across all cases by giving the defendant a procedure that allows his side of the case, and not just the prosecution’s, to be heard by the jury.” *Id.* at 1277.

⁶³ Different rules of admissibility for defense-proffered and prosecution-proffered evidence would of course create stark asymmetries in the way evidence law is applied in criminal cases. But the constitutional values at work here expressly endorse asymmetry. As one court has put it:

A criminal prosecution, unlike a civil trial, is in no sense a symmetrical proceeding. The prosecution assumes substantial affirmative obligations and accepts numerous restrictions, neither of which are imposed on the defendant. . . . The system of criminal law administration involves not only this procedural imbalance in favor of the defendant, but also important aspects of the Government’s law enforcement power that are not available to the defendant. . . . But in the context of a criminal investigation and criminal trials . . . equalization is not a sound principle

United States v. Turkish, 623 F.2d 769, 774–75 (2d. Cir. 1980). Hoeffel explains:

While the one-sided application of a favorable constitutional standard may appear unfair, it is not. In a criminal case, the parties are assumed to be on an unequal footing. The bundle of rights in the Sixth Amendment—the right to notice, counsel, confrontation and compulsory process—were intended to offset the inherent imbalance between the relatively powerful State and the powerless, resourceless defendant. The parties are also on an unequal footing, however, because the defendant’s very liberty is at stake. The criminal justice system as designed to reflect the most undesirable verdict as that of the conviction of the innocent.

Hoeffel, *supra* note 1, at 1360–61.

⁶⁴ Randolph Jonakait has thus argued that the Sixth Amendment is intended to protect the ability of individual defendants to stand up to the power of the State, even if it comes at some cost to ascertaining the truth in the aggregate:

The rights of notice, counsel, confrontation, and compulsory process constitutionalize the adversary system, and while we presume truth comes out of this system, the converging [S]ixth [A]mendment protec-

In any event, our system accepts that some judicial gate-keeping is appropriate to filter out evidence for a variety of reasons, including concern about reliability.⁶⁵ As Goldwasser has put it, “[o]ne supposedly good reason for excluding relevant evidence—recognized in all jurisdictions—is that the evidence, although logically probative of something that matters in the lawsuit, is not sufficiently reliable.”⁶⁶ Rules reflecting this gatekeeping function premised on reliability concerns include the “best evidence” rule,⁶⁷ the rule against hearsay,⁶⁸ and rules limiting the admissibility of scientific evidence.⁶⁹ Another related reason for excluding relevant evidence, also reflected in the rules of evidence in all jurisdictions, is the concern that some evidence, even if relevant and reliable, might be unfairly prejudicial—and hence might be used in a way that renders the factfinder’s conclusions unreliable.⁷⁰

At the very least, because “truthfinding is not the only value at stake” in criminal trials, additional values reflected in the defendant’s right to present a defense, to proof beyond a reasonable doubt, and to trial by jury, argue for restraint when excluding defense evidence

tions guarantee neither accurate determinations nor even the most reliable way to ascertain the fact. Instead, the accused is guaranteed an adversary criminal trial even if that is not the best truth-determining process for him [T]he accused cannot be denied an adversary criminal trial even if an inquisitorial proceeding would have determined the truth better in the accused’s case.

Randolph Jonakait, *Restoring the Confrontation Clause to the Sixth Amendment*, 35 UCLA L. REV. 557, 585 (1988) (footnote omitted); see Robert P. Mosteller, *Remaking Confrontation Clause and Hearsay Doctrine Under the Challenge of Child Sexual Abuse Prosecutions*, 1993 U. ILL. L. REV. 691, 754.

⁶⁵ In a related way, Mark Denbeaux and Michael Risinger have observed: [N]o one argues in favor of a pure adversary system for the simple reason that such a pure system, like direct democracy, could not function except under exceedingly rare conditions. This is because a pure adversary system would have no judge, in the sense we are accustomed to. The parties would be free to present whatever they themselves determined to be helpful to their cause, and the party with the weakest case could filibuster indefinitely

Denbeaux & Risinger, *supra* note 56 at 21.

⁶⁶ Goldwasser, *supra*, note 58, at 622. Goldwasser elaborates: “Viewed solely from an evidence law perspective, excluding unreliable evidence makes a good deal of sense. After all, the chief function of evidence law (at least by most accounts) is to maximize the probability that the trier of fact will arrive at an accurate determination of historical truth.” *Id.* at 632.

⁶⁷ See, e.g., FED. R. EVID. 1002.

⁶⁸ See, e.g., FED. R. EVID. 802; Elizabeth Phillips Marsh, *Does Evidence Law Matter in Criminal Suppression Hearings?*, 25 LOY. L. REV. 987, 999 (1992) (“[H]earsay is excluded at trial precisely because it is unreliable.”).

⁶⁹ See, e.g., FED. R. EVID. 702, 703.

⁷⁰ See FED. R. EVID. 404(b).

based upon reliability considerations.⁷¹ Viewed without the gloss of these constitutional values, the goal of minimizing the risk of an incorrect outcome “means minimizing the risk of either of two possibilities: the conviction of an innocent person, or the acquittal of a guilty one.”⁷² But because the Constitution—and in particular the requirement of proof beyond a reasonable doubt—puts a much higher value on preventing conviction of the innocent than on preventing acquittal of the guilty, these two possible “incorrect” outcomes are not equally unacceptable.⁷³ As Janet Hoeffel has put it, “constitutional law has recognized that the primary function of a criminal trial may not be truth-seeking, but the accused’s right to a just and fair verdict.”⁷⁴ Hence, Goldwasser argues, these constitutional values “simply cannot be squared with allowing courts to exclude a criminal defendant’s evidence because of unreliability.”⁷⁵

1. Rules that Purport to Protect Innocents

Some doctrines recognize the risk to the innocent posed by rules that exclude defense evidence. The constitutional right to present a defense, implicit in the right to compulsory process, for example, in theory recognizes the defendant’s special constitutional claim to voice at trial. But the Supreme Court’s right-to-present-a-defense cases are confused and contradictory, and have been interpreted to permit considerable restraint on a defendant’s ability to present evidence.⁷⁶ And the Compulsory Process Clause is largely ignored in criminal jurisprudence.⁷⁷

⁷¹ Goldwasser, *supra*, note 58, at 632–42.

⁷² *Id.* at 633.

⁷³ *Id.*

⁷⁴ Janet C. Hoeffel, *The Gender Gap: Revealing Inequities in Admission of Social Science Evidence in Criminal Cases*, 24 U. ARK. LITTLE ROCK L. REV. 41, 73 (2001).

⁷⁵ Goldwasser, *supra* note 58, at 632. Excluding relevant but unreliable defense evidence might reduce the chances of a wrong acquittal. But it does so only by also producing an occasional wrong conviction. Goldwasser argues: “Producing fewer wrong acquittals at the cost of also producing a few additional wrong convictions is not [consistent with reasonable doubt values].” *Id.* at 635.

⁷⁶ In *Washington v. Texas*, 388 U.S. 14 (1967), *Rock v. Arkansas*, 483 U.S. 44 (1987), and *Holmes v. South Carolina*, 547 U.S. 319 (2006), the Supreme Court described the right to present a defense broadly, suggesting that the defense must be permitted to introduce any evidence as long as “the evidence can be adequately measured by the jury through the usual machinery of the adversary system—cross-examination, presentation of witnesses, closing arguments, jury instructions . . .” Hoeffel, *supra* note 1, at 1289. In other cases, however, the Court has appeared to narrow the constitutional right, permitting evidentiary rules to limit defense evidence if those rules have a rational basis, including a concern for reliability of the evidence. *See, e.g.*, *Scheffer v. United States*, 523 U.S. 303 (1998). For a thorough analysis of this dichotomy in

Other doctrines recognize the defendant's special claim to a right to present evidence in more subtle (and even less universally accepted) ways. For example, a few courts permit more leeway for defense use of evidence of "other crimes, wrongs, or acts" than for prosecution use of such evidence.⁷⁸ Such "other acts" evidence is generally inadmissible to prove character, that is, to prove that a person had a propensity to commit the act at issue.⁷⁹ When other acts evidence is offered for a permissible purpose apart from proving character or propensity, it is still subject to exclusion unless a court is satisfied that its prejudicial effect does not substantially outweigh its probative value.⁸⁰ Because it is generally the government that seeks to introduce other acts evidence—usually to show that a defendant's prior conduct helps to prove guilt on pending charges⁸¹—the rule against propensity evidence is most often raised in defense efforts to exclude evidence offered by the government. When invoked to prohibit the defense from introducing other acts evidence (so-called "reverse 404(b)" evidence)—usually evidence of an alternative suspect's prior conduct⁸²—some courts recognize that there is less danger of unfair prejudice than when the prosecution uses other acts evidence against the defendant himself. A defendant can be prejudiced directly by evidence that he committed other or similar crimes in the past, or evidence suggesting that he is a bad person. But some courts have noted that because the third-party suspect is not on trial, there is less concern that the other acts evidence will be prejudicial in that

the Supreme Court's right-to-present-a-defense cases, see Hoeffel, *supra* note 1, at 1288–1306, and SLOBOGIN, *supra* note 2, at 54–55.

⁷⁷ Hoeffel, *supra* note 1, at 1276 (The Supreme Court has read the Compulsory Process Clause "to stand for nothing less than the accused's 'right to present a defense.' . . . Yet, for reasons that are not entirely clear, litigants, courts, and scholars barely give it a nod.") (citations omitted).

⁷⁸ FED. R. EVID. 404(b).

⁷⁹ *See id.*

⁸⁰ FED. R. EVID. 403.

⁸¹ Other acts evidence is admissible under Rule 404(b) to prove facts other than propensity or character, such as "motive, opportunity, intent, preparation, plan, knowledge, identity, or absence of mistake or accident," or other similar matters. FED. R. EVID. 404(b). Increasingly, courts liberally invoke those exceptions to admit other acts evidence, coming very near to allowing the exceptions to swallow the rule.

⁸² Numerous authorities recognize that a defendant may use similar other-crimes evidence defensively if it reasonably tends to negate his guilt of the charged crime. *See, e.g.*, Holt v. United States, 342 F.2d 163, 166–67 (5th Cir. 1965); Commonwealth v. Murphy, 185 N.E. 486, 488 (Mass. 1933); State v. Bock, 39 N.W.2d 887, 892 (Minn. 1949); State v. Scheidell, 595 N.W.2d 661, 667 (Wis. 1999); 2 WIGMORE, EVIDENCE §§ 304, 341 (3d ed. 1940).

sense. These courts, accordingly, apply a less rigorous relevancy requirement or prejudice analysis.⁸³

Other rules or doctrines also reflect special concern for the status and constitutional rights of criminal defendants in other ways. Those doctrines include the defendant's right to confront her accusers,⁸⁴ her right to silence, rules that protect the confidentiality and privilege of the defendant's communications with counsel, and non-reciprocal rules requiring disclosure of evidence under the *Brady*⁸⁵ doctrine. This last asymmetry, under which the government is required to disclose material exculpatory evidence to the defense, but the defendant has no corresponding constitutional duty to disclose inculpatory evidence to the prosecution, is moderated to some degree by reciprocal discovery statutes that most jurisdictions have adopted. Under such statutes, a defendant's right to obtain some types of prosecution evidence (frequently scientific evidence) is con-

⁸³ See, e.g., *United States v. Stevens*, 935 F.2d 1380, 1404–05 (3d Cir. 1991); *State v. Garfole*, 388 A.2d 587 (N.J. 1978). In *Garfole*, the court held:

We are of the view, however, that a lower standard of degree of similarity of offenses may justly be required of a defendant using other-crimes evidence defensively than is exacted from the State when such evidence is used incriminatoryly. As indicated above, other-crimes evidence submitted by the prosecution has the distinct capacity of prejudicing the accused. Even instructions by the trial judge may not satisfactorily insulate the defendant from the hazard of the jury using such evidence improperly to find him guilty of the offense charged merely because they believe he has committed a similar offense before. Therefore a fairly rigid standard of similarity may be required of the State if its effort is to establish the existence of a common offender by the mere similarity of the offenses. [*State v. Sempsey*, 141 N.J. Super. 317, 323 (N.J. Super. Ct. App. Div.).] But when the defendant is offering that kind of proof exculpatoryly, prejudice to the defendant is no longer a factor, and simple relevance to guilt or innocence should suffice as the standard of admissibility, since ordinarily, and subject to rules of competency, an accused is entitled to advance in his defense any evidence which may rationally tend to refute his guilt or buttress his innocence of the charge made. [*See* N.J. R. EVID. 1(2).] The application of a modified requirement of relevancy to the proffer by a defendant is additionally justified by the consideration that the defendant need only engender reasonable doubt of his guilt whereas the State must prove guilt beyond a reasonable doubt.

Id. at 591 (footnote omitted). But see *State v. Scheidell*, 595 N.W.2d 661, 671 (Wis. 1999) (rejecting the relaxed *Garfole* test, but still holding “that the standards of relevancy are stricter when the state seeks to introduce other crimes evidence to prove identity because ‘the prejudice [resulting from such evidence] is apt to be relatively greater than the probative value.’”) (quoting *Whitty v. State*, 149 N.W.2d 557, 564 (Wis. 1967) (alteration in original)).

⁸⁴ The Confrontation Clause, of course, has received considerable new force in light of *Crawford v. Washington*, 541 U. S. 36 (2004).

⁸⁵ *Brady v. Maryland*, 373 U.S. 83 (1963).

tingent on the defendant's obligation to provide similar evidence to the prosecution.⁸⁶

Special rules also exist, in theory, for protecting criminal defendants against other types of potentially unreliable evidence. The Supreme Court has long recognized that eyewitness identifications can be hopelessly unreliable.⁸⁷ Indeed, the DNA exonerations confirm that mistaken eyewitness identification is by far the leading cause of wrongful convictions of the innocent, accounting for or present in nearly eighty percent of all such convictions.⁸⁸ The Court has struggled with developing a doctrine that can protect against convictions based upon mistaken identifications. In its first attempts to solve the problem in *United States v. Wade*⁸⁹ and *Gilbert v. California*,⁹⁰ the Court declared that defendants have a right to counsel at a live-person lineup. But that remedy offered little protection, because most identifications are made from photo arrays, not live-person lineups, and the Court subsequently was not willing to impose a right to counsel at photo viewings.⁹¹ Moreover, many if not most identifications occur prior to formal charging, and hence prior to the point when the Sixth Amendment right to counsel attaches, so even most live lineups could still be conducted without the presence of counsel. Because the right to counsel could not alone solve the problem of mistaken eyewitness identification testimony, the Court ultimately turned to the Due Process Clause to find a right to exclude eyewitness evidence because of its unreliability.⁹²

Initially, it appeared that the Court's Due Process analysis was going to approach the problem of eyewitness error as a process question rather than a reliability question. On the same day that it de-

⁸⁶ See FED. R. CRIM. P. 16(b).

⁸⁷ The Supreme Court first took on this issue in a serious way with a trilogy of cases decided in 1967. *Stovall v. Denno*, 388 U.S. 293 (1967); *Gilbert v. California*, 388 U.S. 263 (1967); *United States v. Wade*, 388 U.S. 218 (1967).

⁸⁸ See *Garrett*, *supra* note 23, at 60 (of the first 200 postconviction DNA exoneration cases, seventy-nine percent involved eyewitness error).

⁸⁹ *Wade*, 388 U.S. 218.

⁹⁰ *Gilbert*, 388 U.S. 263.

⁹¹ *United States v. Ash*, 413 U.S. 300, 321 (1973). Of the first 200 postconviction DNA exoneration cases, seventy-nine percent included eyewitness identifications that the DNA proved to be wrong. *Garrett*, *supra* note 23, at 60. Although we now know those identifications were mistaken, only forty-five percent of those wrongly identified individuals even attempted to challenge the admissibility of the eyewitness evidence, and, of these, only four appellants brought claims alleging a violation of the right to counsel under *Wade*. *Id.* at 77–80. None of the challenges were successful. *Id.*

⁹² See *Manson v. Brathwaite*, 432 U.S. 98 (1977); *Neil v. Biggers*, 409 U.S. 188 (1972); *Simmons v. United States*, 390 U.S. 377 (1968).

cided *Wade* and *Gilbert*—process cases relating to the right to counsel at identification procedures—the Court also held in *Stovall v. Denno* that police conduct might so seriously taint an identification that admission of the identification would violate due process.⁹³ The Court held that admissibility of eyewitness testimony turned on whether police obtained the identification through procedures that were “so unnecessarily suggestive and conducive to irreparable mistaken identification that [they violated the defendant’s right to] due process of law.”⁹⁴ In other words, it appeared that the Court’s focus would be on whether the police had acted improperly—that is, whether police had employed unnecessarily suggestive procedures. While the Court focused its analysis on police conduct that might produce an unreliable identification, it did not purport to assess directly the reliability of the identification itself.⁹⁵

Subsequently, however, the Court expressly adopted a reliability-centered analysis. Beginning with *Simmons v. United States*,⁹⁶ and then developed more fully in *Neil v. Biggers*⁹⁷ and *Manson v. Brathwaite*,⁹⁸ the Court shifted its analysis in several ways. First, instead of evaluating whether police employed an “unnecessarily” suggestive identification procedure—a standard that inherently involves assessing whether police had other, less suggestive alternatives available—the Court said the test turns on whether police employed “impermissibly” suggestive procedures—a vaguer formulation that permits more flexibility for admitting dubious identification procedures.⁹⁹ Second, the Court held that, even if police utilized impermissible suggestiveness, the identification might nonetheless be admissible if, under the totality of the circumstances, a court is satisfied that the identification is sufficiently reliable.¹⁰⁰ In other words, even bad procedures—highly suggestive police conduct—will be excused, so long as a court

⁹³ The Court’s newfound right to counsel under *Wade* and *Gilbert* did not resolve the issue presented in *Stovall* because the Court concluded that the *Wade* right to counsel would not be applied retroactively. *Stovall v. Denno*, 388 U.S. 293, 296–301 (1967).

⁹⁴ *Id.* at 302.

⁹⁵ See Benjamin E. Rosenberg, *Rethinking the Right to Due Process in Connection with Pretrial Identification Procedures: An Analysis and a Proposal*, 79 Ky. L.J. 259, 264 (1991) (noting that, in *Stovall*, “the Court did not consider whether the eyewitness’s pretrial or in-court identifications were reliable”).

⁹⁶ 390 U.S. 377 (1968).

⁹⁷ 409 U.S. 188 (1972).

⁹⁸ 432 U.S. 98 (1977).

⁹⁹ See *Brathwaite*, 432 U.S. at 107; *Biggers*, 409 U.S. at 197; *Simmons*, 390 U.S. at 384.

¹⁰⁰ *Brathwaite*, 432 U.S. at 107; *Biggers*, 409 U.S. at 197.

is satisfied that the resulting identification was reliable. The Court expressly held that reliability, not process, is what matters.

Unfortunately, the reliability test the Supreme Court created is deeply flawed and ineffectual.¹⁰¹ The Court instructed that, in evaluating reliability, lower courts should assess five factors: (1) the opportunity of the witness to view the criminal at the time of the crime; (2) the witness's degree of attention; (3) the accuracy of the witness's prior description of the criminal; (4) the witness's level of certainty; and (5) the time between the crime and the confrontation.¹⁰² But research has demonstrated that some of these factors—particularly certainty or confidence—are not significantly correlated to reliability.¹⁰³ And most of these factors are subjective assessments reported by the witness herself. As such, any suggestiveness in the process infects not only the identification, but also the witness's assessment of the very factors the courts consider to determine whether an identification is reliable enough to overcome the suggestiveness. The inherent circularity of the test dooms it to failure. The suggestiveness of the process leads most witnesses to be highly confident, to say they had a good opportunity to view, to say they paid attention to the criminal, and even to incorporate police-suggested aspects of the suspect's appearance into their descriptions of the perpetrators. Thus, while the Supreme Court ostensibly employs a reliability analysis to protect innocent defendants, the test in practice offers little protection. Indeed, of the first 200 DNA exoneration cases, not a single one of these wrongful convictions was reversed on appeal based upon a challenge to eyewitness testimony under the *Biggers* and *Brathwaite* test, even though eyewitness evidence was presented in seventy-nine percent of the cases, and even though with the benefit of postconviction DNA testing, it is now known that every one of those identifications was wrong.¹⁰⁴

¹⁰¹ See Timothy P. O'Toole & Giovanna Shay, *Manson v. Brathwaite Revisited: Towards a New Rule of Decision for Due Process Challenges to Eyewitness Identification Procedures*, 41 VAL. U. L. REV. 109, 122 (2006); Gary L. Wells, *Eyewitness Evidence, Systemic Reforms*, 2006 WIS. L. REV. 615, 620–22.

¹⁰² *Brathwaite*, 432 U.S. at 114; *Biggers*, 409 U.S. at 199–200.

¹⁰³ Gary L. Wells et al., *Eyewitness Identification Procedures: Recommendations for Lineups and Photospreads*, 22 LAW. & HUM. BEHAV. 14, 14–21 (1998); Gary L. Wells & A.L. Bradfield, "Good, You Identified the Suspect": *Feedback to Eyewitnesses Distorts Their Reports of the Witnessing Experience*, 83 J. OF APPLIED PSYCHOL. 360, 360–76 (1998); Gary L. Wells et al., *The Damaging Effect of Confirming Feedback on the Relation Between Eyewitness Certainty and Identification Accuracy*, 87 J. OF APPLIED PSYCHOL. 112–20 (2002).

¹⁰⁴ Garrett, *supra* note 23, at 60. Recognizing the ineffectiveness of the *Biggers/Brathwaite* standard, a number of state courts are abandoning that test. See, e.g.,

Despite these specific areas in which courts have sometimes embraced, at least in theory if not in effect, some asymmetries necessary to give heightened protection to the innocent, other doctrines and practices pervert that hierarchy of values. For example, while Supreme Court doctrine establishes that reliability is the touchstone of admissibility of eyewitness identification testimony, the Court eschews reliability considerations when it comes to confession evidence. For centuries, under both the common law and constitutional doctrine, reliability was an important consideration for courts when assessing the admissibility of an alleged confession.¹⁰⁵ In *Colorado v. Connelly*,¹⁰⁶ however, the Supreme Court changed course and declared that under the due process voluntariness test, reliability is irrelevant. In *Connelly*, a man suffering from psychotic delusions, in which God told him to confess to a murder or commit suicide, approached a police officer and confessed to a murder. Although the statement appeared quite unreliable—indeed, police were unable to corroborate that the defendant’s murder confession referenced any actual murder—the Supreme Court held that, absent improper police coercion, the statement was not inadmissible under the Due Process Clause. As Chief Justice Rehnquist wrote for the Court: “A statement rendered by one in the condition of respondent might be proved to be quite unreliable, but this is a matter to be governed by the evidentiary laws of the forum, and not by the Due Process Clause of the Fourteenth Amendment.”¹⁰⁷

Thus, despite the Court’s declaration in the eyewitness identification cases that due process is primarily concerned with reliability, and not with police conduct, in *Connelly* the Court held that, with re-

State v. Dubose, 699 N.W.2d 582 (Wis. 2005); Commonwealth v. Johnson, 650 N.E.2d 1257 (Mass. 1995); People v. Adams, 423 N.E.2d 379 (N.Y. 1981).

¹⁰⁵ See Mark A. Godsey, *Reliability Lost, False Confessions Discovered*, 10 CHAP. L. REV. 623, 624 (2007); Richard A. Leo et al., *Bringing Reliability Back In: False Confessions and Legal Safeguards in the Twenty-First Century*, 2006 WIS. L. REV. 479, 489. Indeed, prior to the 1940s, reliability was all that really mattered.

The first rules governing the admissibility of confessions were laid down in the eighteenth and nineteenth centuries, a time when illegal police methods were relevant only insofar as they affected the trustworthiness of the evidence. Whatever the meaning of the elusive terms “involuntary” and “coerced” confessions since 1940, for centuries the rule that a confession was admissible so long as it was “voluntary” was more or less an alternative statement of the rule that a confession was admissible so long as it was free of influence which made it untrustworthy or “probably untrue.”

MCCORMICK ON EVIDENCE § 226 (Edward W. Cleary ed., 3d ed. 1984).

¹⁰⁶ 479 U.S. 157 (1986).

¹⁰⁷ *Id.* at 167 (citations omitted).

gard to confessions, reliability is irrelevant and all that matters is police conduct.

2. Unbalanced Admissibility Standards and Practices

Doctrine does nothing to guard against some other types of notoriously unreliable evidence that puts innocents at risk. It has long been recognized, for example, that jailhouse informant or “snitch” testimony is among the most unreliable types of evidence because such informants are “incentivized”—they have every incentive to manufacture false testimony against an accused in hopes of obtaining benefits in their own cases.¹⁰⁸ And, although one might think that the source of such testimony (a cellmate of dubious character) might be obviously unreliable, such testimony can be compelling nonetheless because informants can be convincing liars and because their testimony almost always involves a claimed confession by the defendant—a type of evidence that juries find persuasive.¹⁰⁹ Indeed, research on wrongful convictions confirms that jailhouse informant testimony is a leading cause of wrongful convictions, present in eighteen percent of the first 200 DNA exonerations.¹¹⁰ Yet, generally, there is no screening of jailhouse informant testimony for reliability.¹¹¹

¹⁰⁸ See generally ROB WARDEN, *THE SNITCH SYSTEM: HOW INCENTIVISED WITNESSES PUT 38 INNOCENT AMERICANS ON DEATH ROW* (2002); see also Myrna S. Raeder, *See No Evil: Wrongful Convictions and the Prosecutorial Ethics of Offering Testimony by Jailhouse Informants and Dishonest Experts*, 76 *FORDHAM L. REV.* 1413, 1419 (2007).

¹⁰⁹ The Canadian inquiry into the wrongful conviction of Thomas Sophonow, for example, concluded that jailhouse informants are “polished and convincing liars,” that jurors give great weight to “confessions,” and that jurors give “the same weight to ‘confessions’ made to jailhouse informants as they [do] to ‘confessions’ made to a police officer.” PROVINCE OF MANITOBA, MANITOBA JUSTICE, *THE INQUIRY REGARDING THOMAS SOPHONOW, JAILHOUSE INFORMANTS, THEIR UNRELIABILITY AND THE IMPORTANCE OF COMPLETE CROWN DISCLOSURE PERTAINING TO THEM*, available at <http://www.gov.mb.ca/justice/publications/sophonow/jailhouse/what.html> (last visited Apr. 2, 2008).

¹¹⁰ Garrett, *supra* note 23, at 86. According to the Center on Wrongful Convictions, jailhouse snitch testimony also played a role in 45.9% of the first 111 exonerations of individuals who had been sentenced to death. NORTHWESTERN UNIVERSITY SCHOOL OF LAW CENTER ON WRONGFUL CONVICTIONS, *THE SNITCH SYSTEM* 3 (2004–2005), available at <http://www.innocenceproject.org/docs/SnitchSystemBooklet.pdf> (last visited Feb. 25, 2008).

¹¹¹ Garrett, *supra* note 23, at 88. “Illinois, after experiencing heightened numbers of exonerations, is now the only state to require that trial courts conduct reliability hearings to evaluate jailhouse informants.” *Id.* (citing 725 ILL. COMP. STAT. 5/115-21(c) (2003)). A panel of the Oklahoma Court of Appeals also briefly experimented with a requirement for pretrial reliability hearings related to informant testimony, but the en banc court quickly vacated that requirement. *Dodd v. State*, No. F-97-26, 1999 WL 521976, at *1 (Okla. Crim. App. Jul. 22, 1999), *vacated and reh’g granted*, 993

Courts also routinely admit other evidence of dubious reliability, including social science or “syndrome” evidence that should not pass serious *Daubert* scrutiny.¹¹² Rape trauma syndrome (RTS) evidence, for example, is frequently introduced by prosecutors to suggest that the victim behaved in a way consistent with the manner in which a rape victim might behave. Janet Hoeffel has noted, however, that the syndrome is so broad and accommodates such a wide spectrum of behaviors that it “would seem to leave the only commonality among the victims their self-expressed report of rape.”¹¹³ Hoeffel contends that, “[w]ere RTS to be substantively analyzed under *Daubert*, it would not pass the test. Research . . . has borne out that there is no identifiable and predictable set of behaviors which describe a rape victim.”¹¹⁴ Most courts have simply failed to analyze the reliability or scientific foundations of the syndrome, instead admitting the evidence by relying on the decisions of other courts accepting the syndrome.¹¹⁵

Defendants also have the benefit of lax admissibility standards for some social science evidence, such as evidence on Battered Woman Syndrome (BWS). Hoeffel, among others, argues that BWS, like RTS, is not well-grounded in research.¹¹⁶ She notes that BWS evidence, like RTS evidence, is routinely admitted in American courts, even though under any serious analysis it cannot clear the *Daubert* gate.¹¹⁷ But, Hoeffel contends, BWS is the exception for defense ex-

P.2d 778 (Okla. Crim. App. 2000); see Alexandra Natapoff, *Beyond Unreliable: How Snitches Contribute to Wrongful Convictions*, 37 GOLDEN GATE U. L. REV. 107, 114 (2006) (proposing a model statute requiring pre-trial evaluations of informant testimony).

¹¹² Risinger, *supra* note 12, at 134.

¹¹³ Hoeffel, *supra* note 74, at 51.

¹¹⁴ *Id.* at 55.

¹¹⁵ *Id.* at 54.

¹¹⁶ *Id.* at 43–56; see also Regina Schuller & Sara Rzepa, *The Scientific Status of Research on Domestic Violence Against Women*, in 2 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY 43–47 (David L. Faigman et al. eds., 2002) [hereinafter MODERN SCIENTIFIC EVIDENCE].

¹¹⁷ Hoeffel, *supra* note 74, at 43–56. Hoeffel observes that “to date no court has earnestly evaluated the scientific validity of BWS.” *Id.* at 47. Applying the *Daubert* factors, Hoeffel notes that (1) BWS has never been scientifically tested; (2) BWS has not for the most part been subjected to peer review and publication, but rather has been printed in the popular press; (3) the error rate has never been determined; and (4) courts assessing whether the syndrome is “generally accepted” in the relevant field have “defin[ed] the field narrowly to those who study battered women, as opposed to social scientists or psychologists generally.” *Id.* at 48–50. In the end, Hoeffel concludes that “[t]he argument for admissibility on political grounds is an appealing one,” but that its admissibility across the board cannot be justified under sound evidence law principles. *Id.* at 50. Rather, she contends it should only be admissible when proffered by the defendant, despite lack of standing under *Daubert*, because of the defendant’s unique constitutional rights to the presumption of innocence, to present a defense, and to voice. *Id.*

pert evidence, which can be explained by political considerations: the BWS defense benefits a sympathetic, politically significant portion of the population—women who have been abused.¹¹⁸ By contrast, Hoefel notes that other social science syndrome evidence that might be used by criminal defendants and which stands on a scientific footing similar to BWS, but that would generally apply to much more politically disfavored and disenfranchised groups—inner-city African-American men—has “barely [seen] the light of day.”¹¹⁹ Such syndrome evidence, including Urban Psychosis, Urban Survival Syndrome, or Black Rage theory, could be used to “explain why a defendant believed he was facing imminent bodily harm from another young African-American man who had his back to him across a courtyard,”¹²⁰ or in the case of Black Rage theory to explain “an uncontrollable rage precipitated by racism and unequal treatment.”¹²¹ Such evidence, she argues, has been excluded not because of its faulty scientific underpinnings, but because it would apply broadly and apocalyptically to vast percentages of criminal defendants, and because, “[w]hile battered women are easily viewed as victims, young African-American men living in a world of violence are not.”¹²² In sum, therefore, she contends that social science evidence is frequently admitted in an asymmetrical manner—but in a manner that usually disfavors criminal defendants based upon political considerations.¹²³

D. Michael Risinger’s analysis of *Daubert* cases found similarly that, “[w]hen it comes to ‘summarizational’ or ‘educational’ expertise, prosecution witnesses almost always are allowed to testify, and defense witnesses are rejected in a majority of cases.”¹²⁴ Prosecutors typically introduce modus operandi witnesses (typically police officers who testify from their experience concerning the general way crimi-

Hoefel contends that the real reason that BWS has been accepted by the courts is that it is generally offered by a politically sympathetic segment of society—abused women—and thus it is an exception in the world of criminal defense evidence. *Id.* at 71.

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 69.

¹²⁰ *Id.*

¹²¹ *Id.* at 70 (quoting Deborah L. Goldklang, Note, *Post-Traumatic Stress Disorder and Black Rage: Clinical Validity, Criminal Responsibility*, 5 VA. J. SOC. POL’Y & L. 213, 216 (1997) (arguing that Black Rage meets the criteria for PTSD)).

¹²² Hoefel, *supra* note 74, at 71.

¹²³ *Id.* at 78–79. Hoefel has argued that, in light of this constitutional preference for protecting against convicting the innocent, “all reasonable doubts about the reliability of social science evidence in criminal cases [should] be resolved in favor of the accused—not the cause, person, or matter which society deems politically preferable.” Hoefel, *supra* note 74, at 42.

¹²⁴ Risinger, *supra* note 12, at 131–32 (footnote omitted).

nal schemes operate and the usual meaning of criminal slang and code words). Defendants typically introduce eyewitness identification experts. The former are almost always allowed, the latter less frequently.¹²⁵

Consistent with this observation, Christopher Slobogin has argued that the heightened reliability scrutiny of *Daubert* will actually be detrimental to criminal defendants and will make the system less fair and reliable because the type of experts that the defense tends to rely upon will have a harder time passing *Daubert* scrutiny than will prosecutors' experts, even though the defense evidence is important to a search for the truth.¹²⁶ The defense, he points out, typically presents experts involving claims about mental state, "such as insanity, lack of premeditation, extreme mental or emotional stress, or learned helplessness."¹²⁷ The prosecution, on the other hand, he says, "only needs experts on mental state issues if and when the defense decides to use a mental health professional."¹²⁸ But such social science evidence, he says, will have a harder time passing *Daubert* analysis than other scientific or expert evidence because mental states are inherently more difficult to prove than are questions about past acts; they "are closer to social constructions than objective facts."¹²⁹ In his recent book, *Proving the Unprovable*, Slobogin lays out a compelling argument for more lenient admissibility of defense state-of-mind evidence, as a matter of fairness and necessity.¹³⁰

As these commentators note, courts do restrict significant defense evidence in ways that undermine the search for the truth. Defendants have long sought, for example, to introduce expert eyewitness identification evidence to address a wide variety of counter-intuitive features of human perception and memory that juries need to understand when evaluating eyewitness testimony.¹³¹ While courts

¹²⁵ *Id.* at 132.

¹²⁶ Christopher Slobogin, *The Structure of Expertise in Criminal Cases*, 34 SETON HALL L. REV. 105, 109 (2003).

¹²⁷ *Id.*

¹²⁸ *Id.* at 109–10.

¹²⁹ *Id.* at 110.

¹³⁰ SLOBOGIN, *supra* note 2, at 39–40. To compensate for its inherent unprovability, Slobogin offers a rule of admissibility that he calls "generally accepted content validity," which would provide meaningful standards for reviewing state-of-mind expert evidence without unduly limiting its admissibility. *Id.* at 62.

¹³¹ For a valuable history of the attempts to use psychology to inform the law's understanding of eyewitnesses, see JAMES M. DOYLE, TRUE WITNESS: COPS, COURTS, SCIENCE, AND THE BATTLE AGAINST MISIDENTIFICATION (2004).

recently have become somewhat more receptive to such testimony,¹³² by and large courts considering the admissibility of eyewitness reliability expertise have excluded it.¹³³ Yet, of all the social sciences, expertise on eyewitness fallibility is some of the most rigorously tested and scientific; it “is an example of how ‘soft science’ can be ‘good science.’”¹³⁴ It has been subjected to decades of laboratory tests and some field research. As others have concluded, a strict *Daubert* analysis would lead to admitting expert witness testimony on eyewitness identifications.¹³⁵ Nonetheless, most courts still reject the testimony, although typically for reasons other than reliability¹³⁶—such as mis-

¹³² See, e.g., *United States v. Smithers*, 212 F.3d 306, 313 (6th Cir. 2000); *United States v. Stevens*, 935 F.2d 1380, 1401 (3d Cir. 1991); *United States v. Moore*, 786 F.2d 1308, 1313 (5th Cir. 1986); *People v. McDonald*, 690 P.2d 709, 721 (Cal. 1984), *overruled on other grounds by* *People v. Mendoza*, 4 P.3d 265, 278 (Cal. 2000); *State v. Dubray*, 77 P.3d 247, 255 (Mont. 2003); *State v. Shomberg*, 709 N.W.2d 370, 376 (Wis. 2006) (upholding exclusion of expert testimony, but noting that, “were this case to come before the circuit court today, given the developments that have occurred in the interim [including expanding judicial understanding of the research], it is highly likely that the judge would have allowed the expert to testify on factors that influence identification and memory”).

¹³³ Hoeffel, *supra* note 1, at 1326.

[A] review of the case law shows that the overwhelming majority of courts considering the admissibility of eyewitness reliability expertise have excluded it from trial. Of the federal courts of appeals, seven circuits have upheld the exclusion of eyewitness identification expert testimony, and only two circuits have upheld the admission of the testimony. Of the state court decisions since *Daubert*, all eighteen states considering the evidence have upheld its exclusion.

Id. at 1329 (citations and footnotes omitted); SLOBOGIN, *supra* note 2, at 30.

¹³⁴ Hoeffel, *supra* note 74, at 64 (citing Steven D. Penrod et al., *Expert Psychological Testimony on Eyewitness Reliability Before and After Daubert: The State of the Law and Science*, 13 BEHAV. SCI. & L. 229, 256 (1995); Wells et al., *supra* note 103, at 604.

¹³⁵ See *United States v. Langan*, 263 F.3d 613, 622 (6th Cir. 2001) (“[T]he science of eyewitness perception has achieved the level of exactness, methodology, and reliability of any psychological research.” (internal quotations omitted)); Peter J. Cohen, *How Shall They Be Known? Daubert v. Merrell Dow Pharmaceuticals and Eyewitness Identification*, 16 PACE L. REV. 237, 276–78 (1996) (arguing that expertise on eyewitness errors passes *Daubert* because it is testable and has been tested extensively; the data has been subjected to extensive publication and peer review; while the error rate of the research itself may not be discoverable, the research has demonstrated a high rate of error in eyewitness testimony; and the expertise has gained general acceptance in the relevant scientific community); Hoeffel, *supra* note 1, at 1331.

¹³⁶ Hoeffel, *supra* note 1, at 1325 (“The judicial decisions on the admission of eyewitness reliability expertise represent an example of . . . irrationality. Of the myriad forms of social science evidence which have entered through the courtroom doors, perhaps the most well-researched of those is expertise on eyewitness reliability.”); Hoeffel, *supra* note 74, at 64 (citing Roger B. Handberg, *Expert Testimony on Eyewitness Identification: A New Pair of Glasses for the Jury*, 32 AM. CRIM. L. REV. 1013, 1032 (1995)).

placed concerns that it will invade the province of the jury,¹³⁷ or that it provides nothing beyond the ken of ordinary people,¹³⁸ or because it is not based specifically on the facts of the given case or contact with the eyewitness involved.¹³⁹

Courts are even less receptive to other sorts of expert testimony, such as expert testimony about false confessions. Confession evidence is some of the most powerful evidence that can be offered against a criminal defendant because people commonly believe that if a person confessed, he must be guilty.¹⁴⁰ It is truly counter-intuitive to believe that a person would confess to a crime he did not commit, especially a heinous violent crime. But the postconviction DNA exonerations prove that people do indeed confess falsely and for a variety of reasons. Of the first 200 postconviction DNA exoneration cases, sixteen percent involved a false confession.¹⁴¹ Defense expertise can be important in helping jurors understand not only that false confessions do occur, but also the factors that can lead a person to confess falsely.¹⁴² False confession theory has been subjected to study, although not nearly as much study as eyewitness fallibility.¹⁴³ Janet Hoeffel concludes that “[f]alse confession theory appears to have a

¹³⁷ Research consistently demonstrates that expert testimony on eyewitness fallibility does not overwhelm jurors or make them too unwilling to accept eyewitness identifications, but rather helps them better understand such testimony. See Steven Penrod & Brian Cutler, *Preventing Mistaken Convictions in Eyewitness Identification Trials: The Case Against Traditional Safeguards*, in *PSYCHOLOGY AND LAW: THE STATE OF THE DISCIPLINE* 89, 114 (Ronald Roesch et al. eds., 1999); Neil J. Vidmar & Regina Schuller, *Juries and Expert Evidence: Social Framework Testimony*, 52 *LAW & CONTEMP. PROBS.* 133, 173 (1989).

¹³⁸ Research also demonstrates that lay people, including jurors and judges, harbor significant misconceptions about human memory and perception; expertise does indeed provide information that is counter-intuitive and therefore beyond the ken or ordinary jurors. See Penrod & Cutler, *supra* note 137, at 114; Richard A. Wise & Martin A. Safer, *What US Judges Know and Believe About Eyewitness Testimony*, 18 *APPLIED COGNITIVE PSYCHOL.* 427, 432 (2004).

¹³⁹ SLOBOGIN, *supra* note 2, at 30. Slobogin notes that this makes little sense, as this evidence is “social framework evidence par excellence.” *Id.* He elaborates that “[s]imply because information is general does not make it irrelevant to an individual situation.” *Id.* at 36. Indeed, many courts limit such testimony to such nomothetic evidence, as opposed to case-specific, idiopathic testimony. *Id.*

¹⁴⁰ Saul M. Kassir & Gisli H. Gudjonsson, *The Psychology of Confessions: A Review of the Literature and Issues*, 5 *PSYCHOL. SCI. IN THE PUB. INT.* 33, 56–58 (2004); Richard A. Leo, *False Confessions: Causes, Consequences, and Solutions*, in *WRONGLY CONVICTED*, *supra* note 47, at 36.

¹⁴¹ Garrett, *supra* note 23, at 60.

¹⁴² Hoeffel, *supra* note 74, at 66.

¹⁴³ For a summary of much of the false confession research literature, see Leo et al., *supra* note 105, at 514–20.

reliability level on par with BWS or RTS.”¹⁴⁴ Yet most courts have disallowed false confession expert testimony, even though they admit BWS and RTS testimony.¹⁴⁵

Perhaps even more troubling from the perspective of concern for protecting the innocent are doctrinal rules that expressly embrace limitations on the defendant’s ability to present a defense. Most notable in this regard is the direct connection doctrine, or its variants, which imposes significant limitations on the ability of defendants to introduce evidence of alternate or third-party suspects.¹⁴⁶ Third-party perpetrator evidence is not admissible in most jurisdictions merely if it is relevant. Rather, under the direct connection doctrine, the evidence must be both relevant in the traditional sense (i.e., it must have a “tendency” to make the defendant’s guilt “less probable”¹⁴⁷), and it must have a “direct connection” to the crime.¹⁴⁸ The rule frequently excludes evidence of strong motive or opportunity because courts often require “direct evidence placing the third party at the scene.”¹⁴⁹ Because this rule imposes a super-relevancy requirement

¹⁴⁴ Hoeffel, *supra* note 74, at 66. Although false confession testimony is generally accepted in the relevant scientific community, some argue that more research is needed before it can meet the *Daubert* standards for admissibility. See Major James R. Agar II, *The Admissibility of False Confession Expert Testimony*, ARMY LAW., Aug. 1999, at 26, 39–43.

¹⁴⁵ Hoeffel, *supra* note 74, at 67. In one notable exception, in which real doubts about the defendant’s guilt existed, the U.S. Court of Appeals for the Seventh Circuit held that the lower court misapplied *Daubert* in disallowing false confession testimony and remanded for consideration under the proper standards. *United States v. Hall*, 93 F.3d 1337 (7th Cir. 1996).

¹⁴⁶ Different jurisdictions use different terminology to describe the direct connection requirement, including “clearly link,” “point directly,” “point unerringly,” “inherent tendency,” or “legitimate tendency,” but all essentially have the same effect. See Findley & Scott, *supra* note 9, at 343 n.337.

¹⁴⁷ FED. R. EVID. 401.

¹⁴⁸ See Findley & Scott, *supra* note 9, at 342–45, 355–65; David McCord, “*But Perry Mason Made It Look So Easy!*”: *The Admissibility of Evidence Offered by a Criminal Defendant to Suggest That Someone Else Is Guilty*, 63 TENN. L. REV. 917, 921 (1996); Ellen Yankiver Suni, *Who Stole the Cookie from the Cookie Jar?: The Law and Ethics of Shifting Blame in Criminal Cases*, 68 FORDHAM L. REV. 1643, 1675 (2000).

¹⁴⁹ *State v. Williams*, 593 N.W.2d 227, 234 (Minn. 1999). The United States Supreme Court recently invalidated one of the most onerous versions of this rule. *Holmes v. South Carolina*, 547 U.S. 319 (2006). In *Holmes*, the South Carolina Supreme Court had held that a defendant may not introduce proof of third-party guilt if the prosecution had introduced forensic evidence that, if believed, strongly supported a guilty verdict. *Id.* at 323–24. While acknowledging the widely accepted general limitations on third-party-perpetrator evidence, the Court held that South Carolina’s variation of the rule went too far and violated the defendant’s constitutional right to present a defense. *Id.* at 329–31. The Court noted that, under South Carolina’s rule, if the prosecution appeared to have a strong case, no third-party guilt evidence, no matter how powerful or direct, was admissible. *Id.* This, the Court said,

on the defendant's ability to tell her story of innocence, it is hard to reconcile the rule with a professed overriding concern for protecting the innocent.¹⁵⁰

Similarly, the statements against penal interest exception to the hearsay rule asymmetrically burdens defense evidence of innocence. Federal Rule of Evidence 804 creates a hearsay exception for statements against penal interest if the declarant was unavailable at the time of trial.¹⁵¹ The rule, however, uniquely disfavors such evidence when offered by criminal defendants to show that someone else might have committed the crime. The rule provides: "A statement tending to expose the declarant to criminal liability and offered to exculpate the accused is not admissible unless corroborating circumstances clearly indicate the trustworthiness of the statement."¹⁵² The rule does not similarly burden such evidence when offered by the prosecution in a criminal case, or when offered by any party in a civil action. Again, such skewing of admissibility standards is hard to reconcile with an overriding commitment to protecting the innocent.¹⁵³

Eleanor Swift has also shown, in her contribution to this symposium, that courts apply disparate standards of admissibility for "contextual" evidence offered to complete the narratives presented by the parties. Drawing on narrative relevance, the story model of trial, and the relative plausibility theory of jury decision-making, she notes the importance of context-rich information to a party's ability to convince a jury of the truthfulness of his story, of his version of the truth.¹⁵⁴ She notes that the Supreme Court, in *Old Chief v. United*

"does not rationally serve the end that the [direct connection doctrine was] designed to promote, *i.e.*, to focus the trial on the central issues by excluding evidence that has only a very weak logical connection to the central issues." *Id.* at 330. The Court was also troubled by the asymmetry created by the South Carolina rule: "The rule applied in this case is no more logical than its converse would be, *i.e.*, a rule barring the prosecution from introducing evidence of a defendant's guilt if the defendant is able to proffer, at a pretrial hearing, evidence that, if believed, strongly supports a verdict of not guilty." *Id.* at 330.

¹⁵⁰ See Findley & Scott, *supra* note 9, at 355–65.

¹⁵¹ FED. R. EVID. 804(a), (b)(3).

¹⁵² FED. R. EVID. 804(b)(3).

¹⁵³ See James Joseph Duane, *The Proposed Amendments to Federal Rules of Evidence 608(b) and 804(b)(3): Two Great Ideas that Don't Go Far Enough*, 209 F.R.D. 235, 244–48 (2002); Findley & Scott, *supra* note 9, at 345–46, 355–65 (explaining that the rule is based on distrust of defense exculpatory evidence, and arguing that such distrust is misplaced); Peter W. Tague, *Perils of the Rulemaking Process: The Development, Application, and Unconstitutionality of Rule 804(b)(3)'s Penal Interest Exception*, 69 GEO. L.J. 851, 978–1011 (1981); Glen Weissenberger, *Federal Rule of Evidence 804: Admissible Hearsay from an Unavailable Declarant*, 55 U. CIN. L. REV. 1079, 1113–28 (1987).

¹⁵⁴ Swift, *supra* note 58.

States,¹⁵⁵ implicitly acknowledged “the narrative theory of decision making that underlies the story model”—at least when offered by the prosecution. She notes that *Old Chief* “places the Court’s imprimatur on the prosecution’s ability to use evidence of ‘guiltiness,’ not just of ‘guilt,’ in order to help ‘tell an involving and coherent story’”¹⁵⁶—a development that others, such as Michael Risinger, have decried as permitting prejudicial “heartstrings and gore” evidence to infect the trial on questions of guilt.¹⁵⁷ But Swift shows that such context evidence is not admitted evenly. In particular, she demonstrates how courts tend to apply the state-of-mind hearsay exception under Federal Rule of Evidence 803(3)¹⁵⁸ to exclude defendants’ statements about their then-existing state of mind, even though such evidence should be admissible under Rule 803(3), and even though it may be critical context information needed to make a defendant’s narrative complete and plausible.¹⁵⁹

Finally, some rules that put innocents at risk do so not by excluding defense evidence outright, but by burdening its introduction. For example, Federal Rule of Evidence 609, which permits cross-examination of a testifying defendant about her prior record, can prevent even an innocent defendant from taking the stand to tell the truth.¹⁶⁰ Accordingly, John Blume has argued that, because the current legal regime discourages even factually innocent defendants from telling their (true) stories at trial, the law should be changed.¹⁶¹ He argues that only prior convictions for perjury should be potentially available for impeachment purposes.¹⁶²

¹⁵⁵ 519 U.S. 172 (1997).

¹⁵⁶ Swift, *supra* note 58. *Old Chief* holds that it was error, in a trial for assault with a dangerous weapon and felon in possession of a firearm, to allow the prosecution to present evidence about the nature of the defendant’s prior conviction, rather than to accept his stipulation that he had a prior felony conviction. But in the course of so holding, the Court also declared that, in other circumstances, context evidence might be admissible “not just to prove a fact but to establish its human significance, and so to implicate the law’s moral underpinnings and a juror’s obligation to sit in judgment.” 519 U.S. at 187–88. The Court embraced evidence that seeks “as much to tell a story of guiltiness as to support an inference of guilt, to convince the jurors that a guilty verdict would be morally reasonable.” *Id.* at 188.

¹⁵⁷ Risinger, *supra* note 1, at 1307.

¹⁵⁸ FED. R. EVID. 803(3) (creating a hearsay exception for statement about “[t]hen existing mental, emotional, or physical condition”).

¹⁵⁹ Swift, *supra* note 58.

¹⁶⁰ John H. Blume, *The Dilemma of the Criminal Defendant with a Prior Record—Lessons from the Wrongfully Convicted*, 5 J. EMPIRICAL LEG. STUD. (forthcoming 2008), available at <http://www.ssrn.com/abstract=1014181>.

¹⁶¹ *Id.*

¹⁶² *Id.*

In sum, these admissibility patterns are perverse, at least if we take seriously our professed commitment to protecting the innocent as a highest-order value. While the system is not and cannot be symmetrical, it turns out that ours is asymmetrical in ways that compromise our commitment to protecting the innocent. But given the constitution's preference for giving voice and protection to criminal defendants, any asymmetry in admissibility should favor the defense, not the prosecution.¹⁶³ Hoeffel, for example, argues that psychological syndrome evidence such as BWS and RTS should generally be subjected to rigorous admissibility analysis under *Daubert* when offered by the prosecution, but that it should be more freely admitted when offered by the defense, in recognition of the defendant's constitutional right to present a defense.¹⁶⁴ Similarly, Slobogin contends that criminal defendants should have greater leeway in introducing defensive state-of-mind evidence: "[T]he criminal defendant, the party most likely to use mental health professionals to support culpability claims, has a special entitlement to voice, stemming from both constitutional and procedural justice principles. That entitlement . . . should trump concerns about scientific reliability."¹⁶⁵ Moreover, a number of scholars have argued cogently that there should be even greater leeway for defense experts on matters such as eyewitness fallibility, false confessions, and states of mind—matters that are all

¹⁶³ Christopher Slobogin, *The Admissibility of Behavioral Science Information in Criminal Trials: From Primitivism to Daubert to Voice*, 5 PSYCHOL. PUB. POL'Y & L. 100, 113–17 (1999).

¹⁶⁴ Hoeffel, *supra* note 74, at 78. Hoeffel argues that [w]hen faced with proffers of social science evidence on behalf of defendants, the courts must [apply right-to-present-a-defense principles] and admit the evidence, even if it is not *Daubert*-reliable, as long as it does not rise to such a level of untrustworthiness that the traditional tools of advocacy—cross-examination and hiring a prosecution expert for rebuttal are ineffective.

Id. But, she contends, "the courts must hold the prosecution's evidence up to *Daubert*'s light and engage in the honest assessments of the reliability of evidence that they have been avoiding." *Id.* at 79. Hoeffel notes that other commentators have similarly proposed such differing burdens of proof for the defense and prosecution. *Id.* at 79 n.235 (citing Paul Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, A Half-Century Later*, 80 COLUM. L. REV. 1197, 1248 (1980); David McCord, *Syndromes, Profiles and Other Mental Exotica*, 66 OR. L. REV. 19, 105–06 (1987); Slobogin, *supra* note 163, at 113; Andrew E. Taslitz, *Myself Alone: Individualizing Justice Through Psychological Character Evidence*, 52 MD. L. REV. 1, 117–19 (1993)).

¹⁶⁵ SLOBOGIN, *supra* note 2, at 40.

counter-intuitive—because such counter-intuitive information is particularly needed by and helpful to juries.¹⁶⁶

As things stand, however, criminal defendants are handicapped not only by their ability to generate their own evidence, but also by rules that fail to protect them from unreliable prosecution evidence and rules that burden their ability to present exculpatory evidence. And, as Part III will demonstrate, this asymmetry in the criminal justice system is particularly pronounced where forensic science evidence is concerned.

III. THE SPECIAL CASE OF FORENSIC SCIENCES

A. Adversary Failure

Forensic sciences have proven to be an especially difficult field for criminal defendants. For a variety of reasons, the way the criminal justice system handles forensic science evidence puts innocents at risk.

Considerable judicial and scholarly attention has been focused on problems attendant to the “battle of the experts” in civil litigation.¹⁶⁷ Regardless of how serious those problems might be in civil cases, at least in that arena there is a real “battle” between competing forces, which is essential to the proper functioning of the adversary system. Although not always true, in civil cases both adversaries frequently bring ample resources and a cadre of well-compensated experts to a relatively balanced playing field.¹⁶⁸ But in criminal cases, where the stakes are so much higher, there often is no serious adversary testing of forensic sciences. Typically, the field is anything but level.¹⁶⁹

As suggested above, the government has significantly greater access to forensic science services and experts than do most criminal defendants. Crime laboratories exist to provide such services to

¹⁶⁶ *Id.* at 79 (“[P]robative testimony tending to support an insanity, provocation, or lack of mens rea defense ought to be considered helpful because it rebuts legal and lay preconceptions about mental state.”); Risinger, *supra* note 1, at 1313.

¹⁶⁷ See generally Michael D. Green, *The Road Less Well Traveled (And Seen): Contemporary Lawmaking in Products Liability*, 49 DEPAUL L. REV. 377 (1999); Richard H. Underwood, “X-Spurt” Witnesses, 19 AM. J. TRIAL ADVOC. 343 (1995).

¹⁶⁸ See generally PETER W. HUBER, GALILEO’S REVENGE: JUNK SCIENCE IN THE COURTROOM (1991); see also Risinger, *supra* note 1, at 1310.

¹⁶⁹ Paul C. Giannelli, *The Supreme Court’s “Criminal” Daubert Cases*, 33 SETON HALL L. REV. 1071, 1072 (2003) (“Instead of worrying about the ‘hired gun’ phenomenon as in civil litigation, the criminal defense lawyer often lacks money for any ‘gun.’”).

prosecutors; no corresponding institutions exist for defendants.¹⁷⁰ And, because most defendants are indigent, their ability to hire experts is dependent on public funding of legal services to the indigent, which is abysmally inadequate in virtually every jurisdiction.¹⁷¹ Because funding for indigent defense is so inadequate, defense services are rationed in ways that put innocents at risk; rationing disfavors expensive, substantive innocence claims (such as expensive litigation about the validity of forensic evidence), and instead favors more inexpensive procedural constitutional claims.¹⁷² While the Supreme Court in *Ake v. Oklahoma*¹⁷³ recognized a constitutional right to publicly funded experts for the indigent, exercise of that right is dependent on the willingness of a local judge to order the expenditure of scarce local resources, and on a cumbersome case-by-case, expert-by-expert process for requesting funding. Any risk of failure of that case-by-case process to provide adequate expert services falls on the defendant, and courts have tended to apply *Ake* narrowly.¹⁷⁴ That sys-

¹⁷⁰ Indeed, a survey in 1985 revealed that seventy-nine percent of all laboratories were “located within law enforcement/public safety agencies.” Joseph L. Peterson et al., *The Capabilities, Uses, and Effects of the Nation’s Criminalistics Laboratories*, 30 J. FORENSIC SCI. 10, 11 (1985); see Paul C. Giannelli, “Junk Science”: *The Criminal Cases*, 84 J. OF CRIM. L. & CRIMINOLOGY 105, 118 (1993) (while “[o]btaining expert assistance is generally not a problem for the prosecution, which has access to the services of state, county, or metropolitan crime laboratories . . . [f]orensic laboratory services . . . are not generally available to criminal defendants”).

¹⁷¹ See Adele Bernhard, *Effective Assistance of Counsel*, in *WRONGLY CONVICTED*, *supra* note 47, at 220, 226; Stephen B. Bright, *Counsel for the Poor: The Death Sentence Not for the Worst Crime but for the Worst Lawyer*, 103 YALE L.J. 1835, 1870 (1994); Brown, *supra* note 24, at 1590 (noting that, because “defense counsel’s commitment is not to accuracy; it is to his or her clients, many of whom want inaccuracy to mask their guilt,” “[l]egislatures . . . have responded to Court mandates for defense counsel by consistently underfunding defenders in order to constrain their effectiveness”).

¹⁷² William J. Stuntz, *The Uneasy Relationship Between Criminal Procedure and Criminal Justice*, 107 YALE L.J. 1, 32 (1997).

¹⁷³ 470 U.S. 68 (1985).

¹⁷⁴ See Giannelli, *supra* note 169, at 1095 (quoting STEPHEN A. SALTZBURG & DANIEL J. CAPRA, *AMERICAN CRIMINAL PROCEDURE* 802 (6th ed. 2000) (“Generally speaking the courts have read *Ake* narrowly, and have refused to require appointment of an expert unless it is absolutely essential to the defense.”)); Peter J. Neufeld & Neville Colman, *When Science Takes the Witness Stand*, 262 SCI. AM. 46, 50 (1990) (noting DNA cases in which the defense did not retain any experts “because the presiding judge had refused to authorize funds”); see also JOHN GRISHAM, *THE INNOCENT MAN: MURDER AND INJUSTICE IN A SMALL TOWN* 202 (2006) (describing how an Oklahoma trial court denied Ron Williamson’s request for an expert to assist his defense, despite his pressing need for such assistance; Williamson was convicted and sentenced to death, only to be exonerated by DNA testing years later).

tem comes nowhere close to providing the level of forensic sciences assistance that is needed, or that is available to the prosecution.¹⁷⁵

A corollary, and perhaps in part an outgrowth, of that system is that prosecutors have the ability to organize themselves into special units with expertise in various forensic sciences. A particular prosecutor or unit of prosecutors, at least in larger jurisdictions or in State Justice Departments that can assist smaller local prosecutors' offices, can become expert, for example, in DNA analysis or other types of scientific evidence.¹⁷⁶ Then, when a case with significant scientific evidence in those areas arises, those prosecutors are assigned to prosecute or assist local prosecutors in those cases.

The defense bar is not similarly organized. Most defense lawyers operate on their own, with little assistance from any other lawyers (except in capital cases, where it is common to have two or sometimes more attorneys assigned). Typically, the lawyers are assigned or hired to take whatever cases arise, without regard to specialized expertise. Public defender services in many states are not organized beyond the county level, and appointments are still made in many jurisdictions by local courts.¹⁷⁷ Even in states with organized statewide public defender services, the kind of organization that prosecutors bring to bear is unusual. Simply put, "[p]rosecutors are much better at sharing information than defense attorneys[, in part] because the government is by its nature a more coherent entity than the defense bar, but . . . also because the state is better able to anticipate the scientific issues that will arise and act accordingly."¹⁷⁸

Without organized assistance, the defense bar as a whole is generally unprepared to utilize or challenge scientific evidence adequately. Most lawyers have no training or experience in the sciences and are naturally intimidated and overwhelmed by scientific evi-

¹⁷⁵ See Paul C. Giannelli, *Forensic Science*, 33 J.L. MED. & ETHICS 535, 539 (2005) (describing the inadequacy of defense expert funding under federal statutory schemes and *Ake*).

¹⁷⁶ For an example of some of a prosecutor's trailblazing work with DNA, see *DNA Links Prisoner to Death 18 Years Ago: Homicide Charges Filed in Milwaukee Cold-Case Slaying*, WIS. ST. J., Jan. 29, 2008, at B5. In Wisconsin, for example, Milwaukee County Assistant District Attorney Norm Gahn has become the state's acknowledged expert in DNA evidence. *Id.* Gahn has served on former Attorney General Janet Reno's National Commission on the Future of DNA Evidence, and pioneered innovative uses of DNA in criminal prosecutions. *Id.* When high-profile and complicated DNA prosecutions have arisen, anywhere in the State, Gahn has been called in to assist in the prosecution. *Id.*

¹⁷⁷ Bernhard, *supra* note 171, at 227.

¹⁷⁸ Slobogin, *supra* note 126, at 117.

dence.¹⁷⁹ As a consequence, until recently most of the forensic sciences utilized by prosecutors were rarely challenged by defense lawyers, but were merely accepted as good science, whose results were presumed valid.¹⁸⁰

In *Daubert*, and subsequently in *General Electric Co. v. Joiner*,¹⁸¹ and then *Kumho Tire*, the Supreme Court provided a new framework for screening scientific and expert evidence, which appeared to promise rigorous scrutiny of the forensic sciences. *Daubert* broke dramatically from the admissibility standard that had been established in *Frye v. United States*.¹⁸² Under *Frye*, courts admitted scientific evidence if it was “generally accepted” in the relevant scientific field.¹⁸³ *Frye* essentially deferred questions of reliability and scientific validity to the scientists who were proponents or practitioners in that particular scientific or technical field.¹⁸⁴ *Frye* was criticized because it admitted “bad” science—“junk science”¹⁸⁵—by allowing scientists to “self-validate” their own fields, while at the same time excluding some “good” science simply if it was too new to have gained general acceptance.¹⁸⁶

¹⁷⁹ See ANDRE A. MOENSSENS ET AL., SCIENTIFIC EVIDENCE IN CRIMINAL CASES 7 (3d ed. 1986) (“[L]awyers as a group evidence an appalling degree of scientific illiteracy, which ill equips them to educate and guide the bench in its decisions on admissibility of evidence proffered through expert witnesses.”); Jonakait, *supra* note 5, at 348, 349 (noting that, even with an experienced and respected defense lawyer, “when it came to the scientific and mathematical testimony, the adversary system ceased to exist and the evidence was not challenged,” and that, “[p]erhaps as a group, attorneys are reasonably bright people who became lawyers partly because they were afraid of science and math”).

¹⁸⁰ Nearly twenty years ago Peter Neufeld and Neville Colman observed that, because they lack an adequate scientific background, “lawyers rarely do more than review the qualifications of the expert (typically based on perfunctory queries about institutional affiliation and publications) and verify the facts on which the expert’s conclusions are based.” Neufeld & Colman, *supra* note 174, at 49; see also *id.* at 52 (describing how, when DNA was first used in criminal prosecutions, defense attorneys almost always “failed to obtain the raw population data on which conclusions about allele frequencies were predicated,” “failed to present any expert witnesses” of their own, and engaged in only “perfunctory” cross-examination of the prosecution’s experts).

¹⁸¹ 522 U.S. 136 (1997).

¹⁸² 293 F. 1013 (D.C. Cir. 1923).

¹⁸³ *Id.* at 1014.

¹⁸⁴ Michael J. Saks, *The Aftermath of Daubert: An Evolving Jurisprudence of Expert Evidence*, 40 JURIMETRICS J. 229, 230 (2000) (“*Frye*-like tests allowed judges to piggy-back their decisions onto someone else’s judgment of whether the proffered evidence was sufficiently valid to be admitted.”).

¹⁸⁵ See HUBER, *supra* note 168, at 14–15 (1993). But see generally Gary Edmond & David Mercer, *Trashing “Junk Science”*, 1998 STAN. TECH. L. REV. 3 (criticizing the “junk science” argument).

¹⁸⁶ See Hoefel, *supra* note 1, at 1319. Michael Saks has observed that “the *Frye* test suffers from a special paradox: because less rigorous fields will reach a state of ‘gen-

Daubert changed that; under *Daubert*, “[j]udges, and not scientists, would now be the ‘gatekeepers’ of scientific evidence.”¹⁸⁷ *Daubert* instructs judges to scrutinize the reliability¹⁸⁸ of the scientific or technical evidence instead of deferring to the general acceptance of the scientists.¹⁸⁹ To undertake this gatekeeping role, *Daubert* says, courts are to apply a flexible approach, which should include consideration of four factors in particular: whether the theory or technique can be and has been tested; whether the theory or technique has been subjected to peer review and publication; the technique’s known or potential error rate; and whether the theory or technique is generally accepted in the relevant field (the *Frye* element).¹⁹⁰ These are the tools, the Supreme Court instructs, that lawyers and courts should rigorously apply to screen scientific and technical evidence for reliability.

eral acceptance’ more readily than more rigorous fields, courts employing *Frye* will more readily admit the offerings of less dependable fields and less readily admit the offerings of more dependable fields.” Saks, *supra* note 184, at 231.

¹⁸⁷ Hoeffel, *supra* note 1, at 1320.

¹⁸⁸ In scientific terms, “reliability” refers to a scientific test’s consistency, that is, its ability to replicate its results in repeated examinations, while “validity” refers to a test’s accuracy, that is, its ability to measure what it claims to measure. See 1 MODERN SCIENTIFIC EVIDENCE, *supra* note 116, at § 4-2.3; Paul C. Giannelli, *Polygraph Evidence: Post-Daubert*, 49 HASTINGS L.J. 895, 911 (1998). *Daubert* generally uses “reliability” to include what in scientific terms would be considered both “reliability” and “validity.” See Joëlle Anne Moreno, *Beyond the Polemic Against Junk Science: Navigating the Oceans that Divide Science and Law with Justice Breyer at the Helm*, 81 B.U. L. REV. 1033, 1068 (2001). In this Article, I use “reliability” in the lay sense as it is used in *Daubert*, to include both scientific validity and reliability.

¹⁸⁹ To be sure, *Daubert* was viewed initially and in part as loosening the admissibility of scientific evidence because it would permit courts to admit new scientific theories or techniques before they could be said to have obtained “general acceptance.” See Hoeffel, *supra* note 1, at 1317–18, 1318 n.233. Hoeffel notes that, in *Daubert*, the Court stated that “a rigid ‘general acceptance’ requirement would be at odds with the ‘liberal thrust’ of the Federal Rules and their ‘general approach of relaxing the traditional barriers to ‘opinion’ testimony.” *Id.* at 1318 n.233 (quoting *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 588 (1993)). But *Daubert* also promised to impose more searching *judicial* scrutiny of scientific reliability, by shifting the gatekeeping role to the courts. *Id.* at 1320. And by the time the Court had decided *Joiner* and *Kumho Tire*, the Court had clearly signaled that it was “moving from a liberal standard of admissibility as suggested in *Daubert*, to an exacting standard.” Giannelli, *supra* note 170, at 1080; see also David L. Faigmen, et al., *How Good is Good Enough?: Expert Evidence under Daubert and Kumho*, 50 CASE W. RES. L. REV. 645, 656 (2000) (noting that *Daubert* generally raised the height of the admissibility bar, but that it is more liberal than *Frye* “when the expert evidence is solid, but on the cutting edge, and therefore not generally accepted”). By the time the Court decided *Weisgram v. Marley Co.*, 528 U.S. 440 (2000), the Court said that *Daubert* imposed “exacting standards of reliability.” *Id.* at 455.

¹⁹⁰ See *Daubert*, 509 U.S. at 593–94.

That rigorous screening, however, has not materialized with respect to forensic science evidence offered by the prosecution in criminal cases. “Fingerprints, handwriting comparison, microscopic hair analysis, fiber analysis, ballistics, arson investigations, forensic odontology—indeed most of the forensic sciences—have become fixtures in criminal cases, and until recently their reliability, objectivity, and claim to scientific foundation—and hence admissibility—have scarcely been the subject of inquiry.”¹⁹¹ Peter Neufeld has observed that *Daubert’s* promise of rigorous screening for scientific reliability has not materialized in criminal cases because defense lawyers rarely raise serious *Daubert* challenges to the prosecution’s forensic science evidence.¹⁹² Empirical data confirms that little adversary testing of scientific evidence or experts is offered in criminal cases, both in the United States and Great Britain.¹⁹³

Yet many commentators have noted that much of the forensic science evidence used to obtain convictions is of dubious scientific validity and would not pass scrutiny if *Daubert* were applied rigorously.¹⁹⁴ Proficiency testing of the forensic individualization sciences (those that purport to match an individual to a piece of evidence) consis-

¹⁹¹ Keith A. Findley, *The Pedagogy of Innocence: Reflections on the Role of Innocence Projects in Legal Education*, 13 CLINICAL L. REV. 231, 245 (2006); see Michael J. Saks & Jonathan Koehler, *The Coming Paradigm Shift in Forensic Identification Science*, 309 SCI. 892, 892–94 (2005).

¹⁹² Neufeld, *supra* note 12, at S107–10.

¹⁹³ Risinger, *supra* note 12, at 135; Lois Rogers, *The Expert as Judge and Jury*, TIMES ONLINE, Nov. 18, 2007, <http://business.timesonline.co.uk/tol/business/law/article2889323.ece> (“A study by senior barrister Penny Cooper of City University in London, has shown that the majority of lawyers and judges do not bother to check the qualifications of experts they approach to bolster an aspect of their case.”).

¹⁹⁴ See, e.g., Saks, *supra* note 184, at 237–40 (2000); ERICA BEECHER-MONAS, EVALUATING SCIENTIFIC EVIDENCE: AN INTERDISCIPLINARY FRAMEWORK FOR INTELLECTUAL DUE PROCESS 94–95 (2007) (“Many time-honored methods of criminal identification, such as hair analysis, voice spectrography, and bitemark identification, to name a few, have turned out to have no better foundation than ancient divination rituals.”). As Randolph Jonakait has explained,

little or no meaningful testing has ever been performed on many forensic science procedures. Little is also known about the true error rates for almost all forensic science techniques. The few disclosed error rates, however, are shockingly high. Most forensic science operates outside of the peer review systems, and forensic science is seldom published. While forensic science techniques are accepted in forensic science, many are not accepted by a broader scientific community. Furthermore, the techniques accepted in forensic science are not used in such a way that would reveal their methodological flaws, if any.

In other words, if *Daubert* is taken seriously, then much of forensic science is in serious trouble.

Randolph N. Jonakait, *The Meaning of Daubert and What That Means for Forensic Science*, 15 CARDOZO L. REV. 2103, 2117 (1994) (footnotes omitted).

tently shows alarmingly high error rates.¹⁹⁵ One glimpse of the problem is revealed by the fact that use of fraudulent, mistaken, or misleading forensic science contributed to fifty-five percent of the first 200 DNA exonerations.¹⁹⁶ As others have pointed out, hair microscopy has little scientific basis and has been exposed as wrong by DNA testing of the examined hairs in a significant percentage of cases.¹⁹⁷ Serology tests, even though themselves usually reliable, have been misused in many wrongful conviction cases (serology evidence was used in forty percent of the wrongful convictions exposed by post-conviction DNA testing).¹⁹⁸ Comparative bullet lead analysis (CBLA) has recently been abandoned after decades of use because an exhaustive analysis by the National Research Council concluded that there was no scientific basis for the claim that it could “match” crime scene bullets to particular boxes of bullets.¹⁹⁹ Other forensic “sciences,” including traditional ballistics identification,²⁰⁰ bite mark identification,²⁰¹ and handwriting analysis,²⁰² among others, similarly lack a

¹⁹⁵ See Randolph N. Jonakait, *Forensic Science: The Need for Regulation*, 4 HARV. J.L. & TECH. 109, 109–24 (1991) (describing the results of various proficiency tests).

¹⁹⁶ Garrett, *supra* note 23, at 59–60, 75.

¹⁹⁷ Garrett, *supra* note 23, at 83 (noting that, of the first 200 DNA exoneration cases, 43 (22%) involved false hair or fiber comparisons); Giannelli, *supra* note 169, at 1074–76, 1096–97 (citing high error rates in hair microscopy cases, cases in which examiner error was exposed through postconviction DNA testing, and cases in which the scientific basis for the technique has been challenged); Paul C. Giannelli & Emmie West, *Forensic Science: Hair Comparison Evidence*, 37 CRIM. L. BULL. 514, 514 (2001); Neufeld, *supra* note 12, at S107–08; Clive A. Smith & Patrick D. Goodman, *Forensic Hair Comparison Analysis: Nineteenth Century Science or Twentieth Century Snake Oil*, 27 COLUM. HUM. RTS. L. REV. 227, 290–91 (1996) (discussing the questionable scientific foundation of microscopic hair analysis).

¹⁹⁸ See Garrett, *supra* note 23, at 81; Jonakait, *supra* note 195, at 111; Jonakait, *supra* note 5, at 349 (describing the misuse of serology evidence in a case); Neufeld, *supra* note 12, at S108.

¹⁹⁹ See NAT'L RES. COUNCIL, FORENSIC ANALYSIS: WEIGHING BULLET LEAD EVIDENCE (2004) [hereinafter NRC, BULLET LEAD EVIDENCE]; Jane Campbell Moriarty, *Misconvictions, Science, and the Ministers of Justice*, 86 NEB. L. REV. 1, 7–8 (2007); John Solomon, *FBI's Forensic Test Full of Holes*, WASH. POST, Nov. 18, 2007, at A1.

²⁰⁰ See Giannelli, *supra* note 169, at 1096–98; Joan Griffin & David J. LaMagna, Daubert Challenges to Forensic Evidence: Ballistics Next on the Firing Line, CHAMPION, Sept.–Oct. 2002, at 20–21.

²⁰¹ See GRISHAM, *supra* note 174, at 263 (describing the flawed bite mark evidence in Greg Wilhoit's wrongful conviction); I.A. Pretty & D. Sweet, *The Scientific Basis for Human Bitemark Analyses—A Critical Review*, 41 SCI. & JUST. 85 (2001); Giannelli, *supra* note 169, at 1096–98; Flynn McRoberts & Steve Mills, *From the Start, A Faulty Science: Testimony on Bite Marks Prone to Error*, CHI. TRIB., Oct. 19, 2004, at 1; Flynn McRoberts, *Bite-Mark Verdict Faces New Scrutiny*, CHI. TRIB., Nov. 29, 2004, at 1.

²⁰² See D. Michael Risinger, Mark P. Denbeaux, & Michael J. Saks, *Exorcism of Ignorance as a Proxy for Rational Knowledge: The Lessons of Handwriting Identification* “Exper-

solid foundation in science, and have been misused to convict innocent people. And even more venerable forensic evidence, such as fingerprints²⁰³ and DNA typing,²⁰⁴ have produced proven errors.²⁰⁵

Worse yet, even in cases where crime laboratory analysts engaged in outright fraud, the defense bar has failed to scrutinize or challenge the work of those analysts. Scandals such as the faked work of Fred Zain in West Virginia²⁰⁶ and Joyce Gilchrist in Oklahoma,²⁰⁷ as well as

tise", 137 U. PA. L. REV. 731, 734 (1989); Giannelli, *supra* note 169, at 1096 & n.150 (citing cases).

²⁰³ Simon Cole has catalogued twenty-two cases in which fingerprint evidence was mistaken. Simon A. Cole, *More Than Zero: Accounting for Error in Latent Fingerprint Identification*, 95 J. CRIM. L. & CRIMINOLOGY 985, 991 (2005). Among the mistaken fingerprint matches, one of the most notorious in recent years is that of Brandon Mayfield. FBI analysts investigating the Madrid terrorist bombing in 2004 matched Mayfield's fingerprints to a crime scene print, claiming the match was "a 100% identification." *Id.* at 985–86. Subsequent analysis by Spanish authorities linked the print to Ouhmane Daoud, an Algerian national living in Spain, and the FBI eventually conceded that its analysts had erred. *Id.* at 986; *see also* OFFICE OF THE INSPECTOR GENERAL, U.S. DEP'T OF JUSTICE, A REVIEW OF THE FBI'S HANDLING OF THE BRANDON MAYFIELD CASE (2006); Giannelli, *supra* note 169, at 1096–97 & n.152 (citing cases); Paul C. Giannelli, *Wrongful Convictions and Forensic Science: The Need to Regulate Crime Labs*, 86 N.C. L. REV. 163, 203–05 (2008); Neufeld, *supra* note 12, at S108. For an interesting analysis of Judge Pollak's two conflicting fingerprint opinions in *United States v. Llera Plaza*, 179 F. Supp. 2d 492 (E.D. Pa. 2002) and 188 F. Supp. 2d 549 (E.D. Pa. 2002), *see* Denbeaux & Risinger, *supra* note 56, at 66–74.

²⁰⁴ Of the first 200 DNA exonerations, three involved faulty DNA evidence introduced at trial. Garrett, *supra* note 23, at 81, 84.

²⁰⁵ For error rates on many of these identification sciences, *see* Saks & Koehler, *supra* note 191, at 895.

²⁰⁶ As the Chief Serologist in West Virginia for ten years, Fred Zain engaged in a pattern of overstating and misrepresenting the results of laboratory analyses, reporting results that were impossible or reporting results on tests never conducted. *See In re Investigation of the W. Va. State Police Crime Lab, Serology Div.*, 438 S.E.2d 501, 503 (W. Va. 1993). Zain's misconduct was so rampant that the West Virginia Supreme Court concluded that, "as a matter of law, any testimonial or documentary evidence offered by Zain at any time in any criminal prosecution should be deemed invalid, unreliable, and inadmissible in determining whether to award a new trial in any subsequent habeas corpus proceeding." *Id.* at 506 (quoting judicial Report of Judge James O. Holliday); *see also* George Castelle, *Lab Fraud: Lessons Learned from the "Fred Zain Affair"*, CHAMPION, May 1999, at 12–13; Giannelli, *supra* note 203, at 172–74.

²⁰⁷ Raeder, *supra* note 108.

Joyce Gilchrist, an African-American forensic chemist, known as "Black Magic" for her ability to sway juries with evidence only she could see, was later investigated when many of her incorrect hair analyses were disclosed by DNA exonerations. In a reversal of one of her more egregious cases, the court found that she knew her testimony was false and misleading because it was contradicted by evidence that was withheld from the defense.

Id. at 1421 (citing Randall Coyne, *Dead Wrong in Oklahoma*, 42 TULSA L. REV. 209, 236 (2006), and Mitchell v. Gibson, 262 F.3d 1036, 1064 (10th Cir. 2001)); *see also* Gian-

other fraudulent or sloppy work in places like Montana,²⁰⁸ the FBI Crime Laboratory,²⁰⁹ and the Houston Crime Laboratory,²¹⁰ among many others,²¹¹ went undetected for long periods of time because defense counsel failed to scrutinize and challenge their work.²¹²

Part of the problem with the forensic sciences has been that they have emerged and flourished in a setting and culture that is far different than that for academic sciences. Almost all of the forensic sciences developed in police crime laboratories to aid the investigation

nelly, *supra* note 203, at 174–82; Jim Yardley, *Inquiry Focuses on Scientist Employed by Prosecutors*, N.Y. TIMES, May 2, 2001, at A1.

²⁰⁸ In Montana, hair microscopist Arnold “‘Melnikoff repeatedly used an invalid system of hair analysis’ which always seemed to ‘place defendants at the scenes of Montana’s most heinous crimes.’” Craig M. Cooley, *Forensic Science and Capital Punishment Reform: An “Intellectually Honest” Assessment*, 17 GEO. MASON U. CIV. RTS. L.J. 299, 377 n.373 (2007) (quoting Charlie Gillis, *Scandal in the Forensic Labs: Hundreds of Cases Undergoing Review in Montana*, NAT’L POST, Feb. 1, 2003, at B1); see also Giannelli, *supra* note 203, at 182–85; Adam Liptak, *2 States to Review Lab Work of Expert Who Erred on ID*, N.Y. TIMES, Dec. 19, 2002, at A24.

²⁰⁹ Even the elite FBI Crime Laboratory has been touched by scandal, including cases in which analysts “gave inaccurate and incomplete testimony and testified to invalid opinions that appeared tailored to the most incriminating result.” OFFICE OF INSPECTOR GENERAL, U.S. DEP’T OF JUSTICE, *THE FBI LABORATORY: INVESTIGATION INTO THE LABORATORY PRACTICES AND ALLEGED MISCONDUCT IN EXPLOSIVE-RELATED AND OTHER CASES*, Executive Summary pt. III, § C. (Apr. 1997); see also OFFICE OF THE INSPECTOR GENERAL, U.S. DEP’T OF JUSTICE, *THE FBI DNA LABORATORY: A REVIEW OF PROTOCOL AND PRACTICE VULNERABILITIES* (2004).

²¹⁰ See Erin Murphy, *The New Forensics: Criminal Justice, False Certainty, and the Second Generation of Scientific Evidence*, 95 CAL. L. REV. 721, 755 (2007) (describing scandal over shoddy work in the Houston Crime Laboratory). According to Dr. Elizabeth Johnson, a former medical examiner with the Harris County Medical Examiner’s Office, Houston Police Department examiners “intentionally mislead And in all the cases . . . they always mislead in favor of a conviction.” Cooley, *supra* note 208, at 377 n.373 (quoting Steve McVicker, *Lab Chief’s Testimony in 3 Cases Questioned: Court Transcripts Show HPD Work Was Wrong*, HOUSTON CHRON., Mar. 29, 2003, at A37); see also Giannelli, *supra* note 203, at 187–92.

²¹¹ See Garrett, *supra* note 23, at 64 (noting that scandals “have occurred at DNA laboratories in at least seventeen states”); Giannelli, *supra* note 203, at 166–208 (describing lab problems in Baltimore, Chicago, Cleveland, Los Angeles, Fort Worth, Montana, Oklahoma City, San Antonio, Seattle, Virginia, West Virginia, the FBI, and other jurisdictions); Murphy, *supra* note 210, at 755 n.154 (citing scandal and malfeasance at numerous laboratories around the country). For a recent account of forensic fraud in Ohio, see *DNA Proves Forensic Analyst Gave False Testimony*, NORTH COUNTRY GAZETTE, Feb. 15, 2008, available at http://www.northcountrygazette.org/news/2008/02/15/false_forensic_testimony. For a recent account of ethical lapses and mistakes in the State of Washington toxicology lab, see Rachel La Corte, *Head of WA State Patrol Forensic Lab Bureau Resigns*, THE COLUMBIAN, Feb. 14, 2008, available at <http://news.columbian.com/news/state/APStories/AP02152008news278407.cfm>.

²¹² Neufeld, *supra* note 12, at S107, S109.

and prosecution of crimes.²¹³ Most have no corollary in the academic sciences;²¹⁴ they are not studied, taught, or tested in academic settings where reliability and accuracy—scientific “truth”—are the only values. Rather, they are developed and utilized in the adversarial world of crime investigation and prosecution, where those developing and evaluating the methods have an incentive to assume or accept their validity because they are useful in producing evidence of guilt.²¹⁵ Apart from DNA,²¹⁶ almost all of the individualization forensic sciences, including the most venerated of the pre-DNA forensic sci-

²¹³ William C. Thompson, *A Sociological Perspective on the Science of Forensic DNA Testing*, 30 U.C. DAVIS L. REV. 1113, 1114 (1997).

²¹⁴ See Jonakait, *supra* note 195, at 148 (“Unlike many other endeavors, forensic science is often unable to adopt scientific knowledge and techniques from related areas. Frequently, there is no related discipline to draw upon.”).

²¹⁵ Thompson, *supra* note 213, at 1113–18. Thompson argues that “[f]orensic scientists play a fundamentally different role in society than do academic scientists. The major imperative of the academic scientist is to advance scientific knowledge—to find truth through the use of the scientific method.” *Id.* at 1113. For forensic scientists, on the other hand, Thompson says the “major purpose is to provide a service to a client by answering specific questions about evidence.” *Id.* at 1114. Accordingly, “forensic scientists have incentives to put the best possible face on their work, to promote the impression that their techniques are accurate and reliable and that their conclusions are trustworthy.” *Id.* Thompson maintains that forensic scientists thus have incentives to “avoid openly raising questions about the reliability of forensic tests, avoid public discussion of technical problems or concerns, and refrain from publicly criticizing the work of other forensic scientists.” *Id.* And, because the forensic scientist’s primary client is law enforcement, forensic scientists are susceptible to being co-opted so that they “adopt the goals of their clients as their own,” which “is problematic because the goals of law enforcement sometimes conflict with the goals of scientific objectivity and neutrality.” *Id.* at 1115; see Risinger, *supra* note 12, at 126 (DNA is distinguished among the forensic “sciences” because “DNA science is real science. It was initially developed in academic scientific research for reasons having nothing directly to do with its courtroom applications. It deals with a purely empirical issue appropriate to resolution by normal scientific methods.”) (footnotes omitted); Saks, *supra* note 184, at 240–41 (noting that the forensic identification sciences “have little or no existence outside the courts. They have few academic and no commercial counterparts that would carry out testing and development for their own purposes.”). Paul Giannelli elaborates:

[T]he research scientists who testified as experts in the DNA cases (for both the prosecution and defense) came from a “scientific” culture, unlike the many forensic examiners who work in crime laboratories and are sometimes described as “cops in lab coats.” The DNA scientists were comfortable with quality control procedures, demanded written protocols, viewed proficiency testing as a positive development, and believed in open science and “not trial by ambush.” All this was new to forensic science, which had grown to maturity in an adversarial environment.”

Giannelli, *supra* note 169, at 1106–07 (footnotes omitted).

²¹⁶ “DNA typing is the exception. It is the first individualization science derived from traditional science.” Jane Campbell Moriarty & Michael J. Saks, *Forensic Science: Grand Goals, Tragic Flaws, and Judicial Gatekeeping*, JUDGES J., Fall 2006, at 16–17.

ences—fingerprint analysis—are premised on untested assumptions and unknown error rates,²¹⁷ are not supported by statistical analyses that measure the significance of any purported matches,²¹⁸ are ultimately subjective,²¹⁹ and hence are sometimes flat wrong.²²⁰

When defense challenges to forensic science evidence are brought, they are usually ineffectual. Noting that most criminal defendants are represented by poorly funded public defenders, contract attorneys, or appointed counsel, Neufeld observes:

Unlike the extremely well-litigated civil challenges, the criminal defendant's challenge is usually perfunctory. Even when the most vulnerable forensic sciences—hair microscopy, bite marks, and handwriting—are attacked, the courts routinely affirm admissibility citing earlier decisions rather than facts established at a hearing. Defense lawyers generally fail to build a challenge with appropriate witnesses and new data. Thus, even if inclined to mount a *Daubert* challenge, they lack the requisite knowledge and skills, as well as the funds, to succeed.²²¹

Neufeld's assessment is confirmed by data compiled by Michael Risinger, who examined every one of the 1600 state and federal cases in the Westlaw database that cited *Daubert* between *Daubert's* date of

²¹⁷ See Cooley, *supra* note 51, at 397 (noting that "error rates for many forensic scientists are not known"); Jonakait, *supra* note 194, at 2117.

²¹⁸ No databases exist that catalogue fingerprint patterns or the frequency of any such patterns in any population groups. See Moriarty & Saks, *supra* note 216, at 18. Without such databases, no statistical assessment can be made of the frequency with which any particular series or collection of fingerprint patterns might appear randomly in the population. See Robert Epstein, *Fingerprints Meet Daubert: The Myth of Fingerprint "Science" is Revealed*, 75 S. CAL. L. REV. 605, 609–13 (2002). DNA analysis, by contrast, carefully assesses the frequency of particular alleles—or genetic variations—in various population subgroups. See generally NAT'L INST. OF JUSTICE, U.S. DEPT. OF JUSTICE, THE FUTURE OF FORENSIC DNA TESTING: PREDICTIONS OF THE RESEARCH AND DEVELOPMENT WORKING GROUP 20–26 (2000). With that data, scientists can calculate the chances of a random match to any particular DNA profile in a given population group. *Id.* Without such data for fingerprints, analysts use their subjective judgment to determine when a series of fingerprint patterns is unique and rare enough to be deemed a match to the suspect, to the exclusion of all other persons. See Epstein, *supra*, at 612–14; Moriarty, *supra* note 199, at 13.

²¹⁹ Moriarty & Saks, *supra* note 216, at 26, 28.

²²⁰ See *id.* at 19–22, 24–25. Ironically, although DNA is the most scientific of the forensic sciences, it is also the science that has been subjected to the most rigorous legal challenge and judicial scrutiny. Yet, "[i]t was only when scientists from the wider scientific community became acquainted with how DNA technology was being applied forensically that doubts about the reliability of DNA evidence were brought to the attention of the legal system." Mike Redmayne, *Expert Evidence and Scientific Disagreement*, 30 U.C. DAVIS L. REV. 1027, 1047 (1997). Those doubts and challenges led to additional research, which ultimately improved the practice relating to and acceptance of DNA evidence. *Id.* at 1049–50.

²²¹ Neufeld, *supra* note 12, at S110.

decision in 1993 and August 2, 1999. Risinger found that the defense bar had failed to raise serious challenges to even the most dubious of forensic evidence proffered by prosecutors.²²² Risinger writes:

When I first started looking at these post-*Daubert* cases, I expected to find records of multiple well-litigated attacks on the weakest kinds of common prosecution-proffered expertise, with any system bias coming from judicial decisions. What I found was an apparent systematic failure to seriously litigate these issues on the part of the criminal defense bar.²²³

The defense bar has simply not been up to the task of challenging unreliable forensic science.

Risinger's analysis also reveals that when admissibility is litigated, defendants almost always lose, whether they are challenging state-proffered evidence or seeking to introduce their own expert testimony. Accordingly, as Neufeld has put it, "Lawyers are not the only problem—judges have to share some responsibility."²²⁴ And, as Paul Giannelli has shown, the Supreme Court has acquiesced in a series of cases by failing "to impose the kind of 'exacting' standards in criminal prosecutions that are now required in civil litigation."²²⁵

Moreover, the empirical evidence indicates that the pattern continues on appeal. Brandon Garrett's analysis of the first 200 postconviction DNA exonerations, including 133 that produced written decisions, reveals that, while flawed forensic science evidence contributed to the wrongful convictions in fifty-seven percent of the cases, challenges to such evidence were rare and successful challenges even rarer.²²⁶ Of those 133 cases with written opinions, not a single one involved a direct constitutional challenge to the forensic evidence, only thirty-two (twenty-four percent) brought any challenge of any type to the evidence, and only fourteen (eleven percent) raised evidence-law

²²² Similarly, Richard Underwood has observed that "many times lawyers default on their professional obligation to challenge [scientific] evidence." Richard H. Underwood, *Evaluating Scientific and Forensic Evidence*, 24 AM. J. TRIAL ADVOC. 149, 152 (2000) (footnote omitted). "In too many cases," he says, "the defense lawyer sits by as silent as the proverbial potted palm." *Id.* at 177; see Jonakait, *supra* note 195, at 168–69 (noting that, despite the availability of information indicating high error rates in forensic science proficiency testing, defense lawyers have done little to detect such errors).

²²³ Risinger, *supra* note 12, at 135.

²²⁴ Neufeld, *supra* note 12, at S110.

²²⁵ Giannelli, *supra* note 169, at 1076; see *id.* at 1083–96 (analyzing *United States v. Scheffer*, 523 U.S. 303 (1998); *Arizona v. Youngblood*, 488 U.S. 51 (1988); *Delaware v. Fensterer*, 474 U.S. 15 (1985); *Ake v. Oklahoma*, 470 U.S. 68 (1985); and *Barefoot v. Estelle*, 463 U.S. 880 (1983)).

²²⁶ See Garrett, *supra* note 23, at 76, 81.

claims.²²⁷ In those 133 appellate opinions, only a total of eight (six percent) granted any type of relief based upon the challenge to the forensic evidence.²²⁸ And these low numbers exist in a group of cases in which we know, with the benefit of postconviction DNA testing, that the inculpatory forensic evidence at trial was *wrong*.

In combination, inadequacies of the defense bar and inhospitality to defense forensic science have meant that some of the most unreliable forensic evidence has been admitted without much analysis or discussion. Risinger notes, for example, that bite mark evidence is among the least reliable and most thinly validated of the forensic “sciences.”²²⁹ Yet, in his analysis of state and federal cases, of the forty-seven criminal cases that referenced bite mark evidence or forensic odontology, only four or five involved any foundational challenge to the reliability of the evidence, and those few challenges were brushed aside by citation to pre-*Daubert* cases without any real analysis.²³⁰

The situation is not much different for other forensic individualization evidence, such as handwriting identification. Handwriting identification appeared in three hundred of the reported cases in Risinger’s data set—120 in federal court and 180 in state court.²³¹ Despite the absence of much scientific foundation for such evidence,²³² Risinger found only one reported state case in which a challenge “was made to the validity of any part of document examiner handwriting identification practice,” and only nine reported *Daubert* challenges to handwriting evidence in federal court—only two of which resulted in restrictions on the scope of the handwriting identification testimony.²³³

Thus, Risinger concludes:

[T]he numbers seem to indicate that civil defendants have benefited greatly from *Daubert*, but that criminal defendants have not. This seems especially true in regard to what might be called non-

²²⁷ See *id.* at 85.

²²⁸ See *id.*

²²⁹ Risinger, *supra* note 12, at 136–38. Risinger notes that forensic odontologists have identified only a single validity study, and that 1975 study showed a seventy-six percent error rate in identifications by experienced examiners who were tested. *Id.* at 137 n.144.

²³⁰ *Id.* at 135–36.

²³¹ *Id.* at 139.

²³² See generally D. Michael Risinger, *Handwriting Identification: The Scientific Status of Handwriting Identification Expertise*, in 3 MODERN SCIENTIFIC EVIDENCE, *supra* note 116, at 734; see also Risinger, Denbeaux & Saks, *supra* note 202, at 734.

²³³ Risinger, *supra* note 12, at 139–40.

science forensic science, and it appears to be attributable partly to the inertia of courts, but at least as much to the criminal defense bar's failure to construct sophisticated challenges and develop the evidence to support them. Lest you doubt this conclusion, ask yourself this question. If, after *Daubert*, substantial liability of General Motors or Microsoft were dependent on the identification of bite marks found in various non-ideal media, and on their attribution to various corporate employees, is it not clear that these issues would have been litigated differently and more thoroughly than they have been, and that the results would have been different?²³⁴

Subsequent empirical analysis confirms Risinger's findings. An analysis of cases in the Westlaw database addressing admissibility of expert testimony, in both the five and one-half years before *Daubert* and the five and one-half years after *Daubert*,²³⁵ confirmed that, "[c]ontrary to the predictions of most commentators, the basic rates of admission at the trial and the appellate court levels did not change significantly after *Daubert* in criminal cases on appeal."²³⁶ Moreover, at both the trial and appellate levels, prosecution experts were admitted far more frequently than defense experts: 95.8% of prosecution experts were admitted at trial, compared to only 7.8% of defense experts; on appeal, 85.1% of prosecution experts were admitted, but only 18.8% of defense experts were admitted.²³⁷

One reason that traditional prosecution forensic science evidence has not been subjected to rigorous methodological review by courts is, no doubt, as Risinger suggests, inertia or tradition. Such evidence has been around for so long without much challenge that seriously questioning or excluding it now seems almost unthinkable. In this sense, forensic science evidence is to some degree similar to psychological testimony, which has generally been admitted without rigorous scrutiny. In a different but related context, Christopher Slobogin has observed that "traditional psychological testimony is not subject to judicial scrutiny because it is . . . traditional and, more persuasively, because juries are not likely to consider it objective or infallible, but rather will naturally treat it with skepticism."²³⁸ But admis-

²³⁴ *Id.* at 143.

²³⁵ Jennifer L. Groscup et al., *The Effects of Daubert on the Admissibility of Expert Testimony in State and Federal Criminal Cases*, 8 PSYCHOL. PUB. POL'Y & L. 339, 342 (2002).

²³⁶ *Id.* at 345.

²³⁷ *Id.* at 346.

²³⁸ SLOBOGIN, *supra* note 2, at 28; *see also* Risinger, *supra* note 12, at 143 (noting that one reason criminal defendants have not gotten much traction to their challenges to forensic expert evidence is "inertia of courts").

sion of forensic science evidence without rigorous scrutiny is more problematic than lax review of psychological testimony because forensic sciences are precisely the type of scientific evidence that juries *are* likely to consider objective and infallible. When a scientist from the crime laboratory takes the stand to testify that fingerprints, or bite marks, or hairs, or other such evidence from the crime scene can be matched in the laboratory to the defendant, even—as such experts sometimes claim—to the exclusion of all other persons in the world, that testimony is likely to be accepted as conclusive.²³⁹

Moreover, it can be difficult to challenge forensic evidence because, in some areas of expertise, most experts are current or former state crime laboratory experts.²⁴⁰ Where does one find a toolmark examiner, fingerprint analyst, or bullet lead composition scientist? The only place these “experts” exist—because the only place these “sciences” exist—is in the government crime laboratories or spin-off private laboratories whose roots are in the law enforcement community. As a general matter, therefore, the only experts in these fields available to the defense are retired crime laboratory analysts, or academic scientists in different but related fields.²⁴¹ Indeed, empirical evidence shows that, in appeals involving challenges to the admissibility of expert testimony, the appellant—the one challenging the admissibility of the evidence—was the defendant in seventy-six percent of the cases, and in sixty-six percent of the cases, the appellant offered no expert of her own at all.²⁴²

In this sense, again, DNA is unique. DNA evidence has received considerable and exacting judicial scrutiny—and its methods and protocols have improved as a result—in part because DNA is one science in which there are experts outside the crime laboratories who are available to defense lawyers.²⁴³ As Risinger has observed, “because DNA is academic science, the defense attorney had experts available

²³⁹ “As one juror put it after a recent trial in Queens, N.Y., ‘You can’t argue with science.’” Neufeld & Colman, *supra* note 174, at 46. “[T]he esoteric nature of an expert’s opinions, together with the jargon and the expert’s scholarly credentials, may cast an aura of infallibility over his or her testimony.” *Id.* at 48.

²⁴⁰ See, e.g., Saks, *supra* note 184, at 240 (The forensic identification sciences “have little or no existence outside the courts. They have few academic and no commercial counterparts . . .”).

²⁴¹ See Jonakait, *supra* note 195, at 170 (Defendants have a “fundamental problem” in locating qualified experts, in part because “the experts are either employees or former employees of law enforcement agencies.”) (quoting Edward Imwinkelried, *Observations on Access to Expertise*, 101 F.R.D. 639, 640 (1983), and MICHAEL SAKS & R. VAN DUIZEND, *THE USE OF SCIENTIFIC EVIDENCE IN LITIGATION* 26 (1983)).

²⁴² Groscup et al., *supra* note 235, at 344–45.

²⁴³ See Risinger, *supra* note 12, at 125–27.

from the academic community who could provide virtual turn-key testimony on relevant points of weakness.”²⁴⁴ The same simply is not true of most of the individualization forensic sciences.

Part of the problem, when it comes to forensic sciences, is that there is little or no research to draw on; in most disciplines, no one has done the research to either validate or undermine the individualization sciences.²⁴⁵ When *Daubert* challenges have been brought, one consequence has been that in some cases, such as for handwriting analysis, the challenges have prompted research.²⁴⁶ As discussed below, in other instances where an outside organization has done the research, the research has sometimes revealed that the “science” is not scientific, and has led to its discontinuation.²⁴⁷ Currently, there is little incentive to do the research. These “sciences” are outside mainstream academic areas, police have little incentive to do the research because the evidence is already routinely admitted and accepted, and defendants have neither the resources nor the sophistication or inclination to undertake the research. As the forensic sciences have come under increasing scrutiny in recent years, this is beginning to change, but far more work is still needed.

²⁴⁴ *Id.* at 127 (footnote omitted). Even with DNA, however, finding defense experts was very difficult initially. When DNA first emerged as a forensic tool in the late 1980s, defense counsel initially reported an inability to locate any molecular biologists willing to testify and critique the forensic applications of DNA typing. Neufeld & Colman, *supra* note 174, at 52.

²⁴⁵ See Giannelli, *supra* note 169, at 1108 (“[B]asic scientific research is needed. Many forensic techniques gained judicial acceptance before demanding standards were required.”); Paul Giannelli & Edward Imwinkelried, *Scientific Evidence: The Fallout from the Supreme Court’s Decision in Kumho Tire*, 14 CRIM. JUST. 12, 40 (2000) (“All the areas of forensic science discussed in this article share two common denominators: In each area little rigorous, systematic research has been done to validate the discipline’s basic premises and techniques, and in each area there is no evident reason why such research would be infeasible.”); Jonakait, *supra* note 195, at 131–32, 137 (noting that neither universities nor the crime laboratories do much research on the forensic sciences). Michael Saks notes that *Daubert* has been important because it has demanded some research to support the forensic individualization sciences: “[F]rom many fields the courts will receive nothing better than what they required. Many fields, perhaps most notably the forensic identification sciences, will do whatever it takes to satisfy the courts and little more.” Saks, *supra* note 184, at 240.

²⁴⁶ See Giannelli, *supra* note 169, at 1098, 1098 nn.156–57 (citing Moshe Kam et al., *Writer Identification by Professional Document Examiners*, 42 J. FORENSIC SCI. 778 (1997); Moshe Kam et al., *Effects of Monetary Incentives on Performance of Non-Professionals in Document-Examination Proficiency Tests*, 43 J. FORENSIC SCI. 1000 (1998); Sargur Srihari et al., *Individuality of Handwriting*, 47 J. FORENSIC SCI. 856 (2002)).

²⁴⁷ See *infra* notes 361–95 and accompanying text.

B. *Institutional Impediments to Proper Adversary Adjudication of Forensic Science Issues*

Given these circumstances, the adversary adjudicatory process cannot work well in criminal cases to ensure the reliability of forensic science evidence. Some contend that the adversary process by design is not well-suited to seeking the truth on such matters. Under the adversary process, “party control dictates that the sole source of the truth comes from evidence offered by the parties through their attorneys.”²⁴⁸ Yet, the argument goes, the objective of the parties is not to present or seek the truth; rather, “the objective in an adversarial trial is victory.”²⁴⁹ If the truth is incompatible with the adversary goal of winning, “then the attorney must do all she can—within decidedly vague ethical constraints—to hide or distort the truth.”²⁵⁰ In criminal cases, when it comes to expert evidence, the problem is even more profound; the problem is not just that the parties are not properly motivated, but that, as we have seen, the defense is ill-equipped to obtain, present, or challenge forensic science evidence.

In addition, judges²⁵¹ (and juries)²⁵² lack the training and resources to assess forensic science evidence; they don’t adequately understand science or the scientific process.²⁵³ The *Daubert* regime requires judges to evaluate science in a way they never had to before—on scientific terms. But judges generally are not equipped to do that. Thus, while *Daubert* promises to improve the scrutiny of scientific evi-

²⁴⁸ Strier, *supra* note 13, at 103.

²⁴⁹ *Id.* at 101.

²⁵⁰ *Id.* at 104.

²⁵¹ See Groscup et al., *supra* note 235, at 340–41, 367 (noting research indicating that judges “lack understanding of [the *Daubert* reliability criteria] and of scientific reliability in general”).

²⁵² “Given their lack of scientific sophistication and innumeracy, jurors are likely to overestimate the significance of [expert testimony].” Underwood, *supra* note 222, at 166. Commentators have observed that juries, ill-equipped to evaluate scientific claims, default to “either deferential acceptance when only one expert testifies, or selection between the experts as attractive persons and apparently authoritative figures when two experts oppose each other.” Denbeaux & Risinger, *supra* note 56, at 29.

²⁵³ Indeed, the very enterprises of law, as applied by judges and juries, and science are quite different. “The relationship between science and law has been described as a marriage of opposites, as a conflict between rival systems, and as a clash of cultures.” Redmayne, *supra* note 220, at 1035 (footnotes omitted). For example, scientific knowledge is always contingent, evolving, and disputable. But the legal world demands final resolution, even when disputes resolve around unsettled scientific propositions. As Redmayne puts it, “[w]e expect scientists to give us answers before all the evidence is in.” *Id.* at 1031. In the legal world, “[j]ustice and finality take precedence over truth, but science progresses.” *Id.* at 1042.

dence and end the deference to the scientists who are proponents or practitioners of their own particular theory or method, *Daubert* creates a new set of problems by shifting the decisionmaking about the sciences from scientists to ill-equipped judges. Michael Saks observes:

The major paradox of judicial gatekeeping of “scientific, technical, or other specialized” expert knowledge is that those to whom the law assigns the responsibility for screening such evidentiary offerings have no particular expertise for conducting those evaluations. Our legal system provides judges with few tools to help them evaluate the assertions of experts.²⁵⁴

Indeed, Chief Justice Rehnquist, in his *Daubert* concurrence, expressed concern that judges do not understand scientific principles such as “falsifiability,” and voiced discomfort with the notion that *Daubert* would turn judges into “amateur scientists.”²⁵⁵

A recent example of the challenges facing judges when confronted with scientific evidence can be found in Justice Breyer’s reaction to the parties’ competing claims about the humaneness of the three-drug protocol used for lethal injections, and the competing claim that a different combination or a one-drug protocol would be more humane. In *Baze v. Rees*, the Court recently affirmed a decision of the Supreme Court of Kentucky that the three-drug cocktail does not violate the Eighth Amendment’s proscription against cruel and unusual punishment.²⁵⁶ At oral argument, Justice Breyer noted that he had read the scientific articles challenging the three-drug protocol that were cited in the briefs filed by the inmates, but that he found them confusing. “So I’m left at sea,” he said. “I understand your contention. You claim that this is somehow more painful than some other method. But which? And what’s the evidence for that? What do I read to find it?”²⁵⁷

²⁵⁴ Saks, *supra* note 184, at 230 (footnote omitted).

²⁵⁵ *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 600–01 (1993).

²⁵⁶ 128 S. Ct. 1520 (2008).

²⁵⁷ Linda Greenhouse, *Justices Chilly to Bid to Alter Death Penalty*, N.Y. TIMES, Jan. 8, 2008. In his concurring opinion in *Baze*, Justice Breyer again noted the conflicting scientific reports about the three-drug cocktail, but ultimately relied upon default litigation rules, rather than science, to uphold current practice:

I believe that the legal merits of the kind of claim presented must inevitably turn . . . upon facts and evidence. And I cannot find, either in the record in this case or in the literature on the subject, sufficient evidence that Kentucky’s execution method poses the ‘significant and unnecessary risk of inflicting severe pain’ that petitioners assert.

128 S. Ct. at 1563 (Breyer, J., concurring). Chief Justice Roberts’s lead opinion similarly cited the debate in the medical literature, and noted that the Court is not institutionally capable of resolving that dispute:

Similar concerns were expressed recently by a trial judge confronted with testimony from competing experts about mitochondrial canine DNA. Expressing a need for help in the way of “accreditation and documentation of scientific procedures,” he said:

I had a case recently that involved mitochondrial DNA, and I had one expert that told me the database was good, and the other expert told me the database was no good.

And I had a statistics guy who came from Mongolia who I couldn't understand, and basically, Wisconsin doesn't have the *Daubert* rule, so it was real easy for me. I just said, no, this goes to the jury, the jury can sort it out. But it left me with a distinct fear that I was at some point going to have a jury that decided, well, it's DNA, it's good, and then I had to decide whether or not it met the standard of beyond a reasonable doubt and throw the case out after the jury found the guy guilty.

Luckily for me, the prosecutor threw the case out before he went to trial, which I think was a good decision. But the idea of not having a basis for me without trying to find on my own behalf an expert who I felt was, could give me the ultimate answer on this database issue and incurring the county's expense to do that beyond what they've already incurred left me in the dark, basically, and . . . having some kind of a standard or protocol in that situation would have been of assistance.²⁵⁸

He then elaborated:

The issue was the efficacy of this database, which was a dog database that was part of the one that everybody submits things to. There's no control about things going into it . . . and both these people came from accredited labs.

One guy was from Michigan State, and although he wasn't forensically accredited, he was accredited through some university program, and the other one was a veterinarian down in Texas who had an accredited DNA lab. And the issue really was whether or not this database that the Michigan State guy was using was an effective database for the purpose of forensic science.

And it made a tremendous amount of difference, because if you used the database that she wanted you to use, the numbers of dogs that matched the circumstance multiplied dramatically over

We do not purport to take sides in this dispute. We cite it only to confirm that a 'best practices' approach, calling for the weighing of relative risks without some measure of deference to a State's choice of execution procedures would involve the courts in debatable matters far exceeding their expertise.

Id. at 1532 n.2.

²⁵⁸ Transcript of Proceedings of the Wisconsin Criminal Justice Study Commission, Nov. 27, 2007, at 21.

the number of dogs that matched the circumstance using the information used. And I didn't feel that I had really a basis to determine it based on what each of them were telling me, which was whether that database was actually an effective database or not.²⁵⁹

Indeed, research confirms that judges and juries do not understand science or the scientific principles required for evaluating the validity of scientific studies.²⁶⁰ A survey of four hundred state court judges published in 2001 revealed that “[o]nly six percent of respondents demonstrated a good understanding of the concept of ‘falsifiability,’ and just four percent had a clear understanding of error rate.”²⁶¹ Judges in one study “were no more likely to admit a valid study than they were to admit a study that lacked a control group, contained a confound, or included the potential for experimenter bias.”²⁶² Yet judges tend not to realize their lack of understanding. In a three-state survey, nearly eighty percent of judges asserted that expert testimony was rarely too technical for them to understand.²⁶³ As Janet Hoefel has put it, because judges are ill-equipped to evaluate scientific evidence, “[t]he shift of responsibility from the scientific community to the judiciary has simply been too much to bear.”²⁶⁴

Similarly, research indicates that jurors often do not understand the fundamentals of scientific evidence, and lack the “ability to reason about statistical, probabilistic, and methodological issues effectively.”²⁶⁵ Various studies have shown that lay people are insensitive to

²⁵⁹ *Id.* at 22–23.

²⁶⁰ David L. Bazelon, *Coping with Technology Through the Legal Process*, 62 CORNELL L. REV. 817, 817 (1977) (noting that judges are, for the most part, technically illiterate); Hoefel, *supra* note 1, at 1320 (“there is little reason to believe that judges are specially equipped” to evaluate scientific evidence); Marilee M. Kapsa & Carl B. Meyer, *Scientific Experts: Making Their Testimony More Reliable*, 35 CAL. W. L. REV. 313, 319, 326 (1999) (noting that most litigators and judges admit that they lack a solid foundation in science); Jeffrey N. Martin, Note, *Procedures for Decisionmaking Under Conditions of Scientific Uncertainty: The Science Court Proposal*, 16 HARV. J. ON LEGIS. 443, 473 (1979) (“Most judges and most commentators acknowledge the incompetence of judges to decide matters of scientific uncertainty.”); Bradley D. McAuliff et al., *Juror Decision-Making in the 21st Century: Confronting Science and Technology in Court*, in HANDBOOK OF PSYCHOLOGY IN LEGAL CONTEXTS (D. Carson & R. Bull eds., 2d ed., 2003); Saks, *supra* note 184, at 230 (noting that judges have no expertise to assess scientific evidence under *Daubert*).

²⁶¹ Joseph L. Peterson & Anna S. Leggett, *The Evolution of Forensic Science: Progress Amid the Pitfalls*, 36 STETSON L. REV. 621, 643 (2007) (citing Sophia I. Gatowski et al., *Asking the Gatekeepers: A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World*, 25 L. & HUM. BEHAV. 433, 434 (2001)).

²⁶² McAuliff et al., *supra* note 260, at 305.

²⁶³ *Id.*

²⁶⁴ Hoefel, *supra* note 1, at 1324.

²⁶⁵ McAuliff et al., *supra* note 260, at 305.

sample bias; fail to recognize the unreliability of tests involving small samples; demonstrate considerable variability in their statistical reasoning skills; have failed to note the significance of missing comparative or control group information; underutilize expert probabilistic testimony compared to Bayesian norms; have difficulty understanding statistical evidence; and underutilize statistical evidence.²⁶⁶

In the end, because judges and juries are not experts, scientific decisions, including decisions about admissibility, tend to be made based on assessments of the personality, credentials, and perceived credibility of the experts, more than on the validity of scientific research: “An advantage lies with the party whose expert has the most persuasive forensic skills rather than the most authoritative and meritorious testimony.”²⁶⁷ And because prosecution experts tend to be government employees, imbued with the authority and apparent objectivity of their position, while defense experts tend to look like hired guns,²⁶⁸ the result has been that most prosecution experts are admitted, but defense experts are not, regardless of the scientific merits of their evidence.²⁶⁹

In sum, under these conditions, the adversary case-by-case method, dependent on individual prosecutors, defense attorneys, judges, and juries and their ability to understand and marshal the requisite expertise in case after case, especially given the system’s many imbalances, is not a good way to address forensic sciences.²⁷⁰ The risk of error in individual cases is high.

²⁶⁶ *Id.*

²⁶⁷ Strier, *supra* note 13, at 133; see Herbert M. Kritzer, *The Arts of Persuasion in Science and Law: Conflicting Norms in the Courtroom*, 72 LAW & CONTEMP. PROBS. (forthcoming 2008) (describing how judges decide scientific questions based on “the norms of persuasion within the courtroom: witness credibility including factors such as demeanor, assessment of bias, completeness of explanation, and certainty of opinion,” leading to decisions that can go “against the body of generally accepted scientific evidence”).

²⁶⁸ Slobogin, *supra* note 126, at 117. “[A]ny one attorney’s attempt to obtain research for a particular case is likely to meet a hostile reception from the courts, because it is so obviously motivated by litigation needs.” *Id.*

²⁶⁹ Groscup et al., *supra* note 235, at 344–45; Joëlle Anne Moreno, *What Happens When Dirty Harry Becomes an (Expert) Witness for the Prosecution?*, 79 TUL. L. REV. 1, 3 (2004); Risinger, *supra* note 12, at 105–08.

²⁷⁰ Some contend that, even operating optimally, the adversary process is not a reliable way to address complex scientific issues.

But the most basic problem is that adversarial procedure assigns sole responsibility for conducting the inquiry to the functionaries who may be least interested in exposing the relevant scientific evidence. The attorney will want to omit and distort any evidence not presenting his client’s case in the best possible light. When expert witnesses are pushed into advocacy roles, attorneys corrupt the value of their expertise.

Another consequence of leaving admissibility questions to the adversary adjudicative process is that *stare decisis* can quickly become a substitute for analysis, and can freeze judgments about science even if the science itself continues to evolve. To the extent that *stare decisis* minimizes the need for repeated, case-by-case determination, it can do so in the wrong way—by locking in misjudgments about science, and preventing fluid adaptation of admissibility or other legal standards to reflect changing scientific knowledge.²⁷¹ Michael Risinger, for example, has traced the history of bite-mark evidence, showing how admissibility was initially based on one case manifesting exceptional circumstances establishing reliability that was subsequently cited and spread without re-analysis to become accepted doctrine.²⁷²

Conversely, when *stare decisis* does not control, another effect of the *Daubert* doctrine is that, by taking the review of scientific evidence from the scientific community and giving it to trial judges, the lower courts “are deciding the same issues differently. A particular expertise or scientific method may be admitted in one court and denied in another. The effect is a patchwork of admissibility in many areas of expertise.”²⁷³ Judges’ lack of training and experience necessary for evaluating scientific opinions means that “their comprehension and handling of scientific issues is intrinsically not predictable.”²⁷⁴

All of this suggests that the adversary system, at least as presently constituted, cannot cope with forensic science evidence in criminal cases. To work effectively, the adversary process needs assistance. As Peter Neufeld has put it, “[i]f the courts cannot be relied upon for this protection [against unreliable forensic science], other remedies must be found further ‘upstream’ so that the disreputable evidence is never proffered.”²⁷⁵

Strier, *supra* note 13, at 114.

²⁷¹ Hoeffel, *supra* note 74, at 46–47 (noting the ways in which deference to prior judicial opinions has been substituted for serious reliability analysis for numerous forensic sciences).

²⁷² Risinger, *supra* note 12, at 135–39.

²⁷³ Hoeffel, *supra* note 1, at 1324.

²⁷⁴ Kapsa & Meyer, *supra* note 260, at 326.

²⁷⁵ Neufeld, *supra* note 12, at S111.

IV. LEVELING THE PLAYING FIELD

A. *First Steps*

1. Limiting the Scope of Forensic Evidence

A number of suggestions have been made to address these problems, including encouraging courts to limit the admissibility of expert testimony by disallowing unsupported conclusions that crime scene evidence and evidence from the defendant “match.”²⁷⁶ Similarly, rules might disallow “overpowering or misleading testimony,” such as testimony that identified fingerprints had to have come from the defendant to the exclusion of everyone else in the world.²⁷⁷ Jury instructions might also be used to help juries put shaky but admissible expert forensic evidence into proper context.²⁷⁸

2. Regulating Crime Laboratories

Others have suggested regulation through accreditation and certification of crime laboratories and analysts.²⁷⁹ The federal government regulates all medical clinical laboratories under the Clinical Laboratory Improvements Act of 1988,²⁸⁰ and the empirical evidence shows considerable quality improvement when laboratories are regulated.²⁸¹ Noting that clinical laboratories that serve the medical profession are subject to such regulation, including mandatory accreditation and proficiency testing, but that crime laboratories are not, Peter Neufeld and Neville Colman observe that “there is more regulation of clinical laboratories that determine whether one has mononucleosis than there is of forensic laboratories able to produce DNA test results that can help send a person to the electric chair.”²⁸²

Among a growing chorus of scholars who now argue for mandatory regulation of crime laboratories, Paul Giannelli points out that, in developing a regulatory scheme, “there is no need to start from

²⁷⁶ Under this suggestion, because the data does not exist to permit any meaningful understanding of what a “match” means, one solution could be “to allow the examiner to discuss the points of comparison but to disallow the examiner from declaring a match or asserting conclusions.” Moriarty & Saks, *supra* note 216, at 29.

²⁷⁷ *Id.*

²⁷⁸ *Id.* at 31.

²⁷⁹ See Giannelli, *supra* note 203, at 208–20; Jonakait, *supra* note 195, at 172–91 (citing the Clinical Laboratories Improvement Act, 42 U.S.C. § 263a (1983)).

²⁸⁰ Pub. L. No. 100-578, 102 Stat. 2903 (codified as amended in 42 U.S.C.A. § 263a (2007)).

²⁸¹ Jonakait, *supra* note 195, at 173; see also Giannelli, *supra* note 203, at 211.

²⁸² Neufeld & Colman, *supra* note 174, at 53.

scratch,” because “DNA labs are presently regulated and can serve as a model for all crime laboratory units.”²⁸³ In 1988, the FBI established the Technical Working Group on DNA Analysis Methods (TWGDAM), which was later renamed the Scientific Working Group on DNA Analysis Methods (SWGDM), with responsibility for developing quality control standards for DNA laboratories.²⁸⁴ Thereafter, in 1994, Congress enacted the DNA Identification Act, which created the Combined Offender DNA Index System (CODIS), the national databank of DNA profiles of convicted offenders.²⁸⁵ At the same time, Congress created a DNA Advisory Board (DAB) to promulgate quality assurance standards, and required proficiency testing of examiners and external audits.²⁸⁶ Finally, as a part of the Justice for All Act of 2004, Congress mandated accreditation of all DNA labs as a requirement for eligibility to contribute to or access CODIS.²⁸⁷ As Giannelli therefore observes: “Thus, the paradox: the most scientifically sound procedure—DNA analysis—is the most extensively regulated, while many forensic techniques with questionable scientific pedigrees are completely unregulated.”²⁸⁸ Similar regulation of all crime laboratories would go a long way toward compensating for the inadequacies of the adversary criminal justice system alone to ensure good quality forensic science.

In recent years, a number of states have experimented with creating forensic science oversight boards, or forensic science commissions.²⁸⁹ New York,²⁹⁰ Texas,²⁹¹ and Oklahoma²⁹² now mandate accreditation of their crime laboratories. Instead of creating a separate board and accreditation process for crime laboratories, Maryland has

²⁸³ Giannelli, *supra* note 203, at 208–09.

²⁸⁴ *Id.* at 209.

²⁸⁵ Pub. L. No. 103-322, 108 Stat. 2065 (codified as amended at 42 U.S.C.A. §§ 14131–14134 (West 2005)).

²⁸⁶ See Giannelli, *supra* note 203, at 171–72.

²⁸⁷ 42 U.S.C.A. § 14132.

²⁸⁸ Giannelli, *supra* note 203, at 210.

²⁸⁹ See, e.g., MINN. STAT. § 299C.156 (2007) (establishing forensic laboratory advisory board); N.Y. EXEC. LAW § 995a-b (McKinney 2003) (establishing forensic science commission and requiring accreditation); OKLA. STAT. ANN. tit. 74, § 150.37 (West 2007) (requiring accreditation); TEX. CODE CRIM. PROC. ANN. art. 38.35(d) (Vernon 2005) (requiring accreditation by Texas Department of Public Safety); VA. CODE ANN. § 9.1-1101 (2006) (creating separate Department of Forensic Science and oversight committee). The federal government has also encouraged reform. See 42 U.S.C.A. § 3797k(4) (West 2007) (requiring that DNA laboratories receiving federal grants create mechanisms for external independent investigations).

²⁹⁰ N.Y. EXEC. LAW § 995-b (McKinney 2003).

²⁹¹ TEX. CODE CRIM. PROC. ANN. art. 38.35 (Vernon 2005).

²⁹² OKLA. STAT. ANN. tit. 74, § 150.37 (West 2004).

recently made crime laboratories subject to the same regulation as clinical laboratories under the Maryland Department of Health and Mental Hygiene.²⁹³ But such experiments remain the exception, not the norm.

Nationwide, voluntary accreditation and some proficiency testing is now offered by the crime laboratories themselves, through the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB).²⁹⁴ But accreditation is not uniform, and doubts have been raised about the sufficiency of such voluntary self-regulation: “Where labs are certified, there are still concerns about how meaningful that process may be.”²⁹⁵ Moreover, voluntary self-regulation does not ensure that all forensic science service-providers are accredited.²⁹⁶ And while many of the individual disciplines have created certification boards in various forensic specialties like criminalistics, questioned documents, toxicology, physical anthropology, and psychiatry, “most forensic practitioners do not complete the somewhat costly process for certification because the profession does not mandate it to practice, and crime laboratories, the police, and the courts do not require it to examine case evidence.”²⁹⁷ Short of full-blown regulation, other commentators have urged certification programs that, at a minimum, require labs to participate in blind proficiency testing.²⁹⁸

While mandatory regulation—complete with lab accreditation, analyst certification, mandatory quality assurance standards (including proficiency testing, laboratory audits, and corrective action procedures), and standardized technical procedures—would go far toward protecting the criminal justice system against misleading or

²⁹³ Brian Witte, *Md. Puts Teeth in Bill to Regulate Crime Labs*, WTOPNEWS.COM, May 7, 2007, <http://www.wtopnews.com/?nid=25&sid=1134411>.

²⁹⁴ Joseph L. Peterson & Anna S. Leggett, *The Evolution of Forensic Science: Progress Amid the Pitfalls*, 36 STETSON L. REV. 621, 632 (2007).

²⁹⁵ Moriarty, *supra* note 199, at 8.

²⁹⁶ After evaluating the science and methods of DNA testing in 1992, the National Academy of Sciences issued a report noting, in part, that

[v]oluntary accreditation programs are not enough. Because professional organizations, such as ASCLD-LAB, lack regulatory authority, forensic laboratories could avoid accreditation and still offer DNA typing evidence in criminal proceedings. In view of the important public-policy goal that this powerful technology be practiced only at the highest standard, compliance with high standards must be mandatory.

NATIONAL RESEARCH COUNCIL, DNA TECHNOLOGY IN FORENSIC SCIENCE 106 (1992) [hereinafter NRC, DNA TECHNOLOGY].

²⁹⁷ Peterson & Leggett, *supra* note 294, at 632.

²⁹⁸ See Jonakait, *supra* note 195, at 182–90.

flawed forensic science, adversary imbalance and institutional incompetence will still make it difficult for the criminal justice system to cope well with increasingly complicated scientific evidence.²⁹⁹

3. Independent Court-Appointed Experts

Other commentators have noted that courts can and should take more advantage of their authority to appoint their own independent experts.³⁰⁰ Under Federal Rule of Evidence 706, courts have such authority. Science panels appointed by courts have been used to assist in complex tort cases, such as the silicone breast implant litigation.³⁰¹ Justice Breyer, concurring in *Joiner*, recommended that judges make greater use of their authority to appoint experts, and to look to established scientific organizations for guidance.³⁰²

While such independent experts can be helpful, they cannot be the whole solution. The system almost certainly cannot afford the burden and expense of appointing independent experts in each case involving a serious scientific dispute.³⁰³ Nor can even an independently appointed expert be assured to get the science right, in part because there often is no one right answer in science. The notion that an independent expert can find objective scientific truth ignores that science itself is socially constructed, and therefore cannot be determined definitively or by analysis of even a well-selected expert.³⁰⁴ As some critics have suggested, court-appointed independent experts “will eliminate the diversity of scientific opinions, but hearing only one side does not make testimony more reliable.”³⁰⁵

²⁹⁹ See Giannelli, *supra* note 203, at 211–20.

³⁰⁰ Moriarty & Saks, *supra* note 216, at 30; Peterson & Leggett, *supra* note 294, at 643–44 (“Neutral experts clearly can assist the courts in evaluating the testimony of partisan experts by focusing on the scientific reasoning and methodology used by the experts and helping the court to determine if the experts’ conclusions and opinions are based on scientifically reliable data.”).

³⁰¹ Moriarty & Saks, *supra* note 216, at 30 (citing *Norris v. Baxter Healthcare Corp.*, 397 F.3d 878, 881–82 (10th Cir. 2005)); see Moreno, *supra* note 188, at 1089.

³⁰² *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 149–50 (1997) (Breyer, J., concurring).

³⁰³ See *supra* notes 171–75 and accompanying text.

³⁰⁴ See Sheila Jasanoff, *What Judges Should Know About the Sociology of Science*, 32 *JURIMETRICS* 345, 347 (1992) (“[T]he ‘facts’ that scientists present to the rest of the world are not direct reflections of nature; rather, these ‘facts’ are produced by human agency through the institutions and processes of science, and hence they invariably contain a social component.”); SHEILA JASANOFF, *THE FIFTH BRANCH: SCIENCE ADVISERS AS POLICYMAKERS* 12–14 (1990).

³⁰⁵ Kapsa & Meyer, *supra* note 260, at 328 (footnotes omitted); see Joe S. Cecil & Thomas E. Willging, *Court-Appointed Experts*, in *FEDERAL JUDICIAL CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE* 525 (1994); Tahirih V. Lee, *Court-Appointed Experts and Judicial Reluctance: A Proposal to Amend Rule 706 of the Federal Rules of Evidence*, 6

Moreover, as Sheila Jasanoff has explained, “scientific claims are intrinsically provisional, contingent, and subject to deconstruction under critical scrutiny. Scientific claims, in short, are inherently open-ended.”³⁰⁶ Accordingly, while independent court-appointed experts might help judges in individual cases understand the science, and help them capture “a still frame out of the continually unfurling motion picture of science,”³⁰⁷ as is required in litigation, something more enduring, more receptive to the evolving and socially negotiated nature of science is required to help the adversary adjudicative process cope with forensic science over the long haul.

B. *A More Comprehensive Approach: A Forensic Science Oversight Commission*

1. The Scientific Oversight Model

More institutionalized oversight of forensic sciences, by scientists, is needed to compensate for the inadequacies of adversary adjudication. In other arenas, where science and policy intersect, we have created expert institutions to mediate important disputes. Where public health and safety are at stake, for example, we rely on the expertise of the Food and Drug Administration (FDA) to analyze the science and make determinations to protect us from untested or unsafe drugs.³⁰⁸ We also rely on institutions such as the National Institutes of Health (NIH) to foster medical research to improve public health.³⁰⁹ Although the stakes are also high with forensic sciences—in terms of individual well-being and public safety—we have no similar expert institutions to protect us from bad forensic science. Peter Neufeld, among others, has therefore called for creating a national forensic science institute to validate technologies and methodologies and set standards for interpretation of data.³¹⁰ Such a commission might be an example of the kind of “inter-cultural ‘bridging’ institu-

YALE L. & POL’Y REV. 480 (1988); Carl Meyer, *Science and Law: The Quest for the Neutral Expert: A View from the Trenches*, 12 J. NAT. RESOURCES AND ENVTL. L. 36 (1997).

³⁰⁶ Jasanoff, *supra* note 304, at 356.

³⁰⁷ *Id.*

³⁰⁸ For more than a century, since the Pure Food and Drug Act of 1906, the FDA and its predecessors have been responsible for regulating food and drugs in the United States. See generally Katherine A. Helm, Note, *Protecting the Public Health from Outside the Physician’s Office: A Century of FDA Regulation from Drug Safety Labeling to Off-Label Drug Promotion*, 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 117 (2007); John P. Swann, History of the FDA, <http://www.fda.gov/oc/history/historyoffda/default.htm>.

³⁰⁹ See generally National Institutes of Health, Overview, <http://www.nih.gov/about/NIHoverview.html>; About NIH, www.nih.gov/about/index.html#mission.

³¹⁰ Neufeld, *supra* note 12, at S113.

tions,” which Peter Schuck has proposed, that rely on experts, institutions, and decision-making rules of science to control core scientific questions, thereby enabling “the relevant scientific, legal, and political values [to] be integrated with greater synergy and less waste.”³¹¹

Like the FDA, such an institute or commission should be a permanent, standing body charged with responsibility for overseeing the field of forensic sciences. Such an institute could independently evaluate and validate (or invalidate) the sciences, establish recommendations for admissibility, recommend or establish protocols, recommend cautionary instructions, create incentives for research and validation, provide funding for such research,³¹² and oversee accreditation and blind proficiency testing. And such a standing institute could revisit scientific questions as scientific knowledge evolves, to continually improve practice and our understanding of the significance of various kinds of scientific evidence. It might impose mandatory protocols and practices, but it need not finally determine questions of admissibility. Instead, the information and quality improvements it would produce could be utilized in litigation to enhance the courts’ ability to make admissibility determinations and other such judgments that are more appropriately vested in legal decision-makers.

Such a plan would be consistent with the trend toward, and the need for, more reliance on administrative solutions to compensate for adversarial inadequacies. As Darryl Brown has explained,

[T]he strategy of pursuing accuracy through adversarial processes—through well-equipped defense counsel in particular—has reached a political limit. Broadly speaking, legislatures are interested in accurate criminal adjudication, but they do not view zealous defense attorneys as the best way to achieve that goal. Accordingly, adversarial process will not be a politically sustainable means for assuring the accuracy of fact-gathering. Partisan challenges brought by defense counsel against the state’s evidence must become—and are becoming—less dominant tools for serv-

³¹¹ Peter H. Schuck, *Multi-Culturalism Redux: Science, Law, and Politics*, 11 YALE L. & POL’Y REV. 1, 3 (1993). Schuck, for example, argues that “core scientific issue[s] like causation should be authoritatively decided within the scientific culture by institutions that this culture designates as appropriate to the task In the Bendectin cases and many others like it, the Food and Drug Administration (FDA) is that institution.” *Id.* at 38–39.

³¹² As noted, currently there is very limited money in research of forensic disciplines. Unlike civil matters in which pharmaceutical companies, asbestos manufacturers, and other industry players have financial incentives to fund research, the parties to a criminal matter have neither the incentive nor the resources to fund the basic research that is needed.

ing a renewed popular commitment to accuracy. Other actors and institutions, with different mixes of motives and weaknesses, are equipped to take on—and are starting to take on—more of that task.³¹³

Such an institute or commission, by relying more on scientists to oversee forensic science, would in the end level the playing field and thereby enhance the adversary system's capacity for finding the truth on questions related to such sciences.

Although such a national institute does not presently exist, there are examples of such scientific oversight of forensic science questions that show how such an institute might work. This would not be a science court.³¹⁴ Nor would such an institution replace the judicial role in making ultimate admissibility decisions, or judgments about guilt or innocence based upon scientific evidence. Nor is this suggestion meant to embrace a naively positivist view of science by assuming that scientific questions can be resolved objectively and definitively by experts. Rather, this proposal envisions an expert agency with the capacity and charge to generate the research and conduct the independent analyses needed to help forensic scientists improve their practices, and to help courts evaluate a wide range of forensic science issues by providing the information they need to perform their *Daubert* gatekeeping role. In short, we need to do for the rest of forensic science what we have done for DNA.³¹⁵

a. An Example: The Maguire Seven

Examples of such oversight, in isolated areas, abound. In the 1990s, Great Britain turned to an expert panel of scientists to resolve disputed scientific evidence in several notorious cases involving convictions related to the IRA bombing campaign of the mid-1970s. In

³¹³ Brown, *supra* note 24, at 1645.

³¹⁴ A science court was proposed in 1976 by a White House Task Force as a means to use adversary adjudicatory processes to resolve scientific disputes that had important public policy implications. Edmond & Mercer, *supra* note 185, at 54. Science courts were to be presided over by scientist-judges, who would receive testimony from scientific experts under cross-examination by science advocates. *Id.*; see James A. Martin, *The Proposed "Science Court"*, 75 MICH. L. REV. 1058 (1977); Jeffrey N. Martin, Note, *Procedures for Decisionmaking Under Conditions of Scientific Uncertainty: The Science Court Proposal*, 16 HARV. J. ON LEGIS. 443 (1979); Arthur Kantrowitz, *Proposal for an Institution for Scientific Judgment*, SCIENCE, May 12, 1967, at 763; Arthur Kantrowitz, *The Science Court Experiment: Criticisms and Responses*, BULL. OF THE ATOMIC SCIENTISTS, April 1977, at 44. Such efforts "have failed because the scientific problem-solving methodology favors professional competence and authority rather than due process, and professional and trade organizations are mired by conflicts of interest that favor politics over scientific facts." Kapsa & Meyer, *supra* note 260, at 328.

³¹⁵ See *supra* notes 283–88 and accompanying text.

1976, members of the Maguire family were convicted of explosives offenses almost entirely on the basis of forensic scientific evidence indicating that swabs taken from the defendants' hands revealed traces of nitroglycerine.³¹⁶ At trial, the defense called an expert who criticized the prosecution's scientific evidence on various grounds.³¹⁷ In the early 1990s, an in-depth judicial inquiry conducted by Sir John May vindicated the defense expert's criticisms, and ultimately led the Court of Appeal to quash the convictions.³¹⁸ As part of Sir John May's judicial inquiry, he set up a scientific committee to attempt to settle the scientific disputes. While the committee could not agree on all conclusions, the committee identified enough deficiencies in the original scientific evidence to undermine the convictions.³¹⁹ As Mike Redmayne has observed, when confronted with such unsettled scientific propositions as those at issue in the Maguire cases, "[a] scientific inquiry, like that eventually instigated by Sir John May, would have been the obvious scientific way to deal with unease about the evidence."³²⁰

b. An Example: The Eyewitness Identification
Blue-Ribbon Panel

Experts in a forensic science oversight institution need not be specialists or practitioners in a particular field—indeed, in many instances they ought not be, in order to give them the objectivity needed to evaluate the forensic identification method at issue. Rather, they might be experts in fields related to the forensic identification method, or most importantly, they must be scientists who understand the scientific method and hence are capable of evaluating the scientific validity of the technique or process at issue.

One example is provided by the recent work of a panel of scientists that was convened to examine one issue related to eyewitness identification methods. Eyewitness identification is one area that has drawn significant social science research, but also recently some controversy about that research, culminating in competing studies that had conflicting results on at least one issue. As explained below, a blue ribbon panel of scientists was able to review the competing studies and come to conclusions on their relative authority.

³¹⁶ Redmayne, *supra* note 220, at 1039.

³¹⁷ *Id.* at 1040.

³¹⁸ *Id.* at 1040, 1043.

³¹⁹ *Id.* at 1041, 1043–44.

³²⁰ *Id.* at 1043.

For many years, academic researchers, primarily research psychologists, have studied human memory and perception, and in particular the ability of human beings to recognize and identify faces of strangers.³²¹ That research has produced numerous insights and published recommendations about the ways in which police ought to reform the eyewitness identification procedures to minimize the risks of misidentification.³²² While the bulk of that literature is published in scholarly journals, some of the conclusions and recommendations have also been adopted by policy and procedure guides published by government technical advisory groups, state attorneys general offices, and local law enforcement offices.³²³ A few courts have also begun to take note and have incorporated this research into new legal standards on the admissibility of eyewitness identification evidence, the admissibility of eyewitness experts, and jury instructions on a variety of identification-related matters.³²⁴ Finally, legislatures have begun to pay attention as well; a few have adopted legislation recognizing or

³²¹ The first psychological research into eyewitness identification issues began 100 years ago, and was conducted by Hugo Munsterberg. See HUGO MUNSTERBERG, *ON THE WITNESS STAND* (1908). Munsterberg was ahead of his time, however, as the legal system refused to consider his research. JAMES M. DOYLE, *TRUE WITNESS: COPS, COURTS, SCIENCE, AND THE BATTLE AGAINST MISIDENTIFICATION* 9–34 (2005) (describing Munsterberg's battle with Dean John Henry Wigmore for judicial recognition of the psychological principles underlying eyewitness error). Research into eyewitness identification accelerated in the 1970s with the work of such pioneers as Elizabeth Loftus and Gary Wells, who, joined by many other researchers, have produced an enormous volume of research literature since then.

³²² See, e.g., Wells et al., *supra* note 103.

³²³ See, e.g., NAT'L INST. OF JUSTICE, U.S. DEP'T OF JUSTICE, *EYEWITNESS EVIDENCE: A TRAINER'S MANUAL FOR LAW ENFORCEMENT* (2003), available at <http://www.ncjrs.gov/nij/eyewitness/188678.pdf>; U.S. DEP'T OF JUSTICE, NAT'L INST. OF JUSTICE, *EYEWITNESS EVIDENCE: A GUIDE FOR LAW ENFORCEMENT* (1999), available at <http://www.ncjrs.gov/pdffiles1/nij/178240.pdf>; BUREAU OF TRAINING AND STANDARDS FOR CRIMINAL JUSTICE, WIS. DEP'T OF JUSTICE, *MODEL POLICY AND PROCEDURE FOR EYEWITNESS IDENTIFICATION* 3 (2005), available at <http://www.doj.state.wi.us/dles/tns/EyewitnessPublic.pdf>; Gina Kolata & Iver Peterson, *New Jersey Is Trying New Way for Witnesses To Say, "It's Him"*, N.Y. TIMES, July 21, 2001, at A1.

³²⁴ See *United States v. Langan*, 263 F.3d 613, 622 (6th Cir. 2001) (“[T]he science of eyewitness perception has achieved the level of exactness, methodology, and reliability of any psychological research.”) (internal quotations omitted); *United States v. Smithers*, 212 F.3d 306 (6th Cir. 2000); *United States v. Stevens*, 935 F.2d 1380, 1401 (3d Cir. 1991); *United States v. Moore*, 786 F.2d 1308, 1313 (5th Cir. 1986); *People v. McDonald*, 690 P.2d 709, 721 (Cal. 1984), *overruled on other grounds by People v. Mendoza*, 4 P.3d 265, 278 (Cal. 2000); *State v. Dubray*, 77 P.3d 247, 255 (Mont. 2003) (relying upon “the scholarship on the subject of eyewitness testimony over the last decade”); *State v. Dubose*, 699 N.W.2d 582 (Wis. 2005).

incorporating some of these recommendations based on this scientific research.³²⁵

Eyewitness identification reform has met significant resistance from many prosecutors and police, however, who have criticized the research because it is largely laboratory research that they complain is inapplicable in the real world. They question whether laboratory studies—often utilizing mock crimes and college student witnesses—accurately capture the experience of real witnesses who witness real crimes. Two of the more significant of the recommendations have been particularly controversial among law enforcement—“double-blind” administration of identification procedures, and sequential rather than traditional simultaneous presentation of suspects and fillers in a lineup or photo array. Under the double blind procedure the police officer administering the identification procedure must be one who does not know who the suspect was so that she cannot even unintentionally cue the witness or shade interpretation of the witness’s responses. The sequential presentation of suspects and fillers (showing individuals one at a time rather than simultaneously) is designed to encourage witnesses to make absolute memory-based judgments about each individual rather than relative, “looks-most-like” judgments by comparing each displayed individual to the others. In the laboratory, these and other procedures significantly reduce the rate of eyewitness error, and improve the ratio of correct identifications to mistakes.

Noting that most of the research on these matters has been laboratory research,³²⁶ the Illinois legislature directed three Illinois police departments to undertake a field study to examine the effectiveness of the double-blind sequential procedures.³²⁷ That project, involving the Police Departments in Chicago, Evanston, and Joliet under the direction of Sheri Mecklenberg, general counsel for the Chicago Police, produced results ostensibly contradicting the labora-

³²⁵ See N.C. GEN. STAT. ANN. § 15A-284.52 (West 2008) (requiring North Carolina law enforcement to employ a range of research-based reforms, including double-blind sequential procedures and proper witness instructions); WIS. STAT. § 175.50 (2007) (requiring every law enforcement agency in the state to adopt written policies governing eyewitness identification procedures, and to consider employing double-blind sequential procedures).

³²⁶ One field study in Hennepin County, Minnesota, had been conducted, which produced results consistent with those predicted by the laboratory studies, but it did not compare the double-blind sequential procedure to traditional non-blind simultaneous procedures. Amy Klobuchar et al., *Improving Eyewitness Identifications: Hennepin County’s Blind Sequential Lineup Pilot Project*, 4 CARDOZO PUB. L. POL’Y & ETHICS J. 381 (2006).

³²⁷ 725 ILL. COMP. STAT. 5/107A-10 (2008).

tory research, and purporting to indicate that the traditional, non-blind simultaneous procedure produced more accurate identifications of suspects and fewer mistaken identifications of innocent fillers than did the double-blind sequential procedure.³²⁸

The Mecklenberg Report, named after its principal author, Sheri Mecklenberg, stirred up considerable controversy. Police and prosecutors resistant to reform championed it as proof that their tried and true methods were best.³²⁹ Reformers and many eyewitness researchers, however, were appalled at methodological problems in the Report that they contended undermined its ability to say anything of value.³³⁰ The field research, they claimed, was marred by confounds that obscured any ability to interpret the data.

For example, while the double-blind sequential procedure in the study was carefully controlled to ensure that every identification procedure followed the same protocol, the non-blind simultaneous procedures were not; police in various locations were permitted to continue doing whatever it was they had been doing all along. The result was that it was difficult to tell what police were doing in the non-blind simultaneous procedures that got witnesses to pick suspects with greater frequency. Moreover, the Mecklenberg Report used suspect picks as a proxy for accurate picks. But of course, in a field study, one cannot know if suspects are in fact true perpetrators; the study assumed that which the identification procedures were designed to test.

Perhaps most importantly, the Mecklenberg Report failed to control for multiple variables. By at once testing both the double-

³²⁸ SHERI H. MECKLENBERG, REPORT TO THE LEGISLATURE OF THE STATE OF ILLINOIS: THE ILLINOIS PILOT PROGRAM ON DOUBLE-BLIND SEQUENTIAL IDENTIFICATION PROCEDURES (2006), available at <http://www.chicagopolice.org/IL%20Pilot%20on%20Eyewitness%20ID.pdf>.

³²⁹ See, e.g., MASS. DISTRICT ATTORNEYS ASSOCIATION, REPORT OF THE JUSTICE INITIATIVE: RECOMMENDATIONS OF THE MASSACHUSETTS ATTORNEY GENERAL AND DISTRICT ATTORNEYS TO IMPROVE THE INVESTIGATION AND PROSECUTION OF CASES IN THE CRIMINAL JUSTICE SYSTEM 11 (2006), http://www.mass.gov/Dmdaa/docs/justice_initiative_report/justice_initiative_report.pdf.

³³⁰ See NANCY STEBLAY, OBSERVATIONS ON THE ILLINOIS FIELD STUDY DATA, available at <http://web.augsburg.edu/~stebalay/ObservationsOnTheIllinoisData.pdf> (last visited March 6, 2008); Timothy P. O'Toole, *What's the Matter With Illinois? How an Opportunity Was Squandered to Conduct an Important Study on Eyewitness Identification Procedures*, CHAMPION, Aug. 2006, at 18; Gary L. Wells, *Comments on the Mecklenburg Report* (2006), http://www.psychology.iastate.edu/faculty/gwells/Illinois_Project_Wells_comments.pdf (last visited March 6, 2008). Some law enforcement agencies, which had adopted the double-blind sequential reform package, also rejected the Mecklenberg Report as methodologically flawed. See OFF. OF THE ATT'Y GEN., STATE OF WISCONSIN, RESPONSE TO CHICAGO REPORT ON EYEWITNESS IDENTIFICATION PROCEDURES, available at <http://www.doj.state.wi.us/dles/tns/ILRptResponse.pdf> (last visited Mar. 6, 2008).

blind versus non-blind and the simultaneous versus sequential procedures, it became impossible to tell which procedure was causing which effect. This was particularly problematic here because it was entirely possible that the greater number of suspect picks (and correspondingly fewer filler picks) in the non-blind simultaneous condition (the traditional method) was the result of the fact that the procedure was non-blind, not that it was simultaneous. But that would be precisely what the laboratory studies would have predicted: in a non-blind procedure, police are likely to influence the results or the interpretation of the results in a way that would lead witnesses to pick their suspects. What the Mecklenberg Report heralded as the superior results of the traditional identification procedures may have been nothing more than confirmation that police were able to influence witnesses to pick the person they wanted, without any guarantee that the picks in fact were accurate.

Confronted with these competing research results and disputes about the validity of the research, what was a court or policy maker to do? The research scientists in this field largely condemned the Mecklenberg Report for its methodological flaws, but others challenged the criticisms “as reflecting nothing more than the scientific commentators’ stubborn loyalty to their own pre-existing beliefs.”³³¹ How could a court or legislator, untrained in science, determine which interpretation of the studies was correct?

To help resolve this dispute in an objective, scientific manner, the Center for Modern Forensic Practice of the John Jay College of Criminal Justice convened a blue-ribbon panel of social scientists to examine the controversy over the Mecklenberg Report. Seven prominent social scientists, including experts in psychology, economics, and law—none of whom had been an eyewitness identification researcher—convened to review the Mecklenberg Report. The seven included Nobel Laureate Daniel Kahneman of Princeton and Harvard Professor Daniel Schacter.³³² In 2007, they issued a report pub-

³³¹ Daniel L. Schacter et al., *Policy Forum: Studying Eyewitness Investigations in the Field*, 32 LAW & HUM. BEHAV. 3, 4 (2007).

³³² The full panel included: Daniel Schacter, Professor of Psychology, Harvard University; Robyn Dawes, Queenan Distinguished University Professor, Carnegie Mellon University, and American Statistical Association Fellow; Henry L. “Roddy” Roediger III, James S. McDonnell Distinguished University Professor at Washington University, and former President, Association for Psychological Science; Larry L. Jacoby, Professor of Psychology, Washington University; Daniel Kahneman, Professor of Psychology, Princeton University, 2002 Nobel Laureate in Economics; Richard Lempert, Distinguished Professor, University of Michigan School of Law, Division Director for the Social and Economic Sciences at the National Science Foundation, 2002–2006; Robert Rosenthal, Distinguished Professor University of California, Riverside, and

lished in the journal *Law and Human Behavior* concluding that indeed the study contains a confound—“a non-blind simultaneous procedure is compared with a blind sequential procedure”—and that “the confound has devastating consequences for assessing the real-world implications of this particular study.”³³³ The panel explained:

If it is the case that the better outcome from the non-blind/simultaneous procedure is partly or entirely attributable to subtle, unintentional cues provided by the administrator, then the Illinois results may simply underscore that the present procedure produces a biased outcome that may ultimately result in the increased conviction of innocent individuals. Stated slightly differently, it is critical to determine whether the seemingly better result from the simultaneous procedure is attributable to properties of the simultaneous procedure itself, or to the influence of the non-blind administrator.³³⁴

The panel also noted that the Mecklenberg Report’s results, indicating that in two of the three police jurisdictions police reported zero filler picks in 152 lineups utilizing the non-blind simultaneous condition, provided further reason to be concerned about the Report’s conclusions. The panel concluded that the report of zero filler picks was suspiciously low, “justify[ing] the concern that administrator bias is operating, either consciously or unconsciously; either by failing to count tentative ‘filler’ choices, or in steering witnesses away from fillers, or toward suspects.”³³⁵ In sum, the panel concluded that the Mecklenberg Report’s “design guaranteed that most outcomes would be difficult or impossible to interpret. The only way to sort this out is by conducting further studies”³³⁶

Such field studies of actual identifications in real cases are currently under way, in a joint effort managed by the American Judicature Society’s Institute of Forensic Science and Public Policy, in collaboration with the John Jay College of Criminal Justice Center for Modern Forensic Practice, the Police Foundation, the Innocence Project, and the Center for Problem Oriented Policing. The new field studies will employ a carefully designed research protocol that will control for all variables. By using computer-administered photo arrays, they will ensure that all potential biasing influences are elimi-

Pierce Professor of Psychology emeritus, Harvard University, Co-Chair Task Force on Statistical Inference, American Psychological Association. See Schacter et al., *supra* note 331, at 32.

³³³ *Id.* at 4.

³³⁴ *Id.*

³³⁵ *Id.*

³³⁶ *Id.* at 4–5.

nated and that all witness responses are accurately recorded. Thus, the expert panel has both helped to resolve a dispute within a scientific field, and helped spur additional important research that should prove invaluable to policy makers and criminal justice practitioners.

c. An Example: The NRC Forensic Science Studies

On five occasions since 1979, the National Research Council (NRC), an arm of the National Academy of Sciences,³³⁷ has stepped into controversies over a few specific forensic sciences. The NRC has evaluated the scientific validity and appropriate uses of voice identification evidence,³³⁸ polygraph evidence,³³⁹ DNA evidence (twice),³⁴⁰ and most recently, comparative bullet lead analysis (CBLA) evidence.³⁴¹ In each case, the NRC drew together distinguished panels of experts from a variety of fields who studied and reported in detail on the forensic science at issue.³⁴² The reports have resulted in improvements in methodology and regulation for some fields (e.g., DNA), greater scrutiny by courts of others (e.g., voiceprints), and outright abandonment as unscientific of still others (e.g., CBLA).

i. Voiceprints

The first of these studies, published in 1979, addressed voiceprint identification evidence. In 1976, at the request of the FBI, the

³³⁷ The National Academy of Sciences operates under a Congressional Charter with the following charge: "On request of the United States Government, [the Academy] shall . . . investigate, examine, experiment, and report upon any subject of science or art." 36 U.S.C.A. § 150303 (West 2008). The National Research Council was created in 1916 and serves as the principal operating agency of the National Academy of Sciences and the National Academy of Engineering, with an express mission of stimulating surveying, collecting, and disseminating information about scientific matters of importance to the country. *Id.*; Exec. Order No. 2859 (1918), *as amended* by Exec. Order No. 10668, 21 C.F.R. 3155 (1956), *and* Exec. Order No. 12832, 58 C.F.R. 5905 (1993).

³³⁸ NAT'L RESEARCH COUNCIL, ON THE THEORY AND PRACTICE OF VOICE IDENTIFICATION (1979) [hereinafter NRC, VOICE IDENTIFICATION].

³³⁹ NAT'L RESEARCH COUNCIL, THE POLYGRAPH AND LIE DETECTION (2003) [hereinafter NRC, THE POLYGRAPH].

³⁴⁰ NRC, DNA TECHNOLOGY, *supra* note 296; NAT'L RESEARCH COUNCIL, THE EVALUATION OF FORENSIC DNA EVIDENCE (1996) [hereinafter NRC, EVALUATION OF FORENSIC DNA].

³⁴¹ NRC, BULLET LEAD EVIDENCE, *supra* note 199. CBLA is also sometimes referred to as Compositional Analysis of Bullet Lead (CABL).

³⁴² Citing these studies, Paul Giannelli has noted the appropriateness of this approach, commenting that the required research into the forensic sciences "needs to be done outside forensic science. It should be done by independent organizations such as the National Academy of Sciences" Giannelli, *supra* note 169, at 1108-09.

NRC appointed the Committee on Evaluation of Sound Spectograms and charged it with conducting a study to determine whether the high speed sound spectograph could identify unique voice patterns, or “voiceprints,” matching individuals to voices captured in recordings.³⁴³ The NRC formed a committee of eight members “representing the multiplicity of disciplines involved in voice identification and its uses.”³⁴⁴ After extensive study, the Committee concluded that “[t]he practice of voice identification rests on the assumption that intraspeaker variability is less than or different from interspeaker variability. However, at present the assumption is not adequately supported by scientific theory and data.”³⁴⁵ In sum, the NRC concluded that “the underlying theory of voiceprints had not been validated and [the] existing data did not support the proponents’ claims of high accuracy.”³⁴⁶ In response, courts began scrutinizing such evidence more carefully, although they remain split on its admissibility.³⁴⁷

ii. DNA

In 1992, the NRC took up an examination of DNA.³⁴⁸ The NRC essentially concluded that forensic DNA analysis was good science and should continue, but highlighted areas in which DNA labs needed to improve their methods and procedures. The NRC recommended, among other things, that DNA laboratories establish written laboratory protocols, develop objective and quantitative rules for identifying the pattern of a sample, use precise and objective matching rules, employ empirical testing to identify potential artifacts, identify the limits of each DNA typing procedure, subject each DNA typing procedure to publication in appropriate scientific journals, and develop a solid scientific foundation and base of experience

³⁴³ See Jonakait, *supra* note 195, at 142–44.

³⁴⁴ NRC, VOICE IDENTIFICATION, *supra* note 338, at 151.

³⁴⁵ *Id.*

³⁴⁶ Jonakait, *supra* note 195, at 143.

³⁴⁷ See *State v. Gortarez*, 686 P.2d 1224, 1235 (Ariz. 1984) (citing the NRC Report as “particularly persuasive,” and holding that voiceprint evidence is inadmissible); *State v. Free*, 493 So. 2d 781, 783–89 (La. Ct. App. 1986) (citing the NRC Report, among other research, and holding that voiceprint evidence is inadmissible); *People v. Hubbard*, 738 N.W.2d 769, 769–70 (Mich. 2007) (Markman, J., concurring) (concurring in order denying petition for leave to appeal and urging the court to revisit the issue of admissibility of voiceprint evidence, and noting that, since the Michigan Supreme Court last addressed the issue in 1977, “five states have admitted such evidence, [*see, e.g., People v. Coon*, 974 P.2d 386 (Alaska 1999)], and six states have rejected such evidence, [*see, e.g., State v. Gortarez*, 686 P.2d 1224 (Ariz. 1984)].”).

³⁴⁸ See NRC, DNA TECHNOLOGY, *supra* note 298.

before employing any new DNA typing procedures.³⁴⁹ The NRC also made specific recommendations for compiling appropriate databases and utilizing appropriate statistical procedures for assessing the significance of a match.³⁵⁰ Further the NRC recommended accreditation and proficiency testing, establishment of quality-assurance programs, and creation of a National Committee on Forensic DNA Typing “to provide expert advice primarily on scientific and technical issues concerning forensic DNA typing.”³⁵¹ The immediate result was to produce legal challenges to the admissibility of DNA (some successful),³⁵² and ultimately, an improvement in DNA laboratory practices.³⁵³

In 1996, the NRC revisited DNA because, at that time, the “winds of controversy” surrounding DNA profiling had “not been stilled.”³⁵⁴ The second DNA report noted that the first report had “resolved a number of questions, and several of its recommendations were widely adopted.”³⁵⁵ In the second report, the NRC made recommendations about how to minimize errors in the laboratory and in chain of custody, proposed calculating procedures that take into account the question of population subdivision, and addressed statistical problems with the interpretation of DNA evidence, including the use of databases. The Report was not without its critics,³⁵⁶ but since then DNA practice has gradually improved and current dominant DNA profiling techniques have achieved virtually unquestioned admissibility status.³⁵⁷

³⁴⁹ *Id.* at 72.

³⁵⁰ *Id.* at 94–95.

³⁵¹ *Id.* at 73, 108–09.

³⁵² Following the first NRC DNA report, FBI Director William Sessions requested the second NRC study, noting in part that “11 of 30 appellate decisions on the admissibility of DNA evidence had ruled it inadmissible and ‘courts in Canada, Australia, and the United Kingdom began hearing challenges to DNA evidence—citing the NRC report—immediately following its release.’” William C. Thompson, *Accepting Lower Standards: The National Research Council’s Second Report on Forensic DNA Evidence*, 37 JURIMETRICS J. 405, 407 n.7 (1997) (quoting Letter from William Sessions, Director, FBI, to Dr. Frank Press, President, National Academy of Sciences, Apr. 16, 1993).

³⁵³ Berger, *supra* note 12, at 1127.

³⁵⁴ NRC, EVALUATION OF FORENSIC DNA, *supra* note 340, at v.

³⁵⁵ *Id.*

³⁵⁶ *E.g.*, Thompson, *supra* note 352, at 410 (arguing that the second DNA report backpedaled on some of the recommendations from the first report).

³⁵⁷ Berger, *supra* note 12, at 1128.

iii. The Polygraph

In 2003, the NRC examined the scientific validity of the polygraph. This analysis was undertaken at the request of the U.S. Department of Energy, primarily to examine the validity of using polygraphs as an employment and security screening tool.³⁵⁸ Thus, while the NRC also considered the use of the polygraph in criminal investigations, its primary focus was on its use in non-incident-related screening tests of prospective government employees. The NRC concluded that “specific-incident polygraph tests can discriminate lying from truth telling at rates well above chance, though well below perfection.”³⁵⁹ But the NRC said that the polygraph was probably less accurate when used as a non-incident-related screening tool, and that “[i]ts accuracy in distinguishing actual or potential security violators from innocent test takers is insufficient to justify reliance on its use in employee security screening in federal agencies.”³⁶⁰

iv. Bullet Lead

The NRC’s most recent study of a forensic science provides a particularly revealing demonstration of the importance of enhancing the adversary process with neutral oversight of the forensic sciences by scientific experts. For over forty years, the FBI analyzed and testified about the composition of bullet lead as a means of matching crime scene bullet fragments to bullets found in the possession of a suspect.³⁶¹ The technique, first used in the investigation into President Kennedy’s assassination in 1963,³⁶² was employed in cases in which bullet fragments collected from a crime scene were too small or damaged to permit standard ballistics analysis.³⁶³ In such cases, FBI analysts would analyze the bullet lead from crime scene fragments and from bullets found in a suspect’s possession for seven trace elements—arsenic, antimony, tin, copper, bismuth, silver, and cad-

³⁵⁸ NRC, *THE POLYGRAPH*, *supra* note 339, at xiii.

³⁵⁹ *Id.* at 4.

³⁶⁰ *Id.* at 6.

³⁶¹ D.H. Kaye, *The Current State of Bullet-Lead Evidence*, 47 *JURIMETRICS J.* 99, 99 (2006).

³⁶² John Solomon, *Silent Injustice: Bullet-matching Science Debunked*, *WASH. POST*, Nov. 19, 2007, at A1.

³⁶³ D.H. Kaye, *The NRC Bullet-Lead Report: Should Science Committees Make Legal Findings?*, 46 *JURIMETRICS J.* 91, 92 (2005). Ballistics examinations usually involve matching the striations on a bullet caused by its passage through the barrel of a gun with marks on bullets fired from a suspect’s gun. NRC, *BULLET LEAD EVIDENCE*, *supra* note 199, at 1.

mium.³⁶⁴ If the two bullets were determined “statistically to be analytically indistinguishable for each of the elemental concentration means,” the analyst would conclude that they probably came from the same “source.”³⁶⁵ The precise testimony about such matches varied from one analyst to the next, with some experts testifying that the two bullets were “analytically indistinguishable”³⁶⁶ or “could have” come from the same “batch” of lead.³⁶⁷ Other experts went further and testified that the two bullets came from the same “source,”³⁶⁸ or from a box manufactured the same day,³⁶⁹ or that the two bullets were made by the same manufacturer on the same day and at the same hour,³⁷⁰ or even that they came from “the same box of ammunition.”³⁷¹

Although the technique has been used in approximately 2500 cases,³⁷² until recently it was almost never challenged in court.³⁷³ Indeed, there were no serious challenges to the technique until a retired FBI examiner, William Tobin, began writing articles questioning the technique³⁷⁴—again, demonstrating both that the defense bar on its own was not up to the task and that one reason no experts challenged the technique was that the only experts were those engaged in or recently retired from the field itself.³⁷⁵ Although the technique had been used in criminal cases for decades, until recently there was virtually no research literature on the matter (particularly on the bases for statistical analyses employed),³⁷⁶ and courts routinely admit-

³⁶⁴ *Id.* at 2.

³⁶⁵ *Id.*

³⁶⁶ *E.g.*, Wilkerson v. State, 776 A.2d 685, 689 (Md. Ct. Spec. App. 2001).

³⁶⁷ State v. Krummacher, 523 P.2d 1009, 1012–13 (Or. 1974) (en banc).

³⁶⁸ United States v. Davis, 103 F.3d 660, 673–74 (8th Cir. 1996); People v. Lane, 628 N.E.2d 682, 689–90 (Ill. App Ct. 1993).

³⁶⁹ State v. Grube, 883 P.2d 1069, 1078 (Idaho 1994); People v. Johnson, 499 N.E.2d 1355, 1366 (Ill. 1986); Earhart v. State, 823 S.W.2d 607, 614 (Tex. Crim. App. 1991) (en banc), *vacated*, 509 U.S. 917 (1993).

³⁷⁰ Brown v. State, 601 P.2d 221, 224 (Alaska 1979).

³⁷¹ Commonwealth v. Daye, No. 11238-11246, 2005 WL 1971027, at *1 (Mass. Dist. Ct. Aug. 3, 2005); *see* Jones v. State, 425 N.E.2d 128, 131 (Ind. 1981); State v. Strain, 885 P.2d 810, 817 (Utah Ct. App. 1994).

³⁷² Kaye, *supra* note 363, at 99 n.1.

³⁷³ *Id.* at 102.

³⁷⁴ *See, e.g.*, Edward J. Imwinkelried & William A. Tobin, *Comparative Bullet Lead Analysis (CBLA) Evidence: Valid Inference or Ipse Dixit?*, 28 OKLA. CITY U. L. REV. 43, 45 (2003).

³⁷⁵ *See* State v. Behn, 868 A.2d 329, 339–40 (N.J. Super. Ct. App. Div. 2005) (quoting affidavits establishing that, until recently, there were no experts outside the FBI capable of testifying about CBLA).

³⁷⁶ Giannelli, *supra* note 203, at 200.

ted it without much question.³⁷⁷ During the thirty-plus years in which CBLA was used, there were fewer than two dozen published appellate opinions on the technique, and all but one of the courts that addressed CBLA admitted it.³⁷⁸ Indeed, in one of the few cases in which a defendant sought to fight the CBLA evidence, the defendant did not move to exclude the FBI testimony as unreliable, but instead sought to introduce his own expert challenging the FBI expert's conclusions.³⁷⁹ The court, however, excluded the defense expert on the basis that the defense expert was offered only to testify about the manufacturing process, and he was not an expert in that.³⁸⁰ The jury heard the state's CBLA evidence without rebuttal.

Finally, in response to the criticisms leveled by Tobin and his co-authors, the FBI asked the NRC to study the technique. The NRC appointed a committee of fourteen experts in science, engineering, mathematics, statistics, criminalistics, and law to conduct the study.³⁸¹ In a 2004 report, the NRC concluded that the instrumentation and method for measuring trace elemental concentration—the modern technique is known as inductively coupled plasma-optical emission spectroscopy, or ICP-OES³⁸²—is valid and reliable,³⁸³ but that the available data do *not* support testimony that two bullets originated from the same box of ammunition or from the same manufacturer, or were manufactured on the same date.³⁸⁴ The FBI initially responded defensively, reaffirming its view that the testimony of its analysts was valid and scientifically sound.³⁸⁵ But armed with Tobin's

³⁷⁷ Kaye, *supra* note 361, at 102 (collecting cases).

³⁷⁸ Mark Hansen, *Bullet Proof*, A.B.A. J., Sept. 2004, at 61.

³⁷⁹ State v. Grube, 883 P.2d 1069, 1078 (Idaho 1994).

³⁸⁰ *Id.*

³⁸¹ NRC, BULLET LEAD EVIDENCE, *supra* note 199, app. at B.

³⁸² Previously, analysts had used a technique known as neutron activation analysis (NAA). Imwinkelried & Tobin, *supra* note 374, at 44.

³⁸³ NRC, BULLET LEAD EVIDENCE, *supra* note 199, at 23.

³⁸⁴ *Id.* at 107.

³⁸⁵ Indeed, John Solomon, an investigative journalist with the *Washington Post* who did an in-depth investigation into the FBI's handling of CBLA evidence, reports:

As early as 1991, the FBI lab had done a study that raised questions about some of the assumptions being made about lead bullet matches. But rather than seeing the red flags, the scientists dismissed them as coincidences. In 2002 when one of the FBI's own retired metallurgist[s] questioned the science, the FBI sought to drown out his concerns by flooding the forensic science journals with articles praising the bullet lead science. And even after the National Academy of Sciences concluded the science was flawed in both its statistics and testimony, many in the lab fought to continue its use or at least to minimize the problems when informing the public.

Solomon, *supra* note 362.

criticisms and the new NRC Report, defense lawyers and courts began to question the technique.³⁸⁶ Beginning around the time of the NRC Report, courts began excluding CBLA testimony. Reflecting the impact of the NRC Report, for example, in *Ragland v. Commonwealth*, the Kentucky Supreme Court issued an opinion in 2004 just prior to publication of the report that rejected an attack on bullet-lead testimony.³⁸⁷ Two years later, after publication of the NRC Report, the Kentucky Supreme Court reheard the case. Quoting extensively from the Report, the court this time concluded that the bullet lead evidence was inadmissible under *Daubert*.³⁸⁸ Other courts have followed suit.³⁸⁹

In 2005, a year after the NRC Report, the FBI abandoned CBLA altogether.³⁹⁰ The FBI reported, in a letter to the executive director of the National Association of Criminal Defense Lawyers in late summer 2005, that the FBI was discontinuing its use of CBLA “based primarily on the inability of scientists or manufacturers to definitively evaluate the significance of an association between bullets made in the course of a bullet lead examination.”³⁹¹ Yet in that same letter, the FBI continued to insist that “the FBI Laboratory still firmly supports the scientific foundation of bullet lead analysis,” and that it was dropping the analysis only because of “the costs of maintaining the equipment, the resources necessary to do the examination, and its relative probative value.”³⁹² But by 2007, the FBI conceded that any testimony suggesting that CBLA could identify a bullet as coming from any particular box of bullets was insupportable,³⁹³ and announced that it would review all bullet lead cases in which its agents testified and alert prosecutors to any misleading statements so that

³⁸⁶ An article noting the scientific challenges to CBLA, for example, appeared in the ABA Journal in 2004. Hansen, *supra* note 378, at 60.

³⁸⁷ *Ragland v. Commonwealth*, No. 2002-SC-0388-MR, 2004 WL 2623926 (Ky. Nov. 18, 2004).

³⁸⁸ *Ragland v. Commonwealth*, 191 S.W.3d 569, 580 (Ky. 2006). For a discussion of the case, see Kaye, *supra* note 361, at 103–05.

³⁸⁹ See, e.g., *Clemons v. State*, 896 A.2d 1059, 1079 (Md. 2006); *State v. Behn*, 868 A.2d 329, 331 (N.J. Super. Ct. App. Div. 2005) (granting a new trial based on newly discovered evidence about scientific challenges to CBLA).

³⁹⁰ Solomon, *supra* note 362, at A1.

³⁹¹ Letter from Dwight E. Adams, Director, FBI Laboratory, to Ralph Grunewald, Executive Director, National Association of Criminal Defense Lawyers (Sept. 1, 2005) (on file with author).

³⁹² *Id.*

³⁹³ Solomon, *supra* note 362, at A1.

the defendants can be notified.³⁹⁴ Currently, the FBI is working cooperatively with a task force of defense lawyers assembled by the National Association of Criminal Defense Lawyers and the Innocence Project to identify cases in which individuals might have been wrongly convicted based on CBLA evidence.³⁹⁵ The adversary system now has a chance to respond appropriately to this flawed science, but it could not do so without the organized expertise of the NRC.

2. Toward Institutionalized Oversight of Forensic Sciences

As the examples in the last section show, forensic science committees can and should evaluate forensic scientific evidence and techniques. Such oversight is particularly important in the forensic sciences used in the criminal justice system where, historically, there has been a dearth of rigorous, peer-reviewed testing. Fortunately, there are indications that Congress might be moving in that direction, at least tentatively.

In November 2005, Congress took a step toward institutionalizing the scientific review of forensic sciences when the House of Representatives joined with the Senate in allocating \$1,500,000 to the National Academy of Sciences to create an independent Committee on Identifying the Needs of the Forensic Science Community.³⁹⁶ The House and Senate Reports directed that the Committee, which was to include “members of the forensics community representing operational crime laboratories, medical examiners, and coroners; legal experts; and other scientists as determined appropriate,” was to, among other things, broadly examine the needs of the forensic science community, identify potential scientific advances, make recommendations for making more and better use of the forensic sciences, and “disseminate best practices and guidelines concerning the collection and analysis of forensic evidence to help ensure quality and consistency in the use of forensic technologies and techniques to solve crimes, investigate deaths, and protect the public.”³⁹⁷ The Committee, co-chaired by Judge Harry T. Edwards of the U.S. Court of Appeals for the D.C. Circuit and Constantine Gatsonis, Director of the Center for Statistical Sciences at Brown University, has been actively

³⁹⁴ John Solomon, *Leahy Pursues Forensic-Test Answers*, WASH. POST, Nov. 22, 2007, at A2.

³⁹⁵ John Solomon, *Lawyer Groups to Flag Cases Needing Review*, WASH. POST, Nov. 19, 2007, at A9.

³⁹⁶ H.R. REP. No. 109-272, at 121 (2005); S. REP. 109-88, at 46 (2005).

³⁹⁷ S. REP. 109-88, at 46 (2005); see The National Academies, Project Information: Identifying the Needs of the Forensic Sciences Community, <http://www8.nationalacademies.org/cp/projectview.aspx?key=48741> (last visited March 6, 2008).

engaged in reviewing a broad range of forensic science practices, undertaking the kind of searching inquiry that has largely been beyond the capability of most criminal case litigants. Its report and recommendations are due sometime in the summer of 2008. Although it is not yet clear what the Committee will recommend, there is at least some apparent interest in establishing permanent mechanisms for providing oversight to the forensic sciences.

V. CONCLUSION

While our system professes to value truth, and in particular that version of truth that is most likely to protect the innocent, disparities in the adversary criminal justice system threaten that hierarchy of values. At multiple points in the adversary process, criminal defendants are at a distinct disadvantage, and thus the risk of error falls heavily and uncomfortably on the shoulders of criminal defendants, even innocent criminal defendants. The way our system handles forensic science evidence is a particularly powerful example of that imbalance.

One way to correct this imbalance might be to change the rules and processes that disadvantage defendants and to increase dramatically the resources available for indigent defense legal services. While such reforms might be advisable, and some even achievable, the political will is likely not there to make wholesale reforms, especially reforms requiring the commitment of resources for defense attorneys, which would be necessary to allow the adversary system to function properly.

Instead, some signs are beginning to emerge in a variety of contexts suggesting that the weakness of adversarial adjudication can be replaced effectively by more reliance on administrative processes.³⁹⁸ One example of this shift is the movement to provide better oversight of and information about forensic sciences rather than leaving it to the parties and case-by-case litigation to address the reliability of forensic science evidence. The system needs a permanent forensic science commission or institute, which could be charged with the responsibility to independently evaluate and validate the sciences, establish recommendations for admissibility, recommend or establish protocols, recommend cautionary instructions, create incentives for research and validation, provide funding for such research, and oversee accreditation and blind proficiency testing.

³⁹⁸ See Brown, *supra* note 24, at 1591.

2008]

INNOCENTS AT RISK

973

Ironically, by shifting some of the responsibility for ensuring the accuracy of forensic science evidence away from the adversary process and toward an administrative process more dependent on scientists, the system will provide the tools that will better permit the adversary process to work in criminal cases.