"Misconvictions," Science, and the Ministers of Justice

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* Associate Professor, University of Akron School of Law. Many thanks to the faculty at the University of North Carolina for questions and comments during a colloquium on this Article. Particular thanks to Michael Saks for refining my thoughts about the subject of this Article. Thanks to Richard Delgado, Adina Schwartz, Simon Cole, John Conley, John Burkoff, Elizabeth Reilly, Will Huhn, Sarah Cravens, Tracy Thomas, Brant Lee, and Stewart Moritz for thoughtful comments on the subject of this Article and for reviews of prior drafts.
When liberty hangs in the balance—and, in the case of the defendants facing the death penalty, life itself—the standards should be higher than were met in this case, and than have been imposed across the country. The more courts admit this type of [expert] evidence without requiring documentation, proficiency testing, or evidence of reliability, the more sloppy practices will endure; we should require more.¹

I. INTRODUCTION AND OVERVIEW

DNA evidence has exonerated over two hundred wrongfully convicted defendants in the last several years, providing insights into the causes of such convictions. One such cause, faulty scientific evidence, is a focus of this article. For decades, many have written about the prevalence of and reasons for wrongful convictions²—what I have termed “misconvictions.” A few reasons support the coinage “misconvictions”: the miscarriage of justice when an innocent person is convicted; the mistakes involved in the prosecution and trial of the case; the mistaken identification that may have occurred; and finally, the recognition that all wrongful convictions are a missed opportunity to convict the person who actually committed the crime. In light of these concerns, misconvictions is an apt term.

This Article provides a new perspective on misconvictions by focusing on the intersection of ethics and expert evidence in criminal cases, specifically considering the actions of judges and prosecutors. The Article has a dual focus: first, to explain the forensic science concerns that contribute to misconvictions; and second, to contemplate the role that the “ministers of justice”—the executive and judicial branches—play in creating misconvictions by their management of expert evidence.³ The Article then provides suggestions for improving the quality of justice to reduce the likelihood of wrongful convictions.

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1. United States v. Green, 405 F. Supp. 2d 104, 109 (D. Mass. 2005) (Gertner, J.) (permitting a witness to testify about the similarity of marks between shell casings at the scene and those from the defendant's weapon but forbidding the witness from testifying that it was a match “to the exclusion of every other firearm in the world”).


3. A few authors have considered the intersection of ethics and scientific evidence in criminal cases. See Bennett L. Gershman, Misuse of Scientific Evidence By Prosecutors, 28 Okla. City U. L. Rev. 17 (2003) (discussing how prosecutors misuse scientific evidence); Michael J. Saks, Scientific Evidence and the Ethical Obligation of Attorneys, 49 Clev. St. L. Rev. 421, 425–31 (2001) (discussing some ethi-
While trial judges decide whether evidence is admissible in criminal trials, prosecutors wield exceptional power in decisions about whom to prosecute and what evidence to introduce while trying a case. These two ministers of justice—possessing virtually all the power to regulate a criminal case—must be held to a high standard, not only to ensure convictions of those who have committed crimes, but also to ensure that to the degree possible, the innocent are not convicted. Yet prosecutors, by using unreliable forensic evidence and questionable expert witnesses, and judges, by failing to exercise their gatekeeping role in a sufficiently diligent manner, have become part of the mechanism by which misconvictions occur. This Article discusses ways for prosecutors and judges to rise to the ethical demands of their positions.

Part II of this Article details the laboratory failures, the proficiency concerns, and the myriad of problems with the so-called "individualization" specialties that seek to match a person to a crime.

Part III explains how prosecutors, in their role as ministers of justice, have an affirmative duty to try to avoid the wrongful conviction of innocent people by using unreliable expert evidence. The Article provides specific suggestions for achieving that goal. Part IV explains the ethics issues implicated when judges exercise their gatekeeping and trial management roles and also discusses options to help trial courts comply with such ethical obligations.

II. THE SCIENCE OF MISCONVICTIONS

In March of 2003, Josiah Sutton was released from prison after being convicted at the age of 16 and serving nearly four years for a rape he did not commit. The damning evidence against Sutton? DNA, the so-called infallible genetic fingerprint. The exculpatory evidence? Also DNA. This case is one of three in which a faulty DNA comparison was implicated in a misconviction. Clearly, even the best scientific evidence is far from infallible.
Courts and commentators increasingly recognize that juries have convicted many innocent people. As is well-accepted, the causes of and blame for misconvictions are legion and include mistaken eyewitness identification, false confessions, sleeping and incompetent defense lawyers, lying witnesses, and overzealous and misguided prosecutors. What many do not realize, however, is that faulty science contributes to these misconvictions.

7. See, e.g., Christanson, supra note 2, at 5 (referring to one study which claims that between 3 and 10 percent of all felony convictions are erroneous and another study which indicates that ten thousand innocent people are wrongly convicted every year).

8. Id. at 8 ("In most cases, it wouldn't be fair to point the finger solely at a single culprit—that is, police, prosecutors, defense attorneys, trial judges, juries, appellate courts, or legislators. Wrongful conviction is a team sport.")

9. See The Innocence Project, Eyewitness Misidentification, http://www.innocenceproject.org/understand/eyewitness-misidentification.php (last visited May 27, 2007) (noting 75 percent of wrongful convictions include eyewitness misidentification); See also Saul M. Kassin, On the Psychology of Confessions: Does Innocence Put Innocents at Risk?, 60 AM. PSYCHOLOGIST 215, 215 (Apr. 2005) ("[I]t is clear that eyewitness misidentification, found in nearly three quarters of misconvictions, are the most common source of error.")

The problem of erroneous eyewitness identification is well studied and amply documented. For a compelling discussion about the errors of eyewitness identification and the need for expert testimony to inform the jury about such problems, see Michael R. Leippe, The Case for Expert Testimony About Eyewitness Memory, 1 PSYCHOL. PUB. POL'Y & L. 909 (1995).

10. Surprisingly, data collected from The Innocence Project indicate that over 25 percent of misconvictions involved some form of false confession. See The Innocence Project, False Confessions, http://www.innocenceproject.org/understand/FalseConfessions.php (last visited Mar. 18, 2007); See also Gross et al., supra note 2, at 544 (stating that 15 percent of those wrongly convicted included a false confession). For a comprehensive discussion about and analysis of false confessions, see Steven A. Drizin & Richard A. Leo, The Problem of False Confessions in the Post-DNA World, 82 N.C. L. REV. 891 (2004) (analyzing 125 cases of exonerated defendants who confessed falsely), and Welsh S. White, False Confessions and the Constitution: Safeguards Against Untrustworthy Confessions, 32 HARv. C.R.-C.L. L. REV. 105, 110 (1997) (discussing the empirical evidence showing the prevalence of false confessions caused by standard interrogation techniques and suggesting "constitutional safeguards designed to reduce the government's creation and use of such confessions").

11. See Achieving Justice, supra note 2, at 79–91 (discussing the failures of defense counsel that contribute to misconvictions and providing suggestions to address those concerns); Huff et al., supra note 2, at 76–77 (discussing defense counsel's role in creating misconvictions). Although defense lawyer negligence is clearly a factor in many misconvictions, it is beyond the scope of the Article. This factor is considered in depth, however, in a book the author is writing, Jane Campbell Moriarty, Misconvictions: When Law and Science Collide (forthcoming N.Y. Univ. Press 2008) (manuscript on file with author).

12. See, e.g., Gross et al., supra note 2, at 542–44, (discussing the role that false accusation and perjury play in convicting innocent people).

13. See Ellen Yaroshefsky, Wrongful Convictions: It Is Time to Take Prosecution Discipline Seriously, 8 UDC/DCLSL L. Rev. 275 (2004) (discussing the frequency of prosecutorial misconduct in wrongful convictions); See also The Innocence Pro-
Frequently and surprisingly, misconvictions occur because of bad science, poor laboratory work, and outright fraud on the part of the experts. Professor Michael J. Saks remarked:

If the criminal justice community and the public were startled to learn that numerous innocent people were convicted of serious crimes and sentenced to long terms of imprisonment and sometimes even to execution, they will be even more surprised to learn that forensic science has played a large part in those erroneous convictions. A recent article confirms this opinion, stating that "in twenty-one of the more recent exonerations ... the exonerated's initial trial included testimony from a forensic examiner that was later established to be imprecise or clearly mistaken." Four of those twenty-one had been sentenced to death.

Due in large part to the work of The Innocence Project at Cardozo Law School and other law and journalism schools around the country, numerous misconvicted defendants have been exonerated by DNA testing. As of May, 2007, 203 people have been exonerated by DNA testing. Of the first 130 exonerations, three involved faulty DNA inclusions, and twenty-one involved microscopic hair comparisons. A study of the original Innocence Project data published in Science reported that "erroneous forensic science expert testimony [was] the second most common contributing factor to wrongful convictions." Despite the Supreme Court's requirement that only reliable expert testimony be admitted, unreliable expert forensic science testimony
has been introduced into evidence and innocent people have been wrongly convicted due, at least in part, to its admission. Testimony may be unreliable for several reasons, including: fraud and negligence in the laboratory; the failure to use blind testing procedures; the lack of meaningful standards to judge the validity of a given theory; inadequate or nonexistent proficiency testing; and inadequate or nonexistent databases from which to generate comparisons.

A. Scientists and Their Laboratories: A Multitude of Concerns

Several crime lab expert witnesses throughout the country have testified falsely in criminal cases in order to assist the prosecution in convicting a defendant.\(^1\) After Professors Saks and Koehler examined The Innocence Project data, they concluded that “forensic scientists are the witnesses most likely to present misleading or fraudulent testimony.”\(^2\)

Fred Zain was a police chemist who testified fraudulently in both West Virginia and Texas.\(^3\) As one commentator noted, “He had a formidable reputation as the serologist who could find (incriminating) results when no one else could.”\(^4\) The reason for this reputation, as it turned out, was Zain’s willingness to lie, omit, and otherwise deceive factfinders about results in at least 130 cases.\(^5\) A special investigation report stated:

The acts of misconduct on the part of Zain included (1) overstating the strength of results; (2) overstating the frequency of genetic matches on individual pieces of evidence; (3) misreporting the frequency of genetic matches on multiple pieces of evidence; (4) reporting that multiple items had been tested, when only a single item had been tested; (5) reporting inconclusive results as conclusive; (6) repeatedly altering laboratory records; (7) grouping results to create the erroneous impression that genetic markers had been obtained from the so-called “general acceptance” standard have been influenced by Daubert’s reliability requirement and require greater proof of the trustworthiness of such evidence. Jane Campbell Moriarty & Michael J. Saks, Forensic Science: Grand Goals, Tragic Flaws, and Judicial Gatekeeping, 44 A.B.A. Judges’ J., Fall 2005, at 24.


22. Saks & Koehler, supra note 19, at 893.

23. MORIARTY, SCIENTIFIC EVIDENCE, supra note 21, § 12:4, at 12-6.


25. See id. at 1115–16.
all samples tested; (8) failing to report conflicting results; (9) failing to conduct or to report conducting additional testing to resolve conflicting results; (10) implying a match with a suspect when testing supported only a match with the victim; and (11) reporting scientifically impossible or improbable results.26

These results were part of a "systematic practice" in which his superiors may have ignored or concealed complaints about his work.27 The report further noted that the procedural deficiencies of the lab contributed to the problems.28

Zain, unfortunately, is not unique. Other investigations have discovered large-scale fraud by other forensic experts in New York, Texas, and Oklahoma, among other places.29 FBI experts have provided testimony that is both dishonest30 and erroneous.31 According to a Justice Department report written about an FBI investigation, the FBI laboratory had a number of problems that "raised . . . questions about the competency, integrity and bias of the FBI laboratory" and its examiners.32

Recently, the FBI agreed to stop using bullet lead comparison, after a report by the National Academy of Sciences (NAS) concluded the technique was "seriously misleading."33 The examiners who testified about that specialty claimed they were able to link boxes of bullets owned by the defendant with bullets found at the scene by comparing the trace elements in both.34 Despite admitting that the manufacturing and distribution of bullets was too varied to testify about matches,

27. Id. at 511–16.
28. Id. at 517. The report describes the following lab shortcomings:
   (1) no written documentation of testing methodology; (2) no written quality assurance program; (3) no written internal or external auditing procedures; (4) no routine proficiency testing of laboratory technicians; (5) no technical review of work product; (6) no written documentation of instrument maintenance and calibration; (7) no written testing procedures manual; (8) failure to follow generally-accepted scientific testing standards with respect to certain tests; (9) inadequate record-keeping; and (10) failure to conduct collateral testing.
29. See Cooley, Reforming the Forensic Science Community, supra note 15, at 399–408. See also Maurice Possley et al., Scandal Touches Even Elite Labs, CHICAGO TRIBUNE, Oct. 21, 2004, at 1 (noting that problems ranging from negligence to deception have been discovered in at least seventeen states).
30. Id. at 403.
32. Id. at 12–7.
34. Moriarty & Saks, supra note 20, at 22; Piller, supra note 33.
the FBI Laboratory director inexplicably stated, "We stand by the results of the reports we have already issued."35

An additional concern is that many crime labs lack standards, are not certified, and often operate in an entirely unregulated manner.36 Where labs are certified, there are still concerns about how meaningful that process may be.37 Many laboratories—including the FBI laboratory—fail or have failed to employ proper procedures, such as blind testing, that could reduce the potential for error.38 In The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion,39 the authors describe many observer effects that plague forensic science labs in general, including expectation bias, which illustrates that information provided before an observation can color the observation itself.40 According to well-established psychological principles, if a forensic examiner is told that the questioned sample will likely match the exemplar, the examiner is more likely to find a match than an examiner who is not given such information.41 Nonetheless, blind testing is not a mandatory requirement in many forensic laboratories, even though “[t]he simplest, most powerful, and most useful procedure to protect against the distorting effects of unstated assumptions, collateral information, and improper expectations and motivations is blind testing.”42

A related laboratory problem is the lack of scientific culture in many forensic labs in America. In traditional scientific disciplines (as opposed to forensic science), where scientists are primarily Ph.D.s and graduate students, the culture emphasizes “methodological rigor, 

35. Id. at 23 (citing Piller, supra note 33).
36. See Paul C. Giannelli, The “Science” of Wrongful Convictions, CRIM. JUST., Spring 2003, at 55 (noting that, except for the State of New York, there is no mandatory accreditation).
40. Id. at 13–15. This article describes a number of other problems, including confirmation bias, anchoring effects, role effects, conformity effects, and experimenter effects, all of which may be implicated in forensic testing. Id. at 12–21; accord Keith A. Findley & Michael S. Scott, The Multiple Dimensions of Tunnel Vision in Criminal Cases, 2006 Wis. L. REV. 291, 293 (describing how forensic scientists can be unwittingly influenced).
41. See Risinger et al., supra note 39, at 13. The authors describe how a pathologist, after being told she is looking at abnormal cells, might be more likely to perceive abnormal cells. Id.
42. Id. at 45. In a study of fingerprint examiners designed to test the effects of extraneous contextual information, researchers concluded that the examiners were vulnerable to the information. Indeed, two-thirds of the experts made inconsistent decisions. Itiel E. Dror & David Charlton, Why Experts Make Errors, 56 J. FORENSIC IDENTIFICATION 600, 610 (2006).
openness, and cautious interpretation of data.” However, “[i]n forensic science, 96% of positions are held by persons with bachelor’s degrees (or less), 3% [hold] master’s degrees, and 1% Ph.D.s.” Thus, forensic labs often lack this scientific culture, seeming to value the ends of the process far more than the means—a position at odds with science.

A final concern about laboratories centers around those examiners who testify that their unique methods allow them to see what others cannot. Dr. Michael West, a dentist, testified that his special blue light was able to illuminate and compare marks that other examiners missed—not only bite-marks, but such things as tool-marks and shoeprints. Physical anthropologist, Louise Robbins, Ph.D., said she was able to identify shoe and footprints using a grid format to identify multiple points of shape of the shoeprint within various categories to match it, Cinderella-like to the foot.

While many of these laboratory problems are being addressed, the problems are far from resolved.

B. Forensic Individualization

“Forensic individualization” claims to be able “to associate an item of evidence found at a crime scene with its unique source, to the exclusion of all others” in the world. Courts routinely admit this type of

43. Saks & Koehler, supra note 19, at 893; See also Koppl, supra note 37, at 256 (discussing the potential unreliability of forensic science due to its failure to follow the scientific model of criticism, review, and reproduction).

44. Saks & Koehler, supra note 19, at 893.

45. See DAVID GOODSTEIN, HOW SCIENCE WORKS, IN REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 67, 74 (West Group 2d ed., 2000) (“[S]cience . . . is an arena in which ideas do battle, with observations and data the tools of combat.”); Koppl, supra note 37, at 256.

46. As Professor Paul C. Giannelli discusses in his article, The Abuse of Scientific Evidence in Criminal Cases: The Need for Independent Crime Laboratories, 4 VA. J. SOC. POL’Y & L. 439, 453–57 (1997), forensic odontologist, Michael West, testified in numerous cases about his ability to compare not only bite-marks, but various other forms of visual forensic comparison evidence. Although unable to provide photographic evidence, West claimed that the use of his “blue light”—the so called “West Phenomenon”—allowed him to make such comparisons. See id. at 454 & n.88.


48. See ACHIEVING JUSTICE, supra note 2, at 47–58 (discussing proposed changes to crime laboratories that would assist in reducing the likelihood of wrongful convictions); Margaret A. Berger, The Impact of DNA Exonerations on the Criminal Justice System, 34 J.L. MED. & ETHICS 320, 321–22 (2006) (discussing various groups that are attempting to improve the quality of crime laboratories).

49. Moriarty & Saks, supra note 20, at 17. In a recent federal case involving a comparison of cartridge cases, the expert claimed to be able to make the match to the firearm in question “to the exclusion of every other firearm in the world.” United
evidence, which includes the comparison and "matching" of DNA, hair, handwriting, photographs of items with items, fingerprints, tool-marks, teeth-marks and shoeprints—generally without proof that its methodology meets the contemporary standard of scientific reliability. With the exception of nuclear DNA testing, which rests on solid scientific and statistical ground, the individualization specialties have numerous foundational shortcomings. Indeed, "the data supporting the validity of these techniques, the safeguards against fraud or mistake, the training and supervision of the relevant personnel, and the existence and enforcement of sound, standardized procedures are shockingly deficient."

Individualization rests on two principles: (1) that each fingerprint, footprint or handwriting is unique; and (2) that examiners can accurately make a conclusive match between known and unknown samples. Little data supports either of these claims, especially with respect to handwriting, tool-marks, bite-marks (forensic odontology), shoeprint marks (forensic podiatry), and hair comparison.

States v. Green, 405 F. Supp. 2d 104, 108–09 (D. Mass. 2005). Such a conclusion was disallowed by the trial judge, who found such a conclusion to "stretch[ ] well beyond [the expert's] data and methodology." Id. at 109.


52. See Moriarty & Saks, supra note 20, at 18 (explaining individualization). In a recent case, a forensic document examiner testified he had a "90% confidence level" in the accuracy of his claimed match of handwriting. United States v. Smart, 135 Fed. App'x. 337, 339 n.1 (11th Cir. 2005) (citing the appellee's brief). However, such a number has no statistical basis in fact.


56. See Thornton & Peterson, supra note 54, § 31:45 at 64 (claiming that bite-mark comparison has low reliability and that "forensic odontologists have been more successful in convincing courts of the legitimacy of their opinions than they have been in convincing other forensic scientists"); cf. MOENNSSENS ET AL., supra note 47, § 16.05, 974–75 (claiming there is now agreement among forensic odontolo-
Stretching the concept of individualization even further, some federal courts have allowed testimony by alleged experts in photographic comparisons, who testify that they can meaningfully compare photographs of items or persons with the actual item or person.59

Despite the claims of forensic examiners, there are numerous foundational weaknesses inherent in the individualization specialties—not the least of which is that there are “few scientists . . . [and] little science” involved.60 Professor Saks has gone so far as to call these species of evidence “contenders for being the shoddiest science offered to the courts.”61 All individualization matches turn on purely subjective decision-making founded on experience-based knowledge, with no objective standards by which to determine either accuracy or error
Moreover, unlike DNA testing, no databases are used to extrapolate a meaningful interpretation of a match.\(^6\)

The problems inherent with visual individualization go beyond the two principal problems and encompass a wealth of other concerns that are directly related to the accuracy of the process.

1. Questioning Uniqueness

Few dispute that fingerprints are unique (although such a claim cannot be proven)\(^6\) but many dispute the uniqueness of hair, teeth marks, shoeprints, or weapon markings.\(^6\) Despite lacking data to establish how rare (or common) hair, handwriting, and shoeprints are, examiners testify under oath that such prints, writings or markings are unique. The unanswered (and unanswerable) question in bite-mark cases is how possible is it that another set of teeth left the bite-mark in question? Forensic examiners do not have an answer to that question. Nonetheless, the jury is left with the impression that if the examiner declares a match, he has accurately identified the print, writing, or marking as unique to the perpetrator—a far more probative assertion than examiners can legitimately make.\(^6\)

\(^{62}\) Denbeaux & Risinger, supra note 53, at 57; See also Simon A. Cole, More than Zero: Accounting for Error in Latent Fingerprint Identification, 95 J. CRIM. L. & CRIMINOLOGY 985, 993–94 (2005) [hereinafter Cole, More Than Zero] (noting that fingerprint examiners testify a finding of individualization is a matter of sufficiency, which is simply “the examiner’s determination that adequate unique details of the friction skin source area are revealed in the impression”).

For arguments about the theoretical problem of experience-based knowledge not subject to objective standards, see Jane Campbell Moriarty, Wonders of the Invisible World: Prosecutorial Syndrome and Profile Evidence in the Salem Witchcraft Trials, 26 Vis. L. Rev. 43, 84 (2001) [hereinafter Moriarty, Wonders of the Invisible World] (arguing in favor of an objective standard to judge experiential-based knowledge), and Joseph Sanders, Kumho and How We Know, 64 Law & Contemp. Prosbs. 373, 404–09 (2001) (creating a compelling argument that an expert must be able to describe “objectively the way in which the hypothesis at issue can be tested and how the expert put the hypothesis to the test”).

\(^{63}\) See, e.g., Schwartz, supra note 55, at 8 (explaining that the database for firearms is “radically incomplete” and that no databases exist for any other types of tool-marks).

\(^{64}\) See Thornton & Peterson, supra note 54, § 31:40 at 54–58 (claiming that, to date, there has been no duplication of exact ridge matches).

\(^{65}\) See, e.g., id. § 31:37 at 48 (“The most that can be said about a hair is that it is consistent with having originated from a particular person, but that it would also be consistent with the hair of numerous other people.”); William A. Tobin & William C. Thompson, Evaluating and Challenging Forensic Identification Evidence, The Champion, July 2006, at 12, 17 (noting the lack of a scientific basis for the uniqueness of bite-marks and tool-marks, among other forensic science evidence).

\(^{66}\) Since there is no database for various individualization specialties, no statistics can be generated to create probabilities—a process employed with DNA evidence. For an explanation of DNA comparison and probability issues, see David H. Kaye & George F. Sensabaugh, Jr., Reference Guide on DNA Evidence, in Reference Manual on Scientific Evidence 485, 524–48 (West Group 2d ed., 2000).
2. Questioning the Meaning of a Match

Although examiners in many European nations require a range between eight and sixteen points to declare a fingerprint match, there is no scientifically premised source to support that choice of numbers. Forensic examiners in the United States, however, use neither a minimum nor a standard number of points of comparison by which to declare a match of any type of forensic individualization. Rather, the examiner declares a match when she is satisfied, using the so-called ACE-V method: an acronym for analyze, compare, evaluate, and verify. What this method means, however, is that the examiner looks at a sample, compares it to a known sample, and then determines whether they appear to match. The examiner then has another examiner or a supervisor review the conclusions—the verification. The verification is not generally an independent test where the second examiner does not know what the first examiner's result was.

According to the Scientific Working Group for Friction Ridge Analysis, Study and Technology (a group established in 1997 and sponsored by the F.B.I.), a conclusion is justified when the examiner makes a "determination that adequate unique details of the friction skin source area are revealed in the impression"—an obviously unreviewable subjective standard. In fact, one of the government's leading fingerprint examiners has acknowledged that the examiners' opinions are "very subjective." Equally troubling is the significant amount of...
disagreement among examiners about how many common ridge characteristics must be present to declare a match.\textsuperscript{72}

Another concern with fingerprint comparison is that it is not a comparison of two rolled prints from a carefully prepared sample, but a comparison of a rolled print to a so-called latent print—whatever is found in the field. These latent prints are often smudged, partial prints that have far less clear detail than a rolled print. Thus, false claims of a match in the actual day-to-day work of fingerprint comparison are always a possibility; the concerns are not simply theoretical or academic. For example, a small, smudged partial latent fingerprint might be positively matched to a rolled print despite a lack of standards by which to judge that conclusion and no minimum number of points of comparison to declare a match. Even if several points match, would the rest of the fingerprint (not present on the latent print) prove exculpatory?

Other forms of individualization testimony are supported by an even thinner reed, since handwriting, hair comparison, bite-mark, tool-mark, and shoeprint examiners have never had a standard by which to declare a match—again, the examiner simply gives his impressionistic estimate that the samples in question match, generally using the ACE-V method.\textsuperscript{73}

3. \textit{Proficiency Testing and Error Rates}

Although visual individualization examiners often claim a zero error rate,\textsuperscript{74} there is neither theoretical nor scientific support for such a proposition.\textsuperscript{75} In fact, in the area of fingerprinting—considered by law enforcement and the public to be the gold standard for visual individualization—the recent high-profile error wrongfully inculpating American Brandon Mayfield as one of the Madrid train bombers certainly deflates the long-maintained boast that fingerprint comparison is infallible. Similar errors have occurred throughout the past decade.\textsuperscript{76} Indeed, how could such an assertion of infallibility be main-

\textsuperscript{72} Id. at 610.

\textsuperscript{73} For a contemporary analysis claiming the ACE-V procedure meets reliability standards, see, for example, Mahone, 328 F. Supp. 2d at 87–91 (reviewing the ACE-V methodology).

\textsuperscript{74} Cole, \textit{More than Zero}, supra note 62, at 987, 1034 (citing Federal Bureau of Investigation, U.S. Dept. of Justice, \textit{The Science of Fingerprinting}, at iv (1985) ("Of all the methods of identification, fingerprinting alone has proved to be both infallible and feasible.").

\textsuperscript{75} Id. passim (discussing the issue of error and error rates throughout the article); See also Edward J. Imwinkelried, Forward, \textit{International Perspective on Scientific Evidence}, 30 U.C. Davis L. Rev. 941, 944 (1997), (remarking that there are "a stack of studies documenting the margin of error in scientific analysis").

tained? While any comparison process might be competent, the individuals performing the comparison are still human and still fallible. They are, like the rest of us, "clay up to their eyebrows."77 Some of the individualization areas, such as fingerprinting, claim that the so-called "methodological" error rate is zero, but concede the possibility of human error—a distinction critics argue is both irrelevant and misleading to the question of accuracy.78

Another shortcoming the forensic individualization specialties share, however, is that few of them have calculated a meaningful error rate. Thus, the very real danger they pose is that no one is really certain about the ability of the examiners to do what they say they can do as accurately as they claim they can do it.

The minimal amount of proficiency testing which is completed in forensic individualization specialties is not encouraging. As Judge Pollak admitted in the contentious and oft-discussed case of United States v. Llera Plaza, the defense raised "real questions about the adequacy of the proficiency tests taken annually by certified FBI examiners."79 Moreover, the court concluded, "the tests can be of little assistance in providing the test makers with a discriminating measure of the relative competence of the test takers."80 Nonetheless, the court determined the examiners could testify and provide conclusions about fingerprint comparison.81

The small body of evidence concerning proficiency in other forms of forensic individualization is also discouraging. In their 2005 Science article, Saks and Koehler collected proficiency test error rates and noted error rates as high as 64% for bite-mark comparison, a 40% error rate for handwriting comparison, and a 12% error rate for microscopic hair comparison.82

4. The Circular Reasoning Problem

As mainstream science demands and the Supreme Court recognizes, one of the hallmarks of science is that it generates results that

77. Imwinkelried, supra note 75, at 942-43. Craig M. Cooley, a lawyer with a master's degree in forensic science, notes that despite repeated claims of infallibility, "numerous studies indicat[e] that the error rate in the forensic sciences is far from zero." Cooley, Reforming the Forensic Science Community, supra note 15, at 381, 393 (citing various studies on proficiency testing error rates).
80. Id. at 565.
81. Id. at 571.
82. Saks & Koehler, supra note 19, at 895; see also Cooley, Reforming the Forensic Science Community, supra note 15, at 393-94 (discussing error rate studies).
can be tested by others. Thus, the preference for controlled, double-blind studies, the demanding system of blind peer-review, and the requirement that data be reproducible, collectively point to the importance of independent reviewers testing the quality of the scientific endeavor.

By comparison, forensic science operates in a self-contained chamber, where its own examiners are the ones to vouch for the correctness of the underlying theory, as well as the accuracy, quality, and the general acceptance of their professions.

One possible reason the circular reasoning problem has infected forensic individualization specialties can be traced to the Frye general acceptance standard, which governed the admissibility of novel scientific evidence in many states before Daubert. Frye required that "the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs." Thus, "the thing"—for example, the belief that handwriting samples can be meaningfully and conclusively compared and identified—must be generally accepted by the "particular field to which it belongs." The field, of course, is handwriting comparison. So, to meet this standard, those practicing in the field can simply testify that handwriting comparison is generally accepted. As one court noted, the relevant community "is devoid of financially disinterested parties, such as academics." The relevant community generally consists of those very individuals whose livelihood depends on the continued general acceptance of such a forensic specialty. Nonetheless, courts do not appear to be troubled by this circularity. The Supreme Judicial Court of Massachusetts recently noted in a fingerprint examination case that the judge "properly ensured" that the relevant community of those judging latent fingerprint methodology was broad enough to include "some practitioners who acknowledge flaws in the methodology" and to tolerate "some, albeit, limited room for dis-

83. Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 593 (1993) (noting the importance in scientific method of generating hypotheses and testing them); Goodstein, supra note 45, at 73–75.
84. Goodstein, supra note 45, at 74–75.
85. See Koppl, supra note 37, at 257–59, for a discussion of this problem.
87. Frye, 293 F. at 1014.
88. With the exception of polygraph and voice spectrometry, few thought to challenge the general acceptance of most expert testimony pre-Daubert, except for DNA evidence, which was subject to numerous challenges. See, e.g., United States v. Bonds, 18 F.3d 1327 (6th Cir. 1994); People v. Castro, 545 N.Y.S.2d 985 (1989) (determining that DNA profiling met general acceptance standards).
sent." However, the community consisted primarily of those who compare fingerprints for a living. Moreover, the court did not understand the implications of noting that the community allowed only "limited room for dissent." Surely the mark of a well-grounded science is its willingness to accept and respond to robust critique and dissent. Although Daubert has replaced the Frye standard in many state jurisdictions, Daubert's inquiry also often includes an analysis of the general acceptance of the proposed evidence.

In the 1830s and 1840s, phrenology—or the study of brain functions as manifested by cranial features—was in full swing as a scientific endeavor, with conferences devoted to its study and its own scholarly publication—the American Phrenological Journal. One of the inventors of the system of phrenology was Dr. Franz Joseph Gall, who attempted to identify twenty-seven human faculties that could be identified by various cranial manifestations. Gall's conclusions emanated from "scientific observation of countless samples" and among the applications for phrenology was its believed utility in criminology. At the time, if one asked a phrenologist whether phrenology was good science, the answer would be undoubtedly "yes." Today, few people would equate phrenology with good science. Yet, phrenology shares an important trait with forensic individualization evidence: conclusions are not based upon independent testing but upon "scientific observations of countless samples." Both are experience-based conclusions that rest on the foundation that: (1) the science is valid because of extensive observations; (2) those skilled in the science can do it properly; and (3) the underlying theory is valid because of the care used by the practitioners. The circular reasoning problem, however, is far more easy to spot in the case of phrenology than it is with other forms of forensic individualization, as evidenced by a 2005 Supreme Judicial Court of Massachusetts decision noting the ACE-V

90. Commonwealth v. Patterson, 840 N.E.2d 12, 25 (Mass. 2005). Although Massachusetts uses a Daubert-style reliability test, they have noted that "general acceptance in the relevant . . . community will continue to be the significant, and often the only, issue." Id. at 23 (citations omitted).
91. See Cooley, Reforming the Forensic Science Community, supra note 15, at 392, (stating that "science thrives by detecting errors and shortcomings of asserted hypotheses").
92. Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 594 (1993) ("‘General acceptance’ can yet have a bearing on the inquiry. . . . Widespread acceptance can be an important factor. . . .").
94. Id. at 878, 880.
95. Id. at 880.
96. Id. at 878.
97. However, given the proliferation and popularity of such pseudosciences as new-age crystal healing and horoscopes, some might disagree with the stated proposition.
method for comparing fingerprints "defies easy testing because it does not require a minimum number of similarities, but rather operates on a subjective sliding scale."98 That is to say, "I know a match when I see one."

It is not only the Frye jurisdictions that have an inherent circular logic problem. In Kumho Tire, the majority decides that the Daubert reliability standard and gatekeeping obligation apply to all forms of expert testimony, not simply scientific expert evidence. The objective of such gatekeeping, the court reasons, is to ensure the reliability and relevancy of such evidence. Thus, the expert, "whether basing testimony upon professional studies or personal experience, [must] employ[,] in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."99 Interpreting this phrase literally would permit virtually any substandard expert evidence to be admissible so long as the courtroom testimony is of equal "intellectual rigor" to the practice in the field. Indeed, the language would seem to give the particularly shoddy expert testimony easy entry into the courts—as has proven prophetic in the case of prosecutorial forensic science.

In civil cases, many federal courts are loath to admit what they consider insufficiently well-grounded expert testimony.100 For example, courts have declined to admit expert medical testimony that a defendant's product caused plaintiffs' alleged multiple chemical sensitivity.101 What these courts claim to require is some independent proof that such a theory has a solid basis in well-studied and accepted science.

Yet in criminal cases, particularly with the individualization specialties, courts have not required any such independent proof from

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100. See, e.g., McLain v. Metabolife Int'l, 401 F.3d 1233, 1239-52 (11th Cir. 2005) (discussing an expert who substituted his own opinion for scientific proof that plaintiff's use of defendant's supplements caused plaintiff's strokes and heart attack); Norris v. Baxter Healthcare Corp., 397 F.3d 878, 886 (10th Cir. 2005) (describing plaintiff's experts' opinions that silicone breast implants caused autoimmune diseases as not reliably grounded on existing data). In both these cases (and others), courts have determined that the data is connected to the opinion only by the "ipse dixit" of the expert, which, as the Supreme Court said in General Electric Co. v. Joiner, 522 U.S. 136 (1997), may be insufficient for admissibility. "[N]othing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." Id. at 146.
prosecutors and have allowed in virtually all forms of their expert evidence. Often, the sole verification for individualization is the examiner’s claims that based upon their experience, they know a match when they see one. That is a far cry from the United States Supreme Court’s admonition in *Kumho Tire Co. v. Carmichael*,¹⁰⁴ that all expert evidence must “rest[] on a reliable foundation,”¹⁰⁵ and it is a great deal closer to phrenology’s claims of accuracy. Moreover, the experience-based proof of reliability comes nowhere near the court’s admonition that “a trial court should consider the specific factors identified in *Daubert* where they are reasonable measures of the reliability of expert testimony.”¹⁰⁶

Despite the glaring shortcomings of forensic individualization specialties and the mandate that federal trial courts act as gatekeepers to exclude unreliable evidence,¹⁰⁷ courts have been steadfast in continuing to admit such testimony.¹⁰⁸ Although a handful of courts have at least prevented some of these experts from testifying about a conclusion,¹⁰⁹ the clear trend is in favor of admission of such evidence.

¹⁰². Moriarty & Saks, *supra* note 20, at 28. Defendants have had more difficulty in attempts to have similar types of evidence admitted. *See, e.g.,* United States v. Frazier, 387 F.3d 1244, 1265 (11th Cir. 2004) (finding the trial court did not abuse its discretion in limiting the testimony of a qualified forensic expert where it found an “absence of a sufficiently verifiable, quantitative basis” for the opinion). The subject of defense attempts to introduce expert evidence is also beyond the scope of this Article but will be addressed in the author’s forthcoming book mentioned in note 11, *supra.*

¹⁰³. *See, e.g.,* Thornton & Peterson, *supra* note 54, at § 24-5.5 (explaining the dangers of forensic experts claiming that their conclusion is based on “years of experience”). *See also* Moriarty, *Wonders of the Invisible World,* *supra* note 62, at 84–86 (discussing the problems of experiential-based conclusions).

¹⁰⁴. *Kumho Tire Co.,* 526 U.S. at 137.

¹⁰⁵. *Id.* at 141 (quoting *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993)). In *Daubert*, the Supreme Court suggested that five factors (testing, error rate, peer review, maintenance of standards and controls, and general acceptance) might be helpful to determining whether scientific evidence is reliable. *Daubert,* 509 U.S. at 593–94. The *Kumho Tire* decision extended the reliability requirement to all expert evidence. *Kumho Tire Co.,* 526 U.S. at 141.

¹⁰⁶. *Kumho Tire Co.,* 526 U.S. at 152 (emphasis added).

¹⁰⁷. *Daubert,* 509 U.S. at 597.

¹⁰⁸. See, for example, United States v. Crisp, 324 F.3d 261 (4th Cir. 2003) and United States v. Mooney, 315 F.3d 54 (1st Cir. 2002), each upholding the trial court’s decision that expert testimony regarding handwriting comparisons and conclusions of authorship met *Daubert’s* reliability standard. Other examples include, United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004), United States v. George, 363 F.3d 666 (7th Cir. 2004), United States v. Crisp, 324 F.3d 261 (4th Cir. 2003), and United States v. Havvard, 260 F.3d 597 (7th Cir. 2001), each finding that fingerprint comparisons met *Daubert’s* reliability requirements, and Bryan v. State, 935 P.2d 338 (Okla. Crim. App. Ct. 1997), affirming the admission of testimony that hair samples were microscopically consistent.

III. PROSECUTORIAL ETHICS

A. Prosecutorial Goals and Obligations

What are the proper goals and ends of prosecution? Arguably, proper prosecutions determine truth, convict the guilty, exonerate the innocent, reaffirm the justness of our justice system, and aid in the preservation of the common tranquility by using civilized methods to punish lawbreakers. The prosecution of citizens in this country has been exceedingly successful, if one measures success by the number of convicts. There are now more than two million people in jail, leading commentators to refer to the rise of the “prison-industrial complex” and to write disturbingly about the effects of such a punitive system.

110. “One hopefully rather uncontroversial goal [of the Justice Department] is that of prosecuting only guilty people, convicting them, and doing so in accordance with law (defined broadly).” Daniel Richman, Prosecutors and Their Agents, Agents and Their Prosecutors, 103 COLUM. L. REV. 749, 794 (2003). Professor Richman also urges prosecutors to proceed “with a degree of moderation.” Id. Professor Zacharias also notes that in the adversarial system, “[f]airness and respect for client individuality play an equal part, even though full assertion of client rights may interfere with truth-seeking.” Fred A. Zacharias, Structuring the Ethics of Prosecutorial Trial Practice: Can Prosecutors Do Justice?, 44 VAND. L. REV. 45, 56 (1991).


In an opinion excoriating the Sentencing Guidelines and the abuse of prosecutorial discretion, Chief Judge William G. Young of the District of Massachusetts, writes:

“[T]he Department of Justice is so addicted to plea bargaining to leverage its law enforcement resources to an overwhelming conviction rate that the focus of our entire criminal justice system has shifted far away from trials and juries and adjudication to a massive system of sentence bargaining that is heavily rigged against the accused citizen.” United States v. Green, 346 F. Supp. 2d 259, 265 (D. Mass. 2004), decision vacated in part on other grounds and remanded, United States v. Yeje-Cabrera, 430 F.3d 1 (1st Cir. 2005), vacated and remanded by United States v. Pacheco, 434 F.3d 106 (1st Cir. 2006).

112. See Smith, supra note 111, at 363–65 (citing The Real War on Crime: The Report of the National Criminal Justice Commission 93–94 (Stephen R. Donziger ed., 1996)). For a compelling reading on the subject, in addition to Abbe...
With rising conviction numbers has come the discovery of increasing numbers of persons wrongfully convicted. Indeed, as a comprehensive review of exonerations concludes, "[a]ny plausible guess at the total number of [misconvictions]... in the last fifteen years must be in the thousands, perhaps tens of thousands." Despite the rise in the number of prosecutions, the jurisprudential belief persists that to whom much power is given in prosecution, much is expected. Prosecutors, unlike other advocates, have a two-fold obligation to vigorously prosecute and to see that justice is done. These prosecutorial duties, while often synchronistic and complementary, are occasionally at cross-purposes. For example, a prosecutor must disclose evidence that may mitigate the degree of guilt, although she honestly believes the defendant is guilty of the more serious degree of the crime.

A potential conflict also arises when the prosecution uses expert testimony that may be less than reliable—such as conclusions about hair comparison—to help convict a person the prosecutor honestly believes is guilty. The conundrum is whether justice is served when a prosecutor decides not to use the questionable expert testimony or whether justice is served when she does.

The prosecutorial goals of "seeking justice," "doing justice," protecting the innocent, and convicting the guilty, each have a long and well-accepted basis in tradition. The prosecutor’s "duty to seek justice," Smith and David Coles' writing, see David Rudovsky, Law Enforcement By Stereotypes and Serendipity: Racial Profiling and Stops and Searches without Cause, 3 U. Pa. J. Const. L. 296 (2001); accord United States v. Green, 346 F. Supp. 2d at 266 (noting that if incarceration rates remain the same, 6.6% of U.S. residents born in 2001 will go to prison at some time in their life and that a disproportionate number will be African American or Hispanic American).

Gross, supra note 2, at 551.

See generally Berger v. United States, 295 U.S. 78, 88 (1935) (noting that a prosecutor's obligation is not "that it shall win a case, but that justice shall be done").

As a matter of substantive criminal procedure and ethical obligation, a prosecutor must disclose to the defense evidence that tends to exculpate the defendant or mitigate the degree of guilt. See generally Brady v. Maryland, 373 U.S. 83 (1963); United States v. Bagley, 473 U.S. 667 (1985); Model Rules of Prof'L Conduct R. 3.8(d) (2007) ("[A prosecutor shall] make timely disclosure to the defense of all evidence or information known to the prosecutor that tends to negate the guilt of the accused or mitigates the offense, and, in connection with sentencing, disclose to the defense and to the tribunal all unprivileged mitigating information known to the prosecutor. . . ."); Model Code of Prof'L Responsibility DR 7-103(B) (1983) ("A public prosecutor . . . shall make timely disclosure to counsel for the defendant, or to the defendant if he has not counsel, of the existence of evidence, known to the prosecutor . . . that tends to negate the guilt of the accused, mitigate the degree of the offense, or reduce the punishment.").

The morality of protecting the innocent in criminal trials in this country was recognized as far back as the Salem Witchcraft Trials of 1692, by the Rev. Increase Mather, who helped bring the trials to an end when he wrote, "It were better that Ten suspected Witches should escape, than that one Innocent Person should be Condemned." Moriarty, Wonders of the Invisible World, supra note 62, at 43 (cit-
is a standard traceable as far back as George Sharwood's oft-cited 1854 "Essay on Professional Ethics"117 and continues to be the current standard, suggesting a quasi-judicial aspect.118 The Supreme Court has embraced the standard as well, notably in Berger v. United States:

The [prosecutor] is the representative not of an ordinary party to a controversy, but of a sovereignty whose obligation to govern impartially is as compelling as its obligation to govern at all; and whose interest, therefore, in a criminal prosecution is not that it shall win a case, but that justice shall be done. As such, he is in a peculiar and very definite sense the servant of the law, the twofold aim of which is that guilt shall not escape or innocence suffer. He may prosecute with earnestness and vigor—indeed, he should do so. But, while he may strike hard blows, he is not at liberty to strike foul ones. It is as much his duty to refrain from improper methods calculated to produce a wrongful conviction as it is to use every legitimate means to bring about a just one.119

This unique and special role of the prosecutor is an accepted norm embedded in the ABA Model Code of Professional Responsibility,120 the ABA Model Rules of Professional Conduct,121 the ABA Standards Relating to the Administration of Criminal Justice,122 and numerous state ethics codes.123 Moreover, case law and ethics codes support the free exercise of prosecutorial discretion in various decisions including


120. MODEL CODE OF PROF’L RESPONSIBILITY EC 7-13 (1983) (“The responsibility of a public prosecutor differs from that of the usual advocate; his duty is to seek justice, not merely to convict.”).

121. MODEL RULES OF PROF’L CONDUCT R. 3.8, cmt. 1 (2007) (“A prosecutor has the responsibility of a minister of justice and not simply that of an advocate. This responsibility carries with it specific obligations to see that the defendant is accorded procedural justice and that guilt is decided upon the basis of sufficient evidence.”).

122. ABA STANDARDS FOR CRIMINAL JUSTICE: PROSECUTION AND DEFENSE FUNCTION, Standard 3-1.2(c) (3d ed. 1993) (“The duty of the prosecutor is to seek justice, not merely to convict.”).

123. See, e.g., 42 Pa. C.S. R. 3.8(d); ILL. SUP. CT. R. OF PROF’L CONDUCT R 3.8(c); OHIO CODE OF PROF’L RESPONSIBILITY DR 7-103.
chargeting, plea bargaining, dismissing cases, the method of trying
cases, and whether to appeal.\textsuperscript{124}

In reality, however, protecting the innocent from conviction does
not stand on equal footing with convicting the guilty—it is doubtful
that any elected prosecutor campaigned on the notion of cases he did
not prosecute.\textsuperscript{125} Similarly, those prosecutors who decline to prosecute
because of doubts about guilt are perhaps not as likely to succeed as
those who harbor few doubts. Prosecutors who obtain “the highest
conviction rates (and, thus, reputations as the best performers) stand
the greatest chance for advancement internally.”\textsuperscript{126}

To date, the legal system and commentators have paid little atten-
tion to prosecutorial discretion in the use of unreliable expert testi-
mony—despite mounting evidence that misconvictions have been
based upon unreliable expert testimony. While the ABA Model Rules
of Professional Conduct prohibit the use of evidence the lawyer knows
to be false,\textsuperscript{127} it says nothing about the use of evidence the lawyer
knows to be unreliable—which many would argue is a different stan-
dard and a decision prosecutors can simply defer to judges.\textsuperscript{128} This

\textsuperscript{124} For example, the ABA Standards For Criminal Justice: Prosecution and Defense
Function, provide various places where a prosecutor may exercise discretion in
seeking non-criminal disposition and in deciding what to charge. See ABA Stan-
dards For Criminal Justice: Prosecution and Defense Function, Standard 3-
3.8 to 3-3.9 (3d ed. 1993). See also Leslie C. Griffin, The Prudent Prosecutor, 14
Geo. J. Legal Ethics 259, 261 (2001) (Griffin argues in favor of a “prudence
standard, urging prosecutors to exercise good judgment in the discretionary com-
ponent of their practice and ethics. She posits that the Supreme Court’s “prudent
prosecutor” standard discussed in United States v. Agurs, 427 U.S. 97 (1976) en-
courages prosecutors to be cautious, careful, and exercise good judgment, largely
because of the discretionary nature of their job.).

\textsuperscript{125} In his article, System Failure, Erik Luna notes that neither trial-level prosecu-
tors nor their supervisors receive any benefit from prosecutions, dismissals, and
acquittals. Rather higher salaries, promotions, and re-elections depend in part
on rates of successful prosecutions. Erik Luna, System Failure, 42 AM. CRIM. L.

\textsuperscript{126} Daniel S. Medwed, The Zeal Deal: Prosecutorial Resistance to Post-Conviction

\textsuperscript{127} MODEL RULES OF PROF'L CONDUCT R. 3.3(a)(3) (2007) (provides that “[a] lawyer
shall not knowingly offer evidence that lawyer knows to be false). The amend-
ment to the rule, provided as part of Ethics 2000, also adds that “[a] lawyer may
refuse to offer evidence . . . that the lawyer reasonably believes is false.” The ABA
Model Code of Professional Responsibility, which has largely been replaced by the
variations of the Model Rules of Professional Conduct in various states, provides
merely that a lawyer shall not “[k]nowingly make a false statement of law or fact.” DR 7-102(A)(5) (1983).

\textsuperscript{128} Since the expert evidence “trilogy” of Daubert v. Merrell Dow Pharmaceuticals,
Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999), federal judges have been
charged formally with the obligation to act as gatekeepers, ensuring that unrelia-
ble expert testimony is not admitted at trial. A majority of states have followed
the so-called Daubert reliability test, but a substantial minority still adhere to a
argument is compelling. Since judges have been charged with the obligation to exclude the chaff and admit only the wheat at trial, why would we demand that prosecutors voluntarily refrain from using potentially unreliable evidence? Because prosecutors are different. From prosecutors, we expect prudence, discretion, and justice—not simply advocacy. We simply expect more.

The ABA Standards For Criminal Justice provide only one specific standard relating to expert testimony and that rule is both incomplete and unenforceable. It states, in pertinent part:

(a) A prosecutor who engages an expert for an opinion should respect the independence of the expert and should not seek to dictate the formation of the expert's opinion on the subject. To the extent necessary, the prosecutor should explain to the expert his or her role in the trial as an impartial expert called to aid the fact finders and the manner in which the examination of the witness is conducted.

While this aspirational language is comforting, it does not accurately reflect the use of experts by prosecutors. The experts from the F.B.I. Crime Laboratory cannot seriously be considered as either "independent" or "impartial," particularly since the laboratory has a policy to assist only law enforcement and efforts to implement independent testing of the government's forensic science have met with a great deal of resistance.
The role of prosecutors in deciding to exercise their discretion should be encouraged when it comes to the use of substandard forensic science. "The prosecutor's obligation as a 'minister of justice' to prevent the conviction and punishment of innocent people is generally thought to imply a 'gate-keeping' function." And this "gatekeeping function" ought to include the obligation not to use unreliable expert testimony.

Professor Bruce A. Green argues that in certain circumstances, doing justice may take a certain amount of inner strength (or strength of character) for an individual prosecutor to decide not to bring criminal charges or to dismiss criminal charges, to comply with procedural norms that make it more difficult to secure convictions, to confess error, or to seek to overturn a conviction that was unfairly procured.

Of course, he is correct. Yet, one wonders if this goal, both laudable and appropriate, will ever realistically be achieved.

It may be that the system asks too much of a lawyer to both play the game and call a foul on himself during it. The first problem, of course, is in the need for second-guessing oneself in the heat of competition, requiring prosecutors to question continually whether the investigation has nabbed the right person. From what we know about psychology, this is an unlikely occurrence. Moreover, it is certainly not the most effective way to prosecute a case.

Professor Andrew Taslitz is a former prosecutor and a current member of the ABA's Ad Hoc Innocence Committee to Ensure the Integrity of the Criminal Process. Professor Taslitz's comment is likely a common and widely shared belief of current and former prosecutors: "I am a former prosecutor, and, as I am sure is true of most prosecutors, not once did I help to convict someone whose guilt I doubted."

137. In their compelling argument about the problems regarding observer effects in forensic science, Professor Risinger and co-authors discuss confirmation bias: "the tendency to test a hypothesis by looking for instances that confirm it rather than by searching for potentially falsifying instances . . . ." Risinger et al., supra note 39, at 7. While the authors were addressing forensic science principles, the problem of confirmation bias is one that potentially permeates all criminal investigations and trials—once the investigators and prosecutors believe they have the guilty person, their actions will be in accordance with that belief. Accord Luna, supra note 125, at 1211 n.33 (discussing confirmatory bias in law enforcement as a potential cause for wrongful conviction); Findley & Scott, supra note 40, at 307-22 (discussing the various forms of bias that can infect criminal cases).
Unlike many other prosecutors, however, Taslitz has grown skeptical of the accuracy of each conviction, although he believes “the vast majority” of those convicted were guilty. He states “the accumulating evidence examined by the media suggests that my confidence in my near-infallibility was misplaced. There is a significant chance that at least a few of those suspects whom I prosecuted were entirely innocent.”\(^{139}\) Professor Taslitz, however, may be the rare former prosecutor. Other prosecutors are not so willing to revisit the past in an attempt to set their lands in order.\(^{140}\)

Florida prosecutors began a forceful campaign in 2003 to oppose the use of DNA testing to prove the innocence of convicts, despite the fact that more than 130 prisoners have been freed by DNA testing in the last 15 years.\(^{141}\) Prosecutors in those cases claim that it is time to “reconsider the power of DNA evidence,” claiming its usefulness in many cases is overstated.\(^{142}\)

A good example of the psychological resistance to reconsidering criminal convictions is the bullet-lead controversy. The FBI recently discontinued the use of bullet-lead following a scathing report by the National Academy of Science (NAS). Despite admitting that the manufacturing and distribution of bullets was too variable to testify about matches, the FBI Laboratory director inexplicably stated, “We stand by the reports of the results we have already issued.”\(^{143}\) Unquestionably, there is real cognitive dissonance involved in believing one’s work could have led to the conviction of an innocent person. As is seen repeatedly, prosecutors often object to post-conviction DNA testing, when its results could clearly prove the defendant’s innocence.\(^{144}\)

Moreover, in cases in which misconvicted people are being exonerated, prosecutors often express doubts about the accuracy of the exoneration (perhaps again re-proving the confirmation bias problem)\(^{145}\) and sometimes even express a sense of persecution. In the case of

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140. See Medwed, supra note 126, at 138–39 (explaining prosecutors’ psychological resistance to believing they convicted innocent people).
142. Id.
143. Piller, supra note 33. For a fuller discussion of the NAS panel report, see Moriarty & Saks, supra note 20, at 22.
144. See Medwed, supra note 126 (explaining the various reasons why prosecutors resist post-conviction testing).
145. See Steven A. Drizin & Beth A. Colgan, Let the Cameras Role: Mandatory Videotaping of Interrogations is the Solution to Illinois’ Problem of False Confessions, 32 Loy. Chi. L. J. 337, 347–48 (2001) (describing the Illinois state prosecutors’ refusal to admit they had erroneously convicted defendants who had falsely confessed, despite scientific proof of innocence, proof of physical impossibility of guilt, or the conviction of another person).
Josiah Sutton, for example, the prosecutor stated, "Why is this happening to me when I set out to do the right thing?"\textsuperscript{146}

**B. Suggested Changes**

If it is too much to ask prosecutors to second-guess their scientific and expert evidence in the heat of trial or after a conviction, perhaps prosecutors should think about their discretionary actions in the pre-indictment and pre-trial stages of the case, where much of the forensic science is developed as the bedrock of the prosecution. Although individual prosecutors may have very little ability to make laboratories use blind procedures or become certified, the Attorney General can do so and the elected District Attorneys are able to work with crime laboratories to encourage a more science-based system, where blind testing, controls, and more careful procedures are in place.\textsuperscript{147} While there has been movement in that direction, the problems are still widespread.

Individual prosecutors, however, do have the choice not to introduce flimsy scientific evidence, such as visual hair comparison evidence or bite-mark evidence, which proficiency studies show has perhaps a greater likelihood of being wrong than being right.\textsuperscript{148} Prosecutors can likewise choose to use the evidence in a more limited manner, when serious questions have been raised about the basis for declaring a match, such as with hair, handwriting, or tool-mark comparison.\textsuperscript{149}

However, we cannot simply expect prosecutors to back off such compelling evidence without suggesting norms that might compel them to reconsider, much the way Rule 3.8(d) of the *Model Rules of

\textsuperscript{146} Alan Bernstein, *Crime Lab Scandal Leaves Prosecutor Feeling Betrayed*, Hous. Chronicle, Mar. 16, 2003, at A23 (quoting Joe Owmbly, the Sutton case prosecutor). Owmbly also went on in that interview to compare Sutton's experience of spending over four years as a teenager in prison to Owmbly's time in the armed forces. "If I were Sutton I would never say that [the system] has worked. Because I have been places for a long period of time that I didn't want to be." According to defense expert criminologist, Professor William Thompson, Owmbly should have known about the grossly inaccurate DNA analysis. \textit{Id}.  

\textsuperscript{147} For discussions of the way in which institutional reform of criminal laboratories could be accomplished, see Koppl, supra note 37 and Achieving Justice, supra note 2.  

\textsuperscript{148} Saks & Koehler, supra note 19, at 895 (discussing error rates in proficiency testing).  

\textsuperscript{149} See, e.g., United States v. Green, 405 F. Supp. 2d 104, 109 (D. Mass. 2005) (where the judge reluctantly admitted expert testimony whereby the expert could discuss the points of similarity in bullet casings found at the scene and those test fired from defendant's weapon, but noting the "sloppy practices" of the prosecution experts).
Professional Conduct and the Supreme Court have done in the criminal procedure area with respect to exculpatory evidence. Model Rule 3.8 could be amended to provide a new norm governing prosecutorial behavior with respect to expert evidence:

The Prosecutor in a criminal case shall:

make reasonable efforts to assure that only reliable expert evidence is admitted into evidence. A prosecutor shall not use evidence that she knows or reasonably should know is unreliable.

Additionally, the ABA Standards Relating to the Administration of Criminal Justice could also be amended to include an exhortation against using unreliable expert testimony.

- A prosecutor who engages an expert for an opinion should respect the independence of the expert and should not seek to dictate the formation of the expert's opinion on the subject. To the extent necessary, the prosecutor should explain to the expert his or her role in the trial as an impartial expert called to aid the fact finders and the manner in which the examination of the witness is conducted. A prosecutor should not seek to rely upon unreliable expert testimony, particularly when such testimony would be important to a determination of guilt. (suggested amendment in italics)

These suggested changes are not panaceas, but might be one step toward a new prosecutorial philosophy about expert evidence and one that might begin to change the all-too-frequent problem of misconvictions.

An obvious problem with these suggested rule changes, however, is that it requires the prosecutor to determine reliability—rather than allowing the court to do so. Thus, "reliability" would need to be a carefully-defined term that would only require a prosecutor to not rely on evidence that meets a very specific, limited definition. In all other circumstances—such as when the defense raises a challenge to reliability—the prosecutor would be entitled to have the matter of reliability decided by the court. The following is the proposed definition of "unreliable."

150. Model Rules of Prof'l Conduct R. 3.8(d) (2007) provides, in pertinent part, that:

The prosecutor in a criminal case shall:

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(d) make timely disclosure to the defense of all evidence or information known to the prosecutor that tends to negate the guilt of the accused or mitigates the offense, and, in connection with the sentencing, disclose to the defense and to the tribunal all unprivileged mitigating information known to the prosecutor...


"Unreliable" denotes that a reasonable person has a factual basis to believe that the proposed evidence is incorrect, inaccurate, incomplete, misleading, substantially flawed, or without solid foundation.

Although this definition falls close to the prohibition against using evidence the lawyer knows or reasonably believes is false, it seeks to fill the gap between arguable evidence and false evidence. This gap is substantial and may well be implicated in numerous wrongful convictions. For example, after prosecutors learn of substantial misconduct in the laboratory, they should refrain from using results generated by that lab and seek to have such results retested by another lab. When prosecutors know that visual hair comparison is terribly flawed, they should not use it in court since they know the potential for error. They may not know that it is false, but they reasonably should know that it is unreliable. We should expect this much from prosecutors.

The second suggested change is one made by other commentators: Begin serious enforcement of the disciplinary rules when the actions of prosecutors contribute to misconvictions. As scholars note, prosecutors rarely receive ethical sanctions for their misconduct, even when it leads to wrongful conviction. Where a prosecutor reasonably should have known that evidence is unreliable and integral to a conviction, that prosecutor should face ethical sanctions for a decision to use it against a defendant.

These suggestions are burdensome for the prosecution. Yet, the real purpose of suggesting these changes is not to tie a prosecutor's hands or to ramp up the rate of disciplinary actions, but rather to encourage prosecutors to rethink evidence that has a long history of being implicated in wrongful convictions, such as microscopic hair comparison. The purpose of these proposed changes is to encourage prosecutors to become more actively involved in the development of the expert evidence that is critical to their cases and to be more rigor-

152. See MODEL RULES OF PROF'L CONDUCT R. 3.3(a)(3) (2007) ("A lawyer shall not knowingly... offer evidence that the lawyer knows to be false."); MODEL RULES OF PROF'L CONDUCT R. 3.4(b) (2003) ("A lawyer shall not... falsify evidence, counsel or assist a witness to testify falsely. . . ").


155. The phrase "reasonably should know" is meant to track the definition used in the ABA Model Rules of Professional Conduct, R. 1.0 (j) (2007): "Reasonably should know" when used in reference to a lawyer denotes that a lawyer of reasonable prudence and competence would ascertain the matter in question.

156. See Margaret A. Berger, The Impact of DNA Exonerations on the Criminal Justice System, 34 J. L. MED. & ETHICS 320, 322 (2006) (noting the role that hair comparison has played in convicting those later exonerated).
ous in requiring better quality evidence to be admitted. One reason there are few disciplinary actions against prosecutors for failing to disclose exculpatory material is that most prosecutors comply with that long-standing requirement. The culture has changed with respect to disclosure. We need to ensure that the culture changes with respect to unreliable evidence as well. We should expect such a change from prosecutors in their role as ministers of justice.

The other justification for this proposed ethics rule is to protect a prosecutor who would not use the evidence except for the concern that a supervisor will disagree with that decision. Thus, the prosecutor concerned about a potential wrongful conviction has a stronger argument that—as an ethical obligation—he cannot use unreliable evidence. It would no longer be sufficient for the prosecutor to leave it up to the judge when there are good grounds to believe the evidence is unreliable. In light of the often political nature of both state and federal prosecutors' offices, this ethics rule could provide a safe harbor for a prosecutor concerned about convicting the wrong person.

IV. JUDICIAL ETHICS

In an article entitled Judicial Ethics in the Twenty-First Century: Tracing the Trends, Judge Roger Miner of the Court of Appeals for the Second Circuit carefully examined several major judicial ethics issues, such as: campaigning, recusal, courtroom behavior, financial disclosure, competence, and off-bench activities. Neither that article nor any other article on judicial ethics mentions the role of judicial gatekeeping as an ethical matter—perhaps since most think of the obligation as merely a question of evidence. I posit it is far more than an evidentiary issue. Rather, a judge has an ethical obligation as a minister of justice to be a competent and honest gatekeeper, particularly in those criminal cases in which the liberty of potentially innocent persons are at risk. A fair reading of the Model Code of Judicial Conduct, coupled with language from the Federal Rules of Evidence and comments from Supreme Court, compel such a conclusion. The well-developed legal and philosophical principles that guide judicial decision-making likewise point to such a conclusion.

A. Substantive Gatekeeping as an Ethical Obligation

1. The Federal Rules of Evidence and Supreme Court Doctrine

Federal Rule of Evidence 102 provides that the evidence rules "shall be constructed to secure fairness in administration, elimination of unjustifiable expense and delay, and promotion of growth and de-

velopment of the law of evidence to the end that the truth may be as-
certained and proceedings justly determined.”

The Supreme Court of the United States has repeatedly referred to the search for truth as an elemental aspect of criminal trials.

In his concurring opinion in General Electric v. Joiner, Justice Breyer discusses the gatekeeping role of the trial judge, stating that “neither the difficulty of the task nor any comparative lack of expertise can excuse the judge” from exercising this obligation. Indeed, he notes, “when law and science intersect, those duties often must be exercised with special care.”

He reminds the reader that it is “essential in this science-related area that the courts administer the Federal Rules of Evidence . . . so that the proceedings may be ‘justly determined’ . . . [and] ‘that the truth may be ascertained.’”

Prior to 1993, the so-called Frye test of general acceptance was a primary standard employed to determine the admissibility of novel, scientific evidence in federal and many state courts. The actual use of the Frye test was infrequent, in part because it was limited to expert evidence that was both scientific and new to the courts. In 1993, however, in Daubert v. Merrell Dow Pharmaceuticals, Inc., the U.S. Supreme Court decided that the Frye test was superseded by the Federal Rules of Evidence and should not govern the admission of scientific evidence.

During the past decade, the Supreme Court of the United States has issued a ground-breaking trilogy of decisions governing the use of expert evidence at trial: Daubert (1993); General Electric Co. v. Joiner (1997); and Kumho Tire Co. v. Carmichael (1999).

The purpose for which the Court ostensibly granted certiorari in Daubert was to determine whether the enactment of the Federal Rules of Evidence overruled the prior standard governing the admission of

158. Fed. R. Evid. 102 (emphasis added).
159. See, e.g., Banks v. Dretke, 540 U.S. 668, 696 (2004) (noting the prosecutor’s role to search for truth in criminal trials); Kumho Tire Co., v. Carmichael, 526 U.S. 137, 152–53 (1999) (quoting Fed. R. Evid. 102); Nix v. Whiteside, 475 U.S. 157, 171 (1986) (noting the governance of trial conduct should be done in a way that comports with the “search for truth” and holding that the lawyer did not render ineffective assistance of counsel to a client when he urged the client not to commit perjury, finding no constitutional right to commit perjury).
161. Id.
162. Id. at 149 (quoting Fed. R. Evid. 102). In the paragraph preceding this quote, Justice Breyer is discussing toxic torts in particular. However, a fair reading suggests that his admonition refers not only to toxic torts but to all areas in which science intersects with evidence.
novel scientific evidence in federal courts. The Court held that the
Rules indeed had vitiates the prior Frye standard, which mandated
that novel scientific evidence had to be “generally accepted” within its
scientific community to be admitted at trial. “That austere stan-
dard, absent from, and inadmissible with, the Federal Rules of Evi-
dence, should not be applied in federal trials.”

The Daubert Court emphasized that rules of evidence had a “lib-
eral thrust” and were incompatible with the rigid general acceptance
test. The court envisioned a flexible standard that would govern the
admission of all scientific evidence, not just novel scientific evidence.
In order to determine whether scientific evidence was admissible, the
Court instructed, the evidence must be both “scientific”—that is,
grounded in the methods and procedures of science—and be relevant
to the inquiry at hand.

In order to be considered scientific knowledge, the Court contin-
ued, an inference or assertion must be derived by the scientific
method. That is, there must be appropriate validation. While “not presum[ing] to set out a definitive checklist or test,” the court made a
number of observations, which of course, immediately became a spe-
cific checklist followed by many courts. Those observations were:
(1) whether the theory or technique can be or has been tested;
(2) whether the theory or technique has been subjected to peer review
and publication—an aid to evaluating the quality of the testing;
(3) the potential or known rate of error of the theory or technique
when applied; (4) the existence and maintenance of standards control-
ing the technique’s operation; and (5) whether the technique or the-
ory has been generally accepted in the relevant scientific
community.

This flexible standard for expert testimony was premised on the
idea of “evidentiary reliability” or “trustworthiness.” Rather than
wholesale exclusion, Daubert opined that “vigorous cross-examina-
tion, presentation of contrary evidence, and careful instruction on the
burden of proof,” coupled with the court’s power to direct verdicts and
grant summary judgment, were the “appropriate means of attacking
shaky but admissible evidence.” The difficulty, of course, is deter-
mining where “shaky but admissible” ends and “unreliable thus inad-
missible” begins.

166. Frye, 293 F. at 1014 (holding that the proposed evidence “must be sufficiently
established to have gained general acceptance in the particular field in which it
belongs”).
167. Daubert, 509 U.S. at 588.
168. Id. at 589–91.
169. Id. at 593–94.
170. Id. at 596.
The subsequent cases, *Joiner* and *Kumho Tire*, answered questions that developed in the wake of *Daubert*. In *Joiner*, the court softened the line it had earlier drawn between methodology and conclusions, stating that conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either *Daubert* or the *Federal Rules of Evidence* requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.  

*Kumho Tire*, decided in 1999, held that the *Daubert* gatekeeping requirement applied to all expert evidence, not just scientific, and also reaffirmed the trial judge's latitude in determining what test is appropriate for the type of expertise before the court and whether the proposed testimony meets that test:

We . . . conclude that a trial court may consider one or more of the more specific factors that *Daubert* mentioned when doing so will help determine that testimony's reliability. But . . . the test of reliability is "flexible," and . . . the law grants a district court the same broad latitude when it decides how to determine reliability as it enjoys in respect to its ultimate reliability determination.  

Although the trilogy embraces a flexible standard, the language of *Kumho Tire* provides an important recommendation: "[A] trial court should consider the specific factors identified in *Daubert* where they are reasonable measures of the reliability of expert testimony." When such language is coupled with *Daubert's* concern for "*evidentiary* reliability—that is, trustworthiness[,]" it becomes apparent that the Supreme Court is urging courts to admit only trustworthy expert evidence based on sufficient facts and data, and to disallow expert evidence that rests on an inadequate foundation or the *ipse dixit* of the expert. Although the standard of evidentiary reliability is flexible, the language of *Daubert* and *Kumho Tire* provide guidance. As Justice Scalia observes in his concurrence in *Kumho Tire*, while "the *Daubert* factors are not holy writ, in a particular case the failure to apply one or another of them may be unreasonable, and hence an abuse of discretion."  

*Federal Rule of Evidence* 702 was amended in 2000 to reflect the Supreme Court's requirements for expert evidence and many state courts have followed the lead of the Supreme Court, incorporating a

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173. *Id.* at 152 (emphasis added).
174. *Daubert*, 509 U.S. at 590 n.9 (discussing the distinction between validity and reliability).
175. *Kumho Tire Co.*, 526 U.S. at 159 (Scalia, J., concurring).
176. *Fed. R. Evid.* 702 provides:
reliability-based standard to govern the admission of expert evidence. While a number of states still use a general acceptance standard to analyze expert evidence, many of those states also focus on the trustworthiness of such evidence.177

Many judicial decisions about the admissibility of forensic science, however, assume admissibility as a default position, particularly when there has been a long history of judicial admission of the testimony, as is true with fingerprint or handwriting comparisons. In United States v. Prime, the court agreed that it “makes sense to demand proof of statistically significant results” for a novel theory, but “where a technique has been repeatedly applied and tested by law enforcement and by courts for over a century, the Court does not believe that the absence of scientific data, without more, should be the death knell for such testimony.”178 So too in the Llera Plaza case, Judge Pollak states that since the methodology used to compare fingerprints is “sufficiently reliable for an English court,” then it should be sufficiently reliable to satisfy our Rule 702.179 Yet, as commentators note, false fingerprint identifications have been known about for decades.180 Thus, the courts’ reliance on the long history and acceptance by other courts is not an approach that gets to the heart of Daubert’s requirements or the ethical obligation of what judges do as gatekeepers: help assure that justice is done by admitting only reliable evidence.

While both Prime and Llera Plaza addressed numerous other factors that were relevant to their decision and to Daubert’s reliability requirements, neither court seemed willing to acknowledge the possibility that admitting evidence without sufficient scientific foundation increases the chance of convicting an innocent person.

2. The Model Code of Judicial Conduct

The ABA Model Code of Judicial Conduct provides a great deal of generalized language about the proper actions of judges on and off the

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

bench but pays little attention to the details of the actual work of judg-
ing.\textsuperscript{181} The Preamble provides,

\begin{quote}
[T]he judiciary plays a central role in preserving the principles of justice and the rule of law. Inherent in all the Rules contained in this Code are the precepts that judges, individually and collectively, must respect and honor the judicial office as a public trust and strive to maintain and enhance confidence in the legal system.
\end{quote}

This hortatory language provides little in terms of specificity, yet the point it makes is clear: the judiciary has an obligation to honestly and meaningfully apply the rule of law.

The concept that judicial office is a "public trust" dovetails with the \textit{Federal Rules of Evidence} admonition that the Rules must be con-
strued to secure fairness, truth, and just determinations. As trustees of justice, it is the courts' obligation to strive continually to see that justice is served. The \textit{Model Code of Judicial Conduct} has recently been revised. The new Rule 2.2 provides normative guidance about the judge's role in interpreting and applying the law, as the selected rule and comments note:

\textbf{Rule 2.2: Impartiality and Fairness}

\begin{quote}
A judge shall uphold and apply the law, and shall perform all duties of judicial office fairly and impartially.
\end{quote}

\textbf{Comment}

[1] To ensure impartiality and fairness to all parties, a judge must be ob-
jective and open-minded.

[2] Although each judge comes to the bench with a unique background and personal philosophy, a judge must interpret and apply the law without regard to whether the judge approves or disapproves of the law in question.

Thus, as a matter of judicial ethics, courts must interpret and apply the law honestly, without regard to personal approval or disapproval of the law. While one might argue that this new rule imports long-
established understanding into text, it is not always apparent by judges who rule on questionable forensic evidence.

The \textit{Daubert} trilogy intended to sharpen the role of the trial judge, to give judges a far more active, determinative role in deciding whether juries would even receive proposed expert testimony.\textsuperscript{182} This

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retical, relationship between science and law by forcing judges to play a new, more active role in enhancing the quality of scientific evidence used to decide legal cases"). The Advisory Committee Note to the 2000 amendment to \textit{Federal Rule of Evidence} 702 provides a slightly different view: "\textit{Daubert} did not work a 'seachange over federal evidence law,' and 'the trial court's role as gatekeeper is not intended to serve as a replacement for the adversary system,'" (quoting
\end{flushleft}
role includes an ethical duty to impartially uphold and apply the law as it applies to reliability determination.

Many scientists and legal scholars exhibit a great deal of frustration about how the appellate courts often ignore the mandate of the U.S. Supreme Court to require the proponent of expert evidence to prove both its reliability and its relevance. In an article written for the ABA Judges, Professor Saks and I decry the unwillingness of judges to exclude poor quality forensic evidence, noting "[t]here is almost no [prosecution] expert testimony so threadbare that it will not be admitted if it comes to a criminal proceeding under the banner of forensic science."183

Much forensic science—hair, fingerprint, and handwriting comparisons—simply has not been proven reliable, and courts' refusal to so find has led the authors of Modern Scientific Evidence to describe the devices employed by courts as a "catalog of evasions."184 At the same time, courts have breezily disallowed defense efforts to introduce well-grounded expert testimony about eyewitness identification problems in all but the most extreme cases.185 This unwillingness persists in the face of ample evidence that "the most common cause of wrongful convictions is eyewitness identification."186

In Daubert v. Merrell Dow Pharmaceuticals, Inc., the Supreme Court held unequivocally that the job of the trial judge is to "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable."187 In Kumho Tire, this judicial obligation to ensure reliability was enlarged to include all types of expert testimony.188 Nonetheless, courts continue to find ways to avoid conducting meaningful reliability analyses of prosecutorial forensic evidence. The subtext to these decisions is that courts believe that these forensic sciences are both accurate and trustworthy and the challenges are specious and formalistic. Yet, the accumulating data suggest there is a great deal more error in forensic sciences than the government acknowledges.

183. Moriarty & Saks, supra note 20, at 29.
185. See cases collected in MORIARTY, SCIENTIFIC EVIDENCE, supra note 21, at § 13:55. See also United States v. Smith, 122 F.3d. 1355, 1358 (11th Cir. 1997) (dismissing concerns about eyewitness misidentification and the need for expert testimony by stating that "expert testimony . . . [is] not needed, because the jury [can] determine the reliability of eyewitness identification with the tools of cross-examination.
186. Gross et al., supra note 2, at 542.
Although courts are granted a great deal of discretion in how to determine reliability, when they are presented with the type of evidence where the *Daubert* factors are a good gauge of reliability, courts should be using those factors, as the Supreme Court in *Kumho Tire* states. And forensic individualization specialties are well-suited to be judged by traditional scientific method factors, as used by the court in *Daubert*.

As trial courts have steadfastly refused to take the *Daubert* trilogy language seriously as applied to individualization evidence, courts of appeals have steadfastly upheld such decisions under an abuse of discretion standard, with very little objection being voiced.\(^{189}\) One such objection occurred in Judge Michael's dissenting opinion of *United States v. Crisp*.\(^{190}\) In *Crisp*, the majority found that both handwriting and fingerprint comparison was sufficiently reliable to be admitted, primarily on the grounds that such evidence had been admitted into evidence for decades. Judge Michael disagreed, stating, "I am not suggesting that fingerprint and handwriting evidence cannot be shown to satisfy *Daubert*. I am only making the point that the government did not establish in Crisp's case that this evidence is reliable. The government has had ten years to comply with *Daubert*. It should not be given a pass in this case."\(^{191}\)

In a December 2005 decision, the Honorable Nancy Gertner, United States District Court Judge for the District of Massachusetts, allowed a tool-mark expert to testify about points of comparison between shell casings, but held he could not render an opinion about whether the same weapon had fired the casings in questions.\(^{192}\) She noted that although she had serious reservations about his testimony, she felt compelled to let him testify about his observations "because of my confidence that any other decision will be rejected by appellate courts, in light of precedents across the country, regardless of the findings I have made."\(^{193}\) Although Judge Gertner is not a lone voice in the wilderness, she is the rare judge who seems willing to admit that the forensic emperor is wearing very tatty robes.\(^{194}\)

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189. Curiously, however, the Florida District Court of Appeal did reverse the trial court's decision to let Professor Simon Cole testify. Professor Cole is a leading critic of fingerprint comparison. See *Armstrong v. State*, 920 So. 2d. 769 (Fla. Dist. Ct. App. 2006).


191. *Id.* at 272 (Michael, J., dissenting).


193. *Id.* at 109.

194. See, e.g., *United States v. Crisp*, 324 F.3d 261, 272 (4th Cir. 2003), cert. den., 540 U.S. 888 (2003) (Michael, J., dissenting); *United States v. Starzecpyzel*, 880 F. Supp. 1027, 1028 (S.D.N.Y. 1995) (a pre-*Kumho Tire* case holding that the *Daubert* standard did not apply to forensic document examiners testifying about handwriting comparison but that if it did apply, "[t]he Court might well have
about the opinion, however, is her obvious distress that the appellate courts will do anything to reverse a decision that excludes the prosecution’s forensic evidence. She comments compellingly that when liberty hangs in the balance—and, in the case of the defendants facing the death penalty, life itself—the standards should be higher than were met in this case, and than have been imposed across the country. The more courts admit this type of [expert] evidence without requiring documentation, proficiency testing, or evidence of reliability, the more sloppy practices will endure; we should require more.\textsuperscript{195}

It is not only judges who have expressed concern about courts’ disregard of \textit{Daubert} in criminal cases. Commentators have explained how forensic science errors contribute to misconvictions and discuss how judges often are not applying \textit{Daubert} in any meaningful fashion to exclude expert evidence that lacks an adequate foundation.\textsuperscript{196}

\section{3. The Theoretical Basis for the Ethical Gatekeeping Obligation}

While the Supreme Court has charged the trial court with being a gatekeeper to make a preliminary analysis of whether the scientific evidence is sufficiently reliable to come before the jury, that entrustment alone does not make the issue one of ethics. Rather, it is the relationship between reliability and actual guilt that makes this an ethical matter. Gatekeeping in criminal cases requires a real determination of reliability because reliability may be meaningfully related to actual guilt. The decision to admit unreliable expert testimony may well increase the likelihood of convicting an innocent person. Thus, it is an ethical and moral duty for the judge to be honest in making decisions about reliability in criminal cases.

It is not enough for courts to pay lip service to this job—this job requires a rigorous approach, where the court, working under the still extant presumption of innocence, puts the evidence through its paces, asking the relevant questions. To use concepts expounded on by Professor Dworkin, we must recognize that legality is important to ensuring integrity.\textsuperscript{197} Legality requires both the procedural aspect of

\textsuperscript{195.} Green, 405 F. Supp. 2d at 109 (permitting a witness to give expert testimony about similarity of marks between shell casings at the scene and from the defendant’s weapon, but forbidding the witness from testifying that it was a match “to the exclusion of every other firearm in the world”).

\textsuperscript{196.} For a small sample of such articles, see Saks & Koehler, \textit{supra} note 19; Craig M. Cooley, \textit{Forensic Science or Forgettable Science?}, 80 Ind. L.J. 80 (2005) (discussing the “broken” forensic science system and the extensive problems that plague forensic science); and D. Michael Risinger, \textit{Navigating Expert Reliability: Are Criminal Standards of Certainty Being Left on the Dock?}, 64 Alb. L. Rev. 99 (2000) (“Criminal defendants virtually always lose their reliability challenges to government proffers.”).

\textsuperscript{197.} RONALD DWORFIN, \textit{JUSTICE IN ROBES} 176 (2006).
applying the law and the substantive aspect that makes such law just. "As trustees of the law, judges have an obligation to uphold and maintain the corpus in individual cases in accordance with the underlying aims of the corpus. This also incorporates an obligation to maintain its integrity."198

In applying these concepts to our requirement of judicial application of the *Daubert* canon, we ask the following questions: Can the test in question be repeated and produce identical results? If not, what is the error rate? Is the error rate sufficient to raise serious concerns about reliability? If the test is subjective, how is it reviewed? Is the "trust me, I'm an expert approach" sufficient? The answers to these questions when applied to forensic individualization specialties do not yield encouraging results. Yet, many judges ignore these questions and answers and simply allow the testimony to be admitted. This judicial response does not fit with our understanding of what judges are ethically obligated to do. There is an "underlying aim" of these reliability factors—the ascertainment of truth, as mandated by Rule 102 of the *Federal Rules of Evidence*. Courts have discretion in the method of application of the factors but "not discretion to abandon the gatekeeping function... [I]t is not discretion to perform the function inadequately. Rather, it is discretion to choose among reasonable means of excluding expertise that is fausse and science that is junky."199 Thus, "the judge's reasoning must continually be tied back to the corpus—with integrity and fit."200 The reason is clear: meaningful application of the reliability requirements is an essential aspect of convicting the guilty and exonerating the innocent—which again, dovetails specifically with the purpose of the *Federal Rules of Evidence* and the purpose—in criminal cases—of *Daubert*’s reliability requirement. For this area of law to maintain its integrity, indeed, its legitimacy and rationality, it must conform with the underlying aim of the reliability requirement.

4. Proposed Solutions

In *Forensic Science: Grand Goals, Tragic Flaws, and Judicial Gatekeeping*, Professor Saks and I conclude that judges are not likely to exclude poor quality prosecution forensic evidence.201 Despite the argument here that judges should improve their gatekeeping as a question of ethics, it is unlikely that there will be a sudden change in the courts’ willingness to exclude forensic evidence from trial. We sug-

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gest, however, that certain judicial actions short of exclusion might be helpful to safeguarding justice and preventing misconvictions. These "middle way" suggestions may be helpful in separating the guilty from the innocent and may address a judge's concern that excluding all forensic individualization testimony will result in the guilty going free.

First, as has occurred in some U.S. District Courts, a judge may limit the admissibility of the evidence, even when not excluding it.\textsuperscript{202} Thus, an examiner may discuss the points of comparison and may explain how the comparison is done, but may not declare a match or assert conclusions about identity. This approach recognizes that based upon their experiential knowledge developed from working with prints or handwriting, experts are likely to have knowledge helpful to the jury. At the same time, it avoids some of the serious and troubling foundational problems represented when the expert provides his conclusion about a match.

There are admitted shortcomings to disallowing evidence about a match. If no evidence of a match is admitted, the testimony has far less probative value for the jury. More importantly, if there is no way to determine whether a match actually exists, as critics compellingly argue, why should the jury be permitted to speculate about such a match? Finally, the jury is being asked to decide whether it is a match without any expert guidance on the subject. Nonetheless, on balance, it seems preferable to allow the expert to testify about points of comparison than to allow unbridled testimony about a match. This compromise parallels the rationale of Federal Rule of Evidence 704(b), which allows testimony from an expert about a defendant's mental illness but prohibits an expert from testifying whether the defendant possessed "the mental state or condition constituting an element of the crime charged or of a defense thereto."

Second, courts can limit testimony and phrasing that is either overpowering to a jury or misleading. Many of the forensic individualization specialties claim to reach conclusions to degrees of certainty that are not scientifically grounded, such as fingerprint and handwriting comparison.\textsuperscript{203} Moreover, witnesses also talk about a match—such as with bite-marks—when all they can legitimately state is that there is some degree of concordance and some similarity, but that such similarity may be true for a large percentage of the population.\textsuperscript{204}


\textsuperscript{203} Moriarty & Saks, supra note 20, at 29.

\textsuperscript{204} Id. at 29–30.
Even the statement "consistent with" suggests a match, but may mean far less than that. It may actually mean "consistent with a large percentage of the population," as would be true in microscopic comparison of hair. Although many experts have been allowed to make such statements, the danger is that juries overvalue such testimony, believing that "consistent with" is akin to certainty. Excluding phrases such as "identification," "match," "unique," "no other in the world," "indeed and without doubt," and "zero error rate," would go a long way to rendering this testimony less harmful and more accurate than it currently is. Also, requiring experts to testify about error rates would temper the jury's unreal expectations of such evidence.

Third, courts need to allow defendants to hire experts and allow those defense experts to testify and present contrary evidence. Some courts evaluate defense experts more rigorously than prosecution experts, while others are reluctant to permit experts for the defense to testify and challenge the methods and conclusions of the prosecution's experts. This step, however, is important. If courts are not going to require more of prosecution experts, then they need to permit jurors to learn about the shortcomings of the expert evidence presented as infallible. As the Supreme Court noted in Daubert, "presentation of contrary evidence" is one appropriate method of attacking "shaky but admissible evidence."

Finally, courts should be willing to take up the suggestion posed by Federal Rule of Evidence 706 and the Supreme Court to "procure the assistance of an expert of its own choosing." While expert panels have been used in civil cases (notably the silicone breast implant cases), courts have been reluctant to use them in criminal cases. Appointing an expert or an expert panel in a high-profile case might be particularly useful for other cases as well.

205. Id. at 30 (citing Professor Sak's preliminary study of how juries misinterpret much of this phrasing).
206. See, e.g., United States v. Frazier, 387 F.3d 1244, 1265 (11th Cir. 2004) (Upholding decision disallowing qualified defense expert on forensic science to testify that in a violent rape case, a transfer of hair or fluids between victim and perpetrator "would be expected," the appellate court held that the phrase "would be expected' expresses an intrinsically probabilistic or quantitative idea, [yet] the probability it expresses is unclear, imprecise and ill-defined.").
207. See, e.g., State v. Armstrong, 920 So. 2d 796 (Fla. Dist. Ct. App. 2006) (upholding trial court's decision to disallow defense expert's testimony about the unreliability of fingerprint comparison); United States v. Paul, 175 F. 3d 906, 912 (11th Cir. 1999) (affirming district court's decision to exclude defense witness from testifying about shortcomings of forensic document examiner's methodology and conclusions).
209. Id. at 595.
Judges are trustees of the law. They must begin to live up to this fiduciary responsibility by ensuring that trials which use forensic science are safe for the innocent.

V. CONCLUSION

The number of exonerations continues to grow along with our awareness that all is not well with forensic science. This Article encourages the Ministers of Justice to exercise their discretion in ways that will help reduce the number of innocent people who are wrongfully convicted on the basis of poor-quality forensic science. It is not just a question of evidence. It is a matter of ethics.