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Online Essay

DISCOVERING FORENSIC FRAUD[†]

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ABSTRACT—This Essay posits that certain structural dynamics, which dominate criminal proceedings, significantly contribute to the admissibility of faulty forensic science in criminal trials. The authors believe that these dynamics are more insidious than questionable individual prosecutorial or judicial behavior in this context. Not only are judges likely to be former prosecutors, prosecutors are "repeat players" in criminal litigation and, as such, routinely support reduced pretrial protections for defendants. Therefore, we argue that the significant discrepancies between the civil and criminal pretrial discovery and disclosure rules warrant additional scrutiny.

In the criminal system, the near absence of any pretrial discovery means the criminal defendant has little to no realistic opportunity to challenge forensic evidence prior to the eve of trial. We identify the impact of pretrial disclosure by exploring the admission of expert evidence in criminal cases from a particular forensic discipline, specifically forensic odontology. Finally, this Essay proposes the adoption of pretrial civil discovery and disclosure rules in criminal proceedings to halt the flood of faulty forensic evidence routinely admitted against defendants in criminal prosecutions.

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There is no justification for accepting that a method is valid and reliable in the absence of appropriate empirical evidence. . . . Forensic science is at a crossroads.

—President's Council of Advisors on Science and Technology[‡]

INTRODUCTION

On June 22, 2017, the Supreme Court decided *Turner v. United States*.[1] The question before the Court concerned the scope of the prosecutorial *Brady*[2] obligation to disclose to the defense evidence favorable to criminal defendants. The *Turner* defendants, who were convicted of the brutal 1984 robbery and murder of a middle-aged mother of six, steadfastly litigated their innocence. The crux of their argument before the Supreme Court was that prosecutors had suppressed witness statements about a possible alternative perpetrator in violation of *Brady*.

The federal government did not deny that it had failed to turn over evidence favorable to the defense pretrial. Instead, it relied exclusively on the technical argument that the at-issue alternative suspect statements were "immaterial." The Supreme Court agreed and held that the state's suppression of the witness statements did not run afoul of *Brady*. The *Turner* case shines a harsh light on criminal defendants' extremely limited right to pretrial discovery. Moreover, and as demonstrated by the 2016 President's Council of Advisors on Science and Technology (PCAST)

[‡] PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., AN ADDENDUM TO THE PCAST REPORT ON FORENSIC SCIENCE IN CRIMINAL COURTS 4, 9 (2017), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensics_addendum_finalv2.pdf [https://perma.cc/HQW9-FHRU].

[1] 137 S. Ct. 1885 (2017).

[2] Brady v. Maryland, 373 U.S. 83 (1963).

Report, *Forensic Science in Criminal Courts*,[3] this lack of robust pretrial discovery can result in the admission of unreliable scientific evidence and, ultimately, wrongful convictions in criminal proceedings.

We believe that certain structural dynamics that dominate criminal proceedings significantly contribute to the admissibility of faulty forensic science in criminal trials. We also believe that these dynamics are more insidious than questionable individual prosecutorial or judicial behavior. Not only are judges likely to be former prosecutors,[4] prosecutors are "repeat players" in criminal litigation and, as such, "typically seek to reduce pretrial protections that would impede [their] intentions."[5] Therefore, we argue that the significant discrepancies between the civil and criminal pretrial discovery and disclosure rules warrant additional scrutiny.

Legal commentators routinely espouse that the rules of criminal procedure provide trial-based protections to defendants superior to those applicable to any other litigants in the legal system.[6] Even assuming the

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[3] PRESIDENT'S COUNCIL OF ADVISORS ON SCI. & TECH., FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf [https://perma.cc/XFS5-96E2] [hereinafter PCAST Report].

[4] *See, e.g.*, ALLIANCE FOR JUSTICE, BROADENING THE BENCH: PROFESSIONAL DIVERSITY AND JUDICIAL NOMINATIONS 5–6 (2016), http://www.afj.org/wp-content/uploads/2014/11/Professional-Diversity-Report.pdf [https://perma.cc/TF59-GEAB] (explaining that, of President Obama's federal judicial appointees, "[p]rosecutors outnumber public defenders (state or federal) by three to one; [o]nly five out of 64 circuit nominees have worked as a public defender (state or federal), compared to 24 who have worked as prosecutors; [and a]pproximately 86% have been either corporate attorneys or prosecutors (or both)"); Editorial, *The Homogeneous Federal Bench*, N.Y. TIMES (Feb. 6, 2014), https://mobile.nytimes.com/2014/02/07/opinion/the-homogeneous-federal-bench.html [https://perma.cc/PLV6-G3AK] ("[U]nder the Obama administration, federal judges continue to be drawn overwhelmingly from the ranks of prosecutors and corporate lawyers. This deprives the courts of crucial perspectives and reduces public trust in the justice system."); *see also* Dara Lind, *There Hasn't Been a Criminal Defense Lawyer on the Supreme Court in 25 Years. That's a Problem.*, VOX (Mar. 22, 2017), https://www.vox.com/2016/3/28/11306422/supreme-court-prosecutors-career [https://perma.cc/FNY6-NGPS] (noting that while there are no former criminal defense attorneys on the Supreme Court, there are three ex-prosecutors); Nicki Gorny, *Pipeline to the Bench: New Judges Often Former Prosecutors*, OCALA STARBANNER (Nov. 14, 2015), http://www.ocala.com/news/20151114/pipeline-to-the-bench-new-judges-often-former-prosecutors [https://perma.cc/BB3E-ZUDW] (stating "[i]f you commit a crime in Marion County[, Florida,] next year, there's a 3 in 4 chance that you'll face a former prosecutor on the bench").

[5] Ion Meyn, *The Unbearable Lightness of Criminal Procedure*, 42 AM. J. CRIM. L. 39, 47 (2014); *see also* Brandon L. Garrett, *Aggregation in Criminal Law*, 95 CAL. L. REV. 383, 400 (2007) ("In our current criminal system, repeat players generate the means to achieve vast economies of scale resulting in fewer criminal trials and therefore fewer opportunities to vindicate criminal procedural rights at trial.").

[6] *See, e.g.*, Meyn, *supra* note 5, at 46–47; Jennifer E. Laurin, *Quasi-Inquisitorialism: Accounting for Deference in Pretrial Criminal Procedure*, 90 NOTRE DAME L. REV. 783, 785 (2014) (explaining that "the structure of American criminal procedure doctrine . . . relies almost entirely on trial-based

truth of that claim, the rules of civil procedure provide many of these protections and concomitant transparency *throughout the pretrial proceedings*, during which the overwhelming majority of cases in both the criminal and civil systems are resolved.[7] The civil system's unfettered access to pretrial discovery allows both litigants and judges to thoroughly scrutinize the reliability and validity of proffered forensic evidence before a case goes to trial and, necessarily, before any party's experts are allowed to testify.[8] In the criminal system, on the other hand, the near absence of any pretrial discovery means the criminal defendant has little to no realistic opportunity to challenge forensic evidence prior to the eve of trial.[9]

The pretrial rules pertaining to prosecutorial disclosure are gradually moving in the direction of increased transparency. But they have not yet evolved either to ensure timely, pretrial disclosure of relevant evidence to the defense or to effectively combat the admission of flawed forensic evidence repeatedly introduced against defendants in criminal cases. Unlike in civil cases, criminal courts often automatically accept, rather than thoroughly vet, forensic testimony, irrespective of its scientific reliability and validity.[10] Under Georgia law, for example, an opposing party cannot

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procedures to guarantee accuracy and approaches the pretrial realm with a comparatively light regulatory touch").

[7] Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 1 J. EMPIRICAL & LEGAL STUD. 459, 459 (2004); *see also* Joseph F. Anderson, Jr., *Where Have You Gone, Spot Mozingo? A Trial Judge's Lament over the Demise of the Civil Jury Trial*, 4 FED. CTS. L. REV. 99, 101 (2010) (discussing "the vanishing jury trial"); William G. Young, *Vanishing Trials, Vanishing Juries, Vanishing Constitution*, 40 SUFFOLK U. L. REV. 67, 73 (2006) (acknowledging that the "civil jury trial has all but disappeared") (quoting Kevin M. Clermont & Theodore Eisenberg, *Litigation Realities*, 88 CORNELL L. REV. 119, 142–43 (2002)); Lawrence M. Friedman, *The Day Before Trials Vanished*, 1 J. EMPIRICAL & LEGAL STUD. 689, 691 (2004) ("By the end of the 19th century, it was already the case that the vast majority of convictions in felony cases came about as a result of a guilty plea.").

[8] As the Supreme Court has aptly recognized, due to the civil discovery rules, "civil trials in the federal courts no longer need be carried on in the dark. The way is now clear . . . for the parties to obtain the fullest possible knowledge of the issues and facts before trial." Hickman v. Taylor, 329 U.S. 495, 501 (1947); *see also* United States v. Proctor & Gamble Co., 356 U.S. 677, 682 (1958) ("Modern instruments of discovery . . . [and] pretrial procedures make a trial less a game of blindman's [sic] bluff and more a fair contest with the basic issues and facts disclosed to the fullest practicable extent.").

[9] Georgia A. Staton & Renee J. Scatena, *Parallel Proceedings—A Discovery Minefield*, 34 ARIZ. ATT'Y 17, 18 (1998) (noting that "[t]he absence of mandatory disclosure and the limited permissive disclosure provisions increase the investigative burden on the criminal defendant. The prosecution, with its abundant resources and access to federal agents, holds the advantage."); Meyn, *supra* note 5, at 41 (explaining that "[t]he absurd result is that the class of litigants traditionally warranted robust protection receives the least protection").

[10] *See generally* Jennifer L. Groscup et al., *The Effects of* Daubert *on the Admissibility of Expert Testimony in State and Federal Criminal Cases*, 8 PSYCHOL. PUB. POL'Y & L. 339 (2002); *see also* United States v. Sherwood, 98 F.3d 402, 408 (9th Cir. 1996) (admitting fingerprint comparison evidence without conducting a *Daubert* hearing). In *United States v. Havvard*, the court described

even challenge the ability of an expert to testify in criminal proceedings because the legislature has decreed that such opinions "shall always be admissible."[11] Georgia's civil expert witnesses, by comparison, are subject to the rigorous pretrial vetting rules provided by the Federal Rules of Evidence and Civil Procedure.[12] As one commentator explains, the substantial discrepancies between civil and criminal expert evidence gatekeeping are "particularly unacceptable given the law's claim that inaccurate criminal convictions are substantially worse than inaccurate civil judgments, reflected in the different applicable standards of proof."[13]

This Essay examines systems-level procedural problems that all too often contribute to the admission of flawed forensics in criminal proceedings. We begin by examining the concept of the "repeat litigant" and its role in shaping the applicable evidentiary standards in both civil and criminal cases. Next, we highlight the discrepancies between the pretrial discovery and disclosure rules applicable in civil and criminal cases, and how they exacerbate the repeat litigant advantage of prosecutors. We then identify the impact of these variant rules by exploring the admission of forensic odontology, or bite mark, evidence in criminal cases. Finally, this Essay proposes the adoption of pretrial civil discovery and disclosure rules in criminal proceedings to halt the flood of faulty forensic evidence routinely admitted against defendants in criminal prosecutions.

I. BACKGROUND

The September 2016 PCAST Report,[14] like the NAS Report before it,[15] challenged forensic disciplines to reform and implored the criminal justice

Sherwood as an opinion "asserting that *the reliability of fingerprint comparisons cannot be questioned*." 260 F.3d 597, 600 (7th Cir. 2001) (emphasis added).

[11] GA. CODE ANN. § 24-7-707 (2016) ("[T]he opinions of experts on any question of science, skill, trade, or like questions shall always be admissible . . . .").

[12] The Georgia legislature has adopted standards applicable to its civil expert witnesses that are nearly identical to those provided by the Federal Rules of Evidence and Civil Procedure. *See* GA. CODE ANN. § 24-7-702 (2016).

[13] D. Michael Risinger, *Navigating Expert Reliability: Are Criminal Standards of Certainty Being Left on the Dock?*, 64 ALB. L. REV. 99, 100 (2000); *see also* David A. Sklansky & Stephen C. Yeazell, *Comparative Law Without Leaving Home: What Civil Procedure Can Teach Criminal Procedure, and Vice Versa*, 94 GEO. L. J. 683, 714–15 (2005) (explaining that "[c]ivil litigators who venture into criminal cases tend to be stunned and often outraged by their inability to depose government witnesses or even to file interrogatories or requests for admissions").

[14] PCAST Report, *supra* note 3.

[15] NAT'L RES. COUNCIL, NAT'L ACAD. SCI., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD (2009), https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf [https://perma.cc/Z9VR-ADYV] [hereinafter NAS REPORT]. The disciplines analyzed by the NAS REPORT were biological evidence (DNA analysis), controlled substances analysis, fingerprints (friction ridge analysis), pattern/impression evidence, tool mark and firearm identification, hair analysis, fiber

system to stop admitting faulty science to convict innocent people. The PCAST Report recommendations also closely tracked Federal Rule of Evidence 702's expert witness admissibility requirements, expounded upon by the *Daubert* decision, that experts offer some kind of specialized knowledge, that their testimony be based on sufficient facts or data, and that it be the product of reliable methodology that has been properly applied to the present case.[16] Remarkably, the Department of Justice and Federal Bureau of Investigation—that is, the federal prosecutors and police—refused to adopt the PCAST Report recommendations aimed at ensuring that only scientifically valid and reliable evidence is admissible in the criminal courtroom.[17]

Articles traditionally argue that bad science permeates criminal proceedings for at least three reasons: (1) lawyers (including judges, prosecutors, and defense attorneys) lack scientific aptitude; (2) judges, many of whom are former prosecutors, have a pro-prosecution bias; and (3) prosecutors are more focused on securing convictions than reaching a just result.[18]

But we argue that these observations miss a crucial question: Why do judges frequently fail to keep faulty forensics out in criminal cases despite the fact that they rigorously enforce *Daubert*'s gatekeeping requirements when presiding over civil cases? *Daubert* requires trial judges in both civil and criminal proceedings to determine "whether the reasoning or methodology underlying the testimony is scientifically valid."[19] As the relevant research reveals, however, judges are far more willing to fulfill their gatekeeping roles in civil cases than criminal ones.[20] Challenges to

evidence analysis, questioned document examination, paint and coatings analysis, explosives and fire analysis, forensic odontology (bite marks), bloodstain and pattern analysis, and digital and multimedia analysis. *See also* NAT'L ASS'N OF CRIM. DEF. LAWS., PRINCIPLES AND RECOMMENDATIONS TO STRENGTHEN FORENSIC EVIDENCE AND ITS PRESENTATION THE COURTROOM 8 (2010), https://www.nacdl.org/WorkArea/DownloadAsset.aspx?id=21802 [https://perma.cc/6HBM-XDVR] (recommending that "[t]he results of any forensic theory or technique whose validity, limitations, and measures of uncertainty have not been established should not be admitted into evidence to prove the guilt of an accused person").

[16] PCAST Report, *supra* note 3, at 40–43.

[17] *White House Advisory Council Report is Critical of Forensics Used in Criminal Trials: U.S. Attorney General Says Justice Department Won't Adopt Recommendations*, WALL ST. J. (last updated Sept. 20, 2016, 4:25 PM), http://www.wsj.com/articles/white-house-advisory-council-releases-report-critical-of-forensics-used-in-criminal-trials-1474394743 [https://perma.cc/BM3W-M79C].

[18] Adam B. Shniderman, *Prosecutors Respond to Calls for Forensic Science Reform: More Sharks in Dirty Water*, 126 YALE L.J. F. 348, 352–57 (2017).

[19] Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 592–93 (1993).

[20] Risinger, *supra* note 13, at 99 (explaining that "as to proffers of asserted expert testimony, civil defendants win their *Daubert* reliability challenges to plaintiffs' proffers most of the time, and that criminal defendants virtually always lose their reliability challenges to government proffers").

forensic evidence pretrial, including *Daubert* hearings, are rare in the criminal context.[21] As the NAS Report makes clear, "the vast majority of the *reported* opinions in criminal cases indicate that trial judges rarely exclude or restrict expert testimony offered by prosecutors."[22] The evidentiary standards that apply to expert forensic evidence should be identical in civil and criminal proceedings according to the Federal Rules of Evidence and relevant precedent, yet courts rigorously engage in gatekeeping of such evidence in civil proceedings while giving broad leeway to prosecutors in criminal proceedings.[23] Therefore, the courts' failure to exclude faulty forensics in criminal cases cannot be explained away simply by pointing to judges' lack of scientific prowess.

Nor can the courts' repeated failure to exclude unreliable criminal expert evidence be excused by assertions that the type of scientific evidence proffered in civil cases is either substantially materially different or easier for judges to evaluate than that propounded in criminal cases. Virtually every imaginable criminal case has a civil analogue, which requires production of the same or similar evidence to secure a verdict (albeit under the relaxed preponderance of the evidence or clear and convincing evidence standards of review).[24] Moreover, we argue that, to the extent that there is any material difference in the type of scientific evidence propounded between the two types of proceedings, it is civil cases, including products liability and mass toxic tort cases, and not criminal cases that typically present more difficult reliability, validity, and causation questions for courts.[25]

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[21] Peter J. Neufeld, *The (Near) Irrelevance of* Daubert *to Criminal Justice and Some Suggestions for Reform*, 95 AM. J. PUB. HEALTH S107, S107 (2005); Erica Beecher-Monas, *Blinded by Science: How Judges Avoid the Science in Scientific Evidence*, 71 TEMP. L. REV. 55, 56–57 (1998).

[22] NAS REPORT, *supra* note 15, at 11.

[23] Shniderman, *supra* note 18, at 354.

[24] For example, "[a]ll states provide for a [civil] cause of action for wrongful death by a Wrongful Death Statute." Jay W. Elston, *State Wrongful Death Acts and Maritime Torts*, 39 TEX. L. REV. 643, 645 (1961); *see also, e.g.*, Sklansky & Yeazell, *supra* note 13, at 687 (explaining that "[a]s recently as the nineteenth century—indeed, well into the twentieth century—civil and criminal proceedings were, in essence, alternative ways for aggrieved victims of wrongs to enlist the adjudicative machinery of the state in seeking redress").

[25] Déirdre Dwyer, *(Why) are Civil and Criminal Expert Evidence Different?*, 43 TULSA L. REV. 381, 387–88 (2007) (explaining the uniqueness of epidemiological evidence of causation in toxic tort to civil proceedings and positing that such evidence "has a high scientific content, and the demonstration of causation is indirect in that it rests on arguments about whether the claimant was statistically more likely to suffer harm as a result of exposure to the allegedly toxic substance. The scientific evidence has not been collected to address directly the question of whether a specific individual has suffered harm"); *see also* Risinger, *supra* note 13, at 102 (explaining that "[i]t is unlikely to be pure coincidence that the Supreme Court chose a civil case, *Daubert v. Merrell Dow Pharmaceuticals Inc.*, to review the appropriate criteria of dependability, or that its two subsequent forays into these waters have also been in civil cases") (footnote omitted).

We further contend that the frequent admission of flawed forensics in criminal cases cannot be blamed solely on pro-prosecution bias or pro-conviction motives. Even a cursory comparison of the criminal and civil pretrial discovery and disclosure rules demonstrate that a systems-level problem is a contributing culprit. While civil defendants have successfully implored courts to set the bar very high for the admission of scientific evidence, such as epidemiological and toxicological causation evidence, prosecutors have encouraged courts to readily admit forensic evidence that does not withstand scientific scrutiny.

II. PRETRIAL RULES FAVOR THE REPEAT LITIGANT

Certain litigants in both the civil and criminal systems are "repeat players." Whereas the repeat players in civil litigation are defendant corporate and government entities, the repeat players in the criminal justice system are prosecutors.[26] Repeat players influence pretrial adjudication by "advocating for interpretations of rules and decisions that favor long-term litigation objectives."[27] Individual civil plaintiffs and criminal defendants ("one-shotters or OSs"), on the other hand, are incentivized to "seek out . . . short-term gain[s] that may on balance harm future civil plaintiffs and criminal defendants," rather than pursue any long game.[28] As Professor Rothstein explains:

> The large-volume litigant is able to achieve the most favorable forum; emphasize different issues in different courts; take advantage of differences in procedure among courts at the state and federal levels; drop or compromise unpromising cases without fear of heavy financial loss; stall some cases and push others; and create rule conflicts in lower courts to encourage assumption of jurisdiction in higher courts.[29]

The key takeaway here is that although repeat litigants are not successful on every position that they advance in court, the sheer volume of litigation that they control allows them to make incremental changes in the law that, over time, amount to considerable long-term advantages.

In that connection, repeat-player civil defendant corporations have made it a priority to enhance judicial scrutiny of scientific forensic

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[26] Marc Galanter, *Why the "Haves" Come Out Ahead: Speculations on the Limits of Legal Change*, 9 LAW & SOC'Y REV. 95, 97 (1974) (explaining that "[t]he spouse in a divorce case, the auto-injury claimant, the criminal accused are OSs [one-shotters]; the insurance company, the prosecutor, the finance company are RPs [repeat players]").

[27] Meyn, *supra* note 5, at 47.

[28] *Id*.

[29] Lawrence E. Rothstein, *The Myth of Sisyphus: Legal Services Efforts on Behalf of the Poor*, 7 U. MICH. J. L. REFORM 493, 501 (1974).

evidence. In *Daubert* itself, for example, Merrell Dow Pharmaceuticals fought hard to ensure that the jury was precluded from hearing expert epidemiological evidence linking its anti-nausea drug, Bendectin, to the young plaintiffs' limb-reduction birth defects.[30] In *Joiner*, the General Electric Company similarly battled to exclude plaintiff's expert evidence linking his lung cancer to exposure to polychlorinated biphenyls (PCBs) while employed as a company electrician.[31] Notably, and much like the overwhelming majority of important post-*Daubert* federal appellate decisions, the *Daubert* trilogy[32] is comprised exclusively of civil cases involving repeat-player corporate defendants.[33]

Neither Federal Rule of Evidence 702 nor *Daubert* distinguish in any manner between civil and criminal cases regarding the admissibility standards that pertain to expert evidence.[34] Indeed, "evidence law to a significant extent was itself a product of treating criminal and civil cases alike. . . . [It] has remained unified because the rebuttable presumption has remained that rules of evidence should apply 'across the board.'"[35] Nonetheless, judges have "assessed the 'reliability' of expert testimony in civil cases much more rigorously than in criminal cases."[36] Since *Daubert*, traditional forms of criminal forensic evidence, such as bite marks, handwriting, hair samples, and fingerprints, have been admitted routinely, bypassing the rigorous methodology scrutiny that applies to, for example, epidemiological and toxicological causation evidence in civil products liability and toxic tort cases. As one commentator concluded, "[j]udicial scrutiny in civil litigation and judicial passivity in criminal litigation is aligned with the repeat-player dynamic unique to each forum."[37] Corporate defendants in civil cases routinely challenge the faulty forensic evidence used against them, pushing judges to be more skeptical in civil proceedings. By contrast, prosecutors consistently introduce the same evidence in criminal cases, encouraging judges in criminal proceedings to rely on precedent. Over time, this has created a discrepancy in how trial

[30] Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579, 583–85 (1993).

[31] Gen. Elec. Co. v. Joiner, 522 U.S. 136, 136 (1997).

[32] The *Daubert* trilogy includes Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), General Electric Co. v. Joiner, 522 U.S. 136 (1997), and Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999).

[33] Neufield, *supra* note 21, at S109 (explaining that "it is not a coincidence that . . . almost all of the post-*Daubert* federal appellate decisions that further defined the standard have been civil rather than criminal").

[34] Sklansky & Yeazell, *supra* note 13, at 730–31.

[35] *Id*. at 728, 730.

[36] *Id*. at 731.

[37] Meyn, *supra* note 5, at 48 (internal citations omitted).

judges rule on scientific evidence in civil versus criminal settings that cannot be explained by a difference in substantive law or the applicable rules of evidence.

III. PRETRIAL DISCOVERY IN CRIMINAL AND CIVIL PROCEEDINGS

The Federal Rules of Civil Procedure mandate that all parties freely exchange information, including the disclosure of any expert evidence throughout the pretrial proceedings.[38] By contrast, prosecutors are required to provide criminal defendants very limited pretrial discovery. The Federal Rules of Criminal Procedure, for example, do not entitle a criminal defendant to review either his grand jury transcript or any of the evidence the government presented to the grand jury.[39] The government does not have to provide the defendant any statements made by government attorneys or any of its witnesses, including law enforcement agents.[40] Neither the government nor the accused is subject to any automatic disclosure requirements except the prosecutor's *Brady v. Maryland*[41] duty to produce exculpatory evidence.[42] Moreover, discovery depositions are nonexistent in the criminal justice system. Indeed, criminal depositions are permitted exclusively to preserve the testimony of a party's own witness who may be unavailable for trial.[43]

By contrast, open and mandatory disclosure of proffered scientific expert evidence pretrial in the civil system has had a significant impact on the quality of forensic evidence, generally, and causation evidence,

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[38] *See, e.g.*, FED. R. CIV. P. 26. Expert evidence must be disclosed pretrial pursuant to Federal Rules of Evidence 702, 703 and 706.

[39] FED. R. CRIM. P. 16(a)(3).

[40] FED. R. CRIM. P. 16(a)(2). Under the Jencks Act, 18 U.S.C. § 3500, the government's witness statements are only discoverable by the defense after the witness has testified on direct examination and after the defense has properly requested the statements. *See* Jencks v. United States, 353 U.S. 657, 670–71 (1957).

[41] 373 U.S. 83, 88 (1963).

[42] Notably, the prosecution is not required to disclose *Brady* material pre-plea so long as other due process protections are in place. United States v. Ruiz, 536 U.S. 622, 631 (2002) (explaining that where government was required to give defendant information regarding factual innocence before plea no other *Brady* disclosure was required).

[43] FED. R. CRIM. P. 15(a)(1). As Professor Meyn recently explained, "[t]he resistance to granting a criminal defendant the power to investigate has deep roots." Ion Meyn, *Discovery and Darkness: The Information Deficit in Criminal Disputes*, 79 BROOK. L. REV. 1091, 1120 (2014). The historical arguments against extending formal pretrial discovery to criminal defendants include concerns that such a levelling of the pretrial investigatory playing field would give criminal defendants an unfair advantage, enable them to threaten and intimidate witnesses, and lead to the misuse formal powers. *Id.* at 1127–33. Additional anti-reform arguments include allegations that the trial is proper testing of a criminal case, criminal defendants already have enough rights, and extension of formal discovery to criminal defendants would be too costly. *Id.* at 1133–38.

specifically, that a civil plaintiff must proffer to survive a *Daubert* challenge. As Professor Joseph Sanders explains, "[i]n no area [of the law] has the *Daubert* revolution had a greater effect than in [civil] toxic torts. The number of cases in which expert causation testimony has been excluded must by now run into the thousands."[44] In marked contrast to the criticism surrounding courts' routine admission of questionable criminal forensic evidence, "[m]any commentators have reacted negatively to this trend [of excluding general causation evidence in civil cases], arguing that the bar has been set *too high*."[45] Regardless of whether one agrees that the admissibility standards applicable to general causation evidence in civil cases strike the right balance, it is widely acknowledged that the predominant exclusionary decisions have forced toxic tort and products liability plaintiffs to proffer high quality scientific evidence to survive pretrial *Daubert* challenges.[46]

IV. LACK OF PRETRIAL DISCOVERY IN CRIMINAL PROCEEDINGS CONTRIBUTES TO THE CONTINUED ADMISSION OF FAULTY FORENSICS

The lack of discovery of scientific evidence pretrial in the criminal justice system both effects individual cases and contributes to the culture of admission particular to certain forensic disciplines. The PCAST Report highlighted the need for increased rigor in assessing the scientific validity of evidence from a variety of forensic disciplines, many of which employ feature-comparison methodologies, including hair, latent fingerprint, firearm, DNA complex-mixture sample, footwear, and bite mark analysis.[47] As the Report frankly explains, "reviews by competent bodies of the scientific underpinnings of forensic disciplines and the use in courtrooms of evidence based on those disciplines have revealed a dismaying frequency of instances of use of forensic evidence that do not pass an objective test of scientific validity."[48]

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[44] Joseph Sanders, *Proof of Individual Causation in Toxic Tort and Forensic Cases*, 75 BROOK. L. REV. 1367, 1374 (2010).

[45] *Id*. (emphasis added); *see also* Carol Krafka et al., *Judge and Attorney Experiences, Practices, and Concerns Regarding Expert Testimony in Federal Civil Trials*, 8 PSYCHOL. PUB. POL'Y & L. 309, 322 (2002) (noting that judges presiding over civil cases "reported that they were more likely to scrutinize expert testimony before trial and were less likely to admit it" post-*Daubert*).

[46] LLOYD DIXON & BRIAN GILL, CHANGES IN THE STANDARDS FOR ADMITTING EXPERT EVIDENCE IN FEDERAL CIVIL CASES SINCE THE *DAUBERT* DECISION xv (2001), http://www.rand.org/content/dam/rand/pubs/monograph_reports/2005/MR1439.pdf [https://perma.cc/AG72-CA9E] (detailing that "[federal] judges scrutinized reliability more carefully and applied stricter standards in deciding whether to admit expert evidence" post-*Daubert*).

[47] PCAST REPORT, *supra* note 3.

[48] *Id*. at 22.

Bite mark evidence, otherwise known as forensic odontology, has been the subject of significant scrutiny. Forensic odontology entails examining marks left on skin or an object to determine if they are human bite marks and then comparing those human bite marks to a suspect's dental impressions.[49] Not only has the discipline proven incapable of reliably individuating an alleged bite mark—that is, establishing that a bite mark belongs to a specific individual— it cannot even reliably identify skin marks as human bite marks or not.[50] As recently as the spring of 2015, the American Board of Forensic Odontology (ABFO) was unable to find consensus among thirty-nine ABFO-certified bite mark experts on whether a patterned injury was a human bite mark or if it had identifying features for individualization.[51] In the same year, the Assistant Director of the White House Office of Science and Technology Policy singled out bite mark evidence as an example of an unreliable forensic discipline and called for its "eradication."[52]

Shockingly, courts continue to admit bite mark evidence in criminal trials and do so virtually exclusively on the bases of precedent. Demonstrating the powerful influence of the repeat litigant prosecutor, courts continue to admit prosecutor's proffers of unreliable bite mark evidence in criminal cases, notwithstanding the fact that "bite mark evidence has led to more than two dozen wrongful arrests or convictions."[53] Indeed, admitting courts mistakenly rely on prosecutorial arguments that bite marks have been accepted as a valid scientific theory by a sister court instead of conducting an independent *Daubert* analysis.[54] The treatise on

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[49] *Id*. at 8.

[50] *See, e.g.*, Michael J. Saks et al., *Forensic Bitemark Identification: Weak Foundations, Exaggerated Claims*, 3 J.L. & BIOSCI. 538, 562–63 (2016) (finding that in a study of board-certified forensic dentists, experts could not agree reliably on the threshold issue of whether or not a wound was a human bite mark).

[51] Radley Balko, *A Bite Mark Matching Advocacy Group Just Conducted a Study that Discredits Bite Mark Evidence*, WASH. POST (Apr. 8, 2015), http://www.washingtonpost.com/news/the-watch/wp/2015/04/08/a-bite-mark-matching-advocacy-group-just-conducted-a-study-that-discredits-bite-mark-evidence/ [https://perma.cc/E7PK-6MP6] [hereinafter Balko, *Bite Mark Matching Advocacy Group*].

[52] Radley Balko, *A High-Ranking Obama Official Just Called for the "Eradication" of Bite Mark Evidence*, WASH. POST (Jul. 22, 2015), https://www.washingtonpost.com/news/the-watch/wp/2015/07/22/a-high-ranking-obama-official-just-called-for-the-eradication-of-bite-mark-evidence [https://perma.cc/D6YZ-67XF] [hereinafter Balko, *High-Ranking Obama Official*].

[53] Radley Balko, *Incredibly, Prosecutors are Still Defending Bite Mark Evidence*, WASH. POST (Jan. 30, 2017), https://www.washingtonpost.com/news/the-watch/wp/2017/01/30/incredibly-prosecutors-are-still-defending-bite-mark-evidence/ [https://perma.cc/QCV9-JA5E] [hereinafter Balko, *Prosecutors*].

[54] Saks et al., *supra* note 50 at 546 (explaining that, in *Burke v. Town of Walpole*, 2004 WL 502617 (D. Mass. 2004), *aff'd in part, vacated in part*, 405 F.3d 66 (1st Cir. 2005), "the federal magistrate judge appeared never to doubt the validity of bite mark expertise though the best the court could do to support its faith was to cite cases that cite cases that express the same credulousness").

Modern Scientific Evidence itself states that "rather than the field [of forensic odontology] convincing the courts of the sufficiency of its knowledge and skills, admission by the courts seems to have convinced the forensic odontology community that, despite their doubts, they were indeed able to perform bite mark identifications after all."[55]

Worse yet, courts have justified their admission of bite mark evidence by relying on certain bite mark cases that resulted in wrongful convictions.[56] In *State v. Armstrong*, the West Virginia Supreme Court of Appeals took judicial notice of the "general acceptance" of bite mark evidence, provoking a cascade of similar court rulings.[57] The *Armstrong* Court, however, had relied on the Wisconsin case of Robert Lee Stinson, who was ultimately exonerated of his crime in 2009 through DNA evidence,[58] in reaching that conclusion.

Notwithstanding this admonition, not a single federal or state criminal court has upheld a challenge to exclude bite mark evidence to date.[59] Instead, the only serious evaluation of bite mark evidence by courts has occurred in civil post-conviction habeas corpus cases and 42 U.S.C. § 1983 lawsuits for wrongful conviction and presentation of false evidence at trial.[60] The lack of analysis by criminal trial courts in this context is particularly disheartening given that one of the rationales for replacing the *Frye v. United States*[61] general acceptance rule with the *Daubert* analysis

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[55] 4 DAVID L. FAIGMAN ET AL., MOD. SCI. EVIDENCE § 35:4. *The Judicial Response to Expert Testimony on Bitemark Identification*, (2016–2017).

[56] M. Chris Fabricant & Tucker Carrington, *The Shifted Paradigm: Forensic Science's Overdue Evolution from Magic to Law*, 4 VA. J. CRIM. L. 1, 42 & n.173 (2016).

[57] State v. Armstrong, 369 S.E.2d 870, 877 (W. Va. 1988).

[58] State v. Stinson, 397 N.W.2d 136 (Wis. Ct. App. 1986).

[59] Balko, *High-Ranking Obama Official*, *supra* note 52.

[60] *See, e.g.*, Keko v. Hingle, 318 F.3d 639, 644 (5th Cir. 2003) (denying absolute immunity to forensic odontologist in § 1983 civil lawsuit following wrongful conviction); Ege v. Yukins, 380 F. Supp. 2d 852, 871 (E.D. Mich. 2005), *aff'd in part, rev'd in part on other grounds*, 485 F.3d 364 (6th Cir. 2007) (ruling "there is no question that the [bite mark] evidence in this case was unreliable and not worthy of consideration by a jury"); In re Richards, 63 Cal. 4th 291, 315 (2016) (court granting civil writ of habeas corpus ruling bite mark expert's criminal trial testimony constituted material false evidence); Stinson v. Milwaukee, 2013 WL 5447916, at *12–13 (E.D. Wis. 2013) (denying absolute immunity to forensic odontologists in § 1983 civil lawsuit alleging fabrication and suppression of evidence) *aff'd in part, rev'd in part*, Stinson v. Gauger, 799 F.3d 833 (7th Cir. 2015).

[61] 293 F. 1013 (D.C. Cir. 1923). In *Frye v. United States*, the District of Columbia Court of Appeals affirmed the trial court's exclusion of expert testimony regarding an early version of a systolic blood pressure-based lie detector test. *Id*. at 1014. The *Frye* Court famously held that "while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, 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*." *Id.* (emphasis added). "The *Frye* Standard was extremely administrable given that the presiding judge did not need to understand the theories supporting the scientific testimony at hand; he only needed to determine whether the scientific

was the notion that certain types of evidence offered as "knowledge" frequently creep into general acceptance without any careful examination of its scientific reliability and validity and "[t]his is especially likely to be true of knowledge that has been widely accepted for a considerable time."[62]

V. SOLUTION: PRETRIAL DISCOVERY AND DISCLOSURE IN CRIMINAL PROCEEDINGS

As explained above, "[i]n civil cases and especially tort cases, judges . . . enforce *Daubert* aggressively and often insightfully, showing considerable acumen about research methodology."[63] Indeed, "[i]n federal courts, where the decision is legally binding, *Daubert* has become a potent weapon of tort reform by causing judges to scrutinize [civil] scientific evidence more closely."[64] As a result, the authors endorse the adoption of federal civil pretrial discovery and disclosure procedure in criminal cases. We are not alone. In the wake of the public revelations of wrongful convictions in their respective states, Texas, North Carolina, and West Virginia have reformed their criminal discovery standards to provide pre-plea disclosure of evidence to the defendant.[65]

Alan Gell was freed from North Carolina's death row because the prosecution suppressed, throughout his trial proceedings, significant exculpatory and impeachment evidence, including the statements of seventeen separate witnesses, each of whom saw the victim alive after Mr. Gell was incarcerated.[66] In response, North Carolina adopted open criminal

community had accepted the supporting theories as valid." Claire R. Rollor, *Logic, Not Evidence, Supports a Change in Expert Testimony Standards: Why Evidentiary Standards Promulgated by the Supreme Court for Scientific Expert Testimony are Inappropriate and Inefficient When Applied in Patent Infringement Suits*, 8 J. BUS. & TECH. L. 313, 326 (2013). For an extensive discussion of *Frye* and its application to the admission of novel expert evidence, see Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence:* Frye v. United States, *A Half-Century Later*, 80 COLUM. L. REV. 1197 (1980).

[62] David L. Faigman et al., *Check Your Crystal Ball at the Courthouse Door, Please: Exploring the Past, Understanding the Present, and Worrying about the Future of Scientific Evidence*, 15 CARDOZO L. REV. 1799, 1811 & n.37 (1994) (citing Philip H. Abelson, *The Need for Skepticism*, 138 SCI. 75 (1962)).

[63] Michael J. Saks, *Judging Admissibility*, 35 J. CORP. L. 135, 144 (2009).

[64] Edward K. Cheng & Albert H. Yoon, *Does* Frye *or* Daubert *Matter? A Study of Scientific Admissibility Standards*, 91 VA. L. REV. 471, 472 (2005).

[65] *See* N.C. GEN. STAT. § 15A-903 (2017); 2004 N.C. Sess. Laws 515; TEX. CODE CRIM. PROC. ANN. art. 39.14 (West 2015); Buffey v. Ballard, 782 S.E.2d 204, 218 (W. Va. 2015).

[66] Alexandra Gross, *Alan Gell,* THE NAT'L REGISTRY OF EXONERATIONS, http://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3236 [https://perma.cc/XM5J-FQTN].

discovery in 2004.[67] In 2011, the state's legislature enacted the Forensic Sciences Act, which automatically requires law enforcement officers and crime labs—investigative agencies under the wing of the prosecution—to disclose evidence to the defense.[68] The Act also criminalized the failure of law enforcement to disclose scientific evidence, including analyst working papers such as bench notes and preliminary tests, to prosecutors.[69]

Emphasizing investigative agencies' obligation to disclose their own evidence to the prosecution is particularly important. In *Kyles v. Whitley*, the United States Supreme Court expanded prosecutorial *Brady* obligations by holding that prosecutors have an affirmative duty to disclose favorable evidence to the defense, including evidence in the hands of the police unknown to the prosecutor.[70] After the Supreme Court reversed Mr. Kyles's conviction, the prosecution retried him three times, resulting in three hung juries. More pertinently, the prosecution provided previously undisclosed and material police evidence to the defense at each of these retrials.[71]

In West Virginia, Joseph Buffey pled guilty to rape and burglary while prosecutors were in possession of exculpating DNA evidence.[72] Mr. Buffey spent the next thirteen years attempting to retract his guilty plea, which local prosecutors uniformly resisted. The West Virginia Supreme Court of Appeals ultimately allowed Mr. Buffey to rescind his guilty plea, and ruled that all state prosecutors must disclose exculpatory evidence to criminal defendants pre-plea.[73] Accordingly, West Virginia—the same state that judicially noticed bite mark evidence—requires the prosecution to disclose *Brady* evidence to the defense during plea negotiations. Notably, in a concurrence in the *Buffey* decision, Justice Allen Hays Loughry stated, "[t]here is simply no room in our judicial system for unethical evidentiary gamesmanship."[74]

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[67] *See* 2004 N.C. Sess. Laws 515; *see also* Robert P. Mosteller, *Exculpatory Evidence, Ethics, and the Road to the Disbarment of Mike Nifong: The Critical Importance of Full Open-File Discovery*, 15 GEO. MASON L. REV. 257, 272–76 (2008) (explaining the relationship between the *Gell* case and the subsequent criminal discovery reforms enacted by the North Carolina legislature).

[68] N.C. GEN. STAT. § 15A-903 (2017).

[69] *Id*.

[70] 514 U.S. 419, 437 (1995) (finding the prosecutor has an affirmative duty to disclose material evidence, including "a duty to learn of any favorable evidence known to the others acting on the government's behalf in the case, including the police").

[71] *Thinking about* Kyles v. Whitley, PUBLIC DEFENDER DUDE, http://publicdefenderdude.blogspot.com/2010/05/thinking-about-kyles-v-whitley.html [https://perma.cc/VZW3-934Y] (last accessed Mar. 3, 2017).

[72] Buffey v. Ballard, 782 S.E.2d 204, 208–09 (W. Va. 2015).

[73] *Id*. at 216, 221.

[74] *Id*. at 223 (Loughry, J., concurring).

In Texas, Michael Morton was wrongfully convicted of his wife's murder after his prosecutor—who later became a judge—hid exculpatory evidence.[75] The Texas legislature responded by passing the Michael Morton Act, which requires full open-file discovery of favorable evidence "as soon as practicable" after the prosecution receives a request.[76]

These states range in their definitions of what constitutes "open-file discovery" from exculpatory evidence only in West Virginia to all evidence in the prosecutor's file in North Carolina. In all six states with open-discovery provisions, the prosecution is required to disclose—at a minimum—evidence favorable to the defense pretrial.[77] Generally, open-file discovery means the defendant is entitled to the complete file of the prosecution, law enforcement, and any other agencies working for the prosecution. The term "file" broadly includes "witness statements, investigating officers' notes, results of [forensic] tests and examinations," bench notes and working papers from forensic lab analysts, forensic expert reports, and any other forensic evidence collected during the investigation.[78] Consistent with the position taken by the American Bar Association, open-file states generally require prosecutors to disclose all evidence related to a case pre-plea.[79]

The purpose of open-file discovery is to increase the reliability and accuracy of criminal proceedings. As eloquently stated by Professor Robert Mosteller, "[open files] do not rely on the ethical judgment of a prosecutor involved in a fiercely competitive adversary trial process to determine what is exculpatory. Instead, they impose a blanket rule of general disclosure."[80] The Honorable Alex Kozinski, Judge on the United States Court of Appeals for the Ninth Circuit, and Senior Advisor to PCAST, likewise suggests open-file discovery as a reform for prosecutorial misconduct.[81] As Professor Jennifer Laurin has made clear, "[e]xpanding and accelerating defense access to information adduced in the state's investigation is one of

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[75] *Michael Morton*, THE NAT'L REGISTRY OF EXONERATIONS, https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3834 [https://perma.cc/U75U-RXWH] (last accessed Sept. 7, 2017).

[76] 2013 Tex. Sess. Law Serv. Ch. 49 (S.B. 1611) (West) (codified as amended at TEX. CODE CRIM. PROC. ANN. art. 39.14 (West 2017).

[77] *See* N.C. GEN. STAT. ANN. § 15A-903 (2011); TEX. CODE CRIM. PROC. ANN. art. 39.14 (West 2017); ARIZ. R. CRIM. P. 15.1; COLO. CRIM. P. 16; N.J. CT. R. 3:13-3; OHIO CRIM. R. 16.

[78] *See, e.g.*, N.C. GEN. STAT. ANN. § 15A-903 (2011).

[79] ABA COMM. ON ETHICS AND PROF'L RESPONSIBILITY, Formal Op. 454 (2009) (ethics opinion interpreting ABA Model Rule 3.8(d)).

[80] Mosteller, *supra* note 67, at 260, 310 ("The beauty of full open-file discovery is obvious as a remedy for the difficulty of subjective choice in a competitive adversarial environment.").

[81] Hon. Alex Kozinski, *Criminal Law 2.0*, 44 GEO. L.J. ANN. REV. CRIM. PROC. iii, xxvi–xxvii (2015).

the most promising mechanisms to remedy reliability-diminishing features of pretrial activities."[82]

And yet, even if the Supreme Court had ruled in *Turner* that *Brady* was broad enough to demand prosecutorial disclosure of the alternative perpetrator witness statements to the defense, which it did not, *Brady* would remain an insufficient safeguard and continue to fall far short of the civil discovery rules.[83] Despite *Brady*'s narrow scope, the Department of Justice has strongly resisted the incorporation of *Brady* and its progeny into Federal Rule of Criminal Procedure 16. Needless to say, the Department has vehemently opposed the adoption of a parity-based open discovery and disclosure system comparable to those mandated by the Federal Rules of Civil Procedure. Thus, pretrial discovery and disclosure available to federal defendants remain extremely limited, the ABA's proposed reforms and the recent evolution of state rules toward open-file criminal discovery notwithstanding.[84]

CONCLUSION

This Essay responds to a critical situation in our modern criminal justice system: the ongoing and affirmative use of flawed forensic evidence by prosecutors. We have taken this opportunity to identify an underlying systemic issue of discovery by comparing the lax admission standards of false scientific evidence in criminal cases with the rigorous vetting of even valid and reliable scientific evidence in the civil context. In both criminal and civil cases, the same evidence is reviewed by the same judges applying

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[82] Laurin, *supra* note 6, at 842.

[83] It is worth emphasizing here that the authors do not endorse the notion that the adoption of *Brady* and its progeny in Federal Rule of Criminal Procedure 16 would be sufficient to curtail the admission of flawed forensic evidence in criminal proceedings. As one scholar has aptly summarized:

> [C]onstitutional rules that would subject the prosecutor's (and police's) actions to the scrutiny of the defense—in particular the rule of *Brady v. Maryland* and its progeny entitling the defense, as a feature of due process, to favorable information within the control of the state—do little or nothing to cure information asymmetries prior to trial.

Laurin, *supra* note 6, at 794 (internal citations omitted). This is because:

> First, the scope of *Brady*'s disclosure requirement is formally limited to information both favorable and 'material' to the defense—and thus excludes not only information relevant to the prosecution's case more generally, but also . . . favorable information incapable by its own force of affecting a juror's judgment. [Second,] "ordinary course due process [does not] require[] the state to make available *potentially* favorable evidence—for example, physical evidence that, upon forensic analysis, might yield relevant, even exculpatory, conclusions." [Third, and] "most critically, even information that falls within the ambit of *Brady*'s mandate need not, consistent with the Constitution, be disclosed *prior* to trial.

Id. at 794–95.

[84] At least six states have adopted some version of pretrial open-file discovery. *See* notes 65–79 *supra* and accompanying text. Florida, while not technically providing open file discovery, provides extensive information to the defense as well. FLA. R. CRIM. P. 3.220.

the same standard of admission of scientific evidence: *Daubert*. The difference, and one that undermines the accuracy not only of the evidence presented but also of criminal convictions, is the pretrial discovery and disclosure rules binding the courtroom players. We propose that the criminal justice system adopt the party-parity civil pretrial discovery and disclosure rules. Such leveling of the playing field may return integrity to prosecutors' offices and restore trust in our criminal adjudications.