

NOTE
**ALL BARK, NO BITE: HOW THE LONE STAR
“JUNK SCIENCE WRIT” COULD REINVIGORATE
FEDERAL HABEAS REVIEW**

I. INTRODUCTION

Have you ever been on the edge of your seat while watching a riveting, emotional crime drama, when suddenly, a critical “smoking gun” piece of indisputable forensic evidence was introduced to convict the “bad guy”?¹ The general American perception of forensic evidence’s infallibility seems to be primarily derived from pop culture through shows like *CSI: Crime Scene Investigation*.² The aptly named “CSI Effect” has imbued in jurors the expectation—“if not [the] demand”—to see DNA tests, concrete fingerprint analysis, detailed computer forensics, and other specialized scientific evidence presented at trial to prove a case.³ The presentation of such evidence in real-life trials leads jurors to believe it almost unquestionably.⁴ While the topic of forensic evidence on TV programs may serve to familiarize potential jurors with certain terms, this also leads jurors to blindly adopt the purported reliability of such evidence.⁵ This is especially problematic in light of recent studies calling into question the actual reliability and accuracy of non-DNA forensic

1. Vikas Khanna & Scott Resnik, *The CSI Effect*, AM. BAR ASS’N (Jan. 7, 2021), https://www.americanbar.org/groups/litigation/publications/litigation_journal/2020-21/winter/the-csi-effect [<https://perma.cc/CQ7D-TLA8>].

2. *See id.*

3. *Id.* While research has shown that jurors expect and even demand scientific, forensic evidence in trials, one study indicated that “there was little or no indication of a link between those inclinations and watching particular television shows.” Donald E. Shelton et al., *A Study of Juror Expectations and Demands Concerning Scientific Evidence: Does the “CSI Effect” Exist?*, 9 VAND. J. ENT. & TECH. L. 331, 333 (2006). The study still indicated that the pervasiveness of forensic evidence in pop culture affected the attitudes of potential jurors. *Id.*

4. Khanna & Resnik, *supra* note 1.

5. *Id.* See *infra* Part II for a discussion on experts’ effects on juries. Further, both legal commentators and research in social science have supported the claimed impact of the CSI Effect. Jennifer E. Laurin, *Criminal Law’s Science Lag: How Criminal Justice Meets Changed Scientific Understanding*, 93 TEX. L. REV. 1751, 1758 (2015).

evidence—“pattern/experience evidence.”⁶ In the pop culture context, forensic evidence is viewed through the Hollywood camera lens of objectivity and definitive conclusiveness, whereas reality paints a more subjective and deeply fallible picture.⁷

In November 2005, the Science, State, Justice, Commerce, and Related Agencies Appropriations Act of 2006 was enacted.⁸ The Act congressionally charged the National Academy of Sciences (“NAS”) with researching the state of non-DNA forensic evidence and determining what improvements were necessary to further legitimize expert testimony in these relevant fields.⁹ NAS’s report, *Forensic Science in the United States: A Path Forward*, was released in 2009 and startlingly detailed how faulty forensic evidence has led to countless wrongful convictions across the country.¹⁰ For instance, in regard to bite mark evidence, the report indicated that there is “no evidence of an existing scientific basis for identifying an individual to the exclusion of all others.”¹¹ Besides DNA analysis, the report alarmingly found that “no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source.”¹²

Some of these disciplines have been criticized as so-called “junk science,” described as “subjective speculation masquerading as science” due to the lack of objectivity, reproductivity, validity, and falsifiability of the disciplines.¹³ For an example of judicially defined junk science,

6. COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCIS. CMTY., NAT’L RSCH. COUNCIL, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 3-4 (2009) [hereinafter NAS REPORT], <https://www.ojp.gov/pdffiles1/nij/grants/228091.pdf> [<https://perma.cc/Y6P9-Z8AP>]. Pattern and experience evidence “includes any markings produced when one object comes into contact with another object, such as fingerprints, shoeprints, toolmarks, and tire treads[,]” as well as “pattern analysis, such as is used when evaluating handwriting, type-writing, and writing instruments.” *Pattern and Impression Evidence*, NAT’L INST. STANDARDS & TECH., <https://www.nist.gov/oles/pattern-and-impression-evidence> [<https://perma.cc/84J6-RJBR>] (last visited Feb. 21, 2024).

7. See Lee John Curley & James Munro, *CSI: Current Research into the Impact of Bias on Crime Scene Forensics Is Limited – But Psychologists Can Help*, CONVERSATION (Oct. 29, 2019, 11:54 AM), <https://theconversation.com/csi-current-research-into-the-impact-of-bias-on-crime-scene-forensics-is-limited-but-psychologists-can-help-125467> [<https://perma.cc/2PZZ-PUVL>].

8. Science, State, Justice, Commerce, and Related Agencies Appropriations Act of 2006, Pub. L. No. 109-108, 119 Stat. 2290, 2302 (2005).

9. S. REP. NO. 109-88, at 46 (2005); see also NAS REPORT, *supra* note 6, at 3 (defining non-DNA forensic evidence as disciplines like fingerprint analysis, odontology, toolmark analysis, handwriting comparison, and shoe or tire impressions).

10. See NAS REPORT, *supra* note 6, at 4.

11. *Id.* at 176.

12. *Id.* at 7.

13. M. CHRIS FABRICANT, JUNK SCIENCE AND THE AMERICAN CRIMINAL JUSTICE SYSTEM 19 (2022) (ebook) (“‘Junk science’ sounds like science but there is no empirical basis for the ‘expert

Justice Stevens opined in *General Electric Co. v. Joiner*¹⁴ that phrenology—the pseudoscientific study of the brain’s size to predict cognitive and mental capabilities—was junk science due to its innate unreliability.¹⁵ Based on these findings regarding junk science and the NAS report, criminal justice reform sponsored by the Innocence Project slowly commenced around the country.¹⁶

Most notably, in 2013, Texas became the first state to adopt a junk science law which allows courts to overturn a conviction through a writ of habeas corpus when the scientific evidence that led to the verdict has since been discredited.¹⁷ Simply put, habeas corpus is the constitutional entitlement of federal and state prisoners to dispute the legality of their confinement.¹⁸ The Texas junk science habeas law is separate from the state’s preexisting motion for a new trial based on newly discovered evidence in Texas.¹⁹ Rather than an issue of fact, this law treats junk science introduced at a previous trial as an issue of law, altering the

opinion’”) (emphasis in original); see NAS REPORT, *supra* note 6, at 43 (detailing that the lack of falsifiability of these disciplines leads to wrongful convictions due to the lack of scientific scrutiny that is verifiable).

14. 522 U.S. 136 (1997).

15. *Id.* at 153 n.6 (Stevens, J., concurring in part and dissenting in part) (“An example of ‘junk science’ that should be excluded under *Daubert* as too unreliable would be the testimony of a phrenologist who would purport to prove a defendant’s future dangerousness based on the contours of the defendant’s skull.”). See *infra* Part II for a discussion on judicial analysis of forensic evidence under the *Frye* and *Daubert* standards.

16. Innocence Staff, *Ten Years Later: The Lasting Impact of the 2009 NAS Report*, INNOCENCE PROJECT (Feb. 19, 2019) [hereinafter Innocence Staff, *Ten Years Later*], <https://innocenceproject.org/lasting-impact-of-2009-nas-report> [<https://perma.cc/6TUF-W9R2>].

17. TEX. CODE CRIM. PROC. ANN. art. 11.073 (West 2015); see Kirk Cooper, *The Texas Junk Science Writ: A Look Six Years In.*, 82 TEX. BAR J. 798, 798 (2019) (detailing Texas’s pioneering in this criminal justice arena). Six other states—Arkansas, California, Connecticut, Michigan, Nevada, and West Virginia—have subsequently incorporated similar junk science writs. Lee Kovarsky, *Delay in the Shadow of Death*, 95 N.Y.U. L. REV. 1319, 1370-71 n.333 (2020). These states “have enacted gateways for prisoners to reopen collateral litigation for no reason other than the presence of discredited forensic methods” such as bite mark evidence, shaken baby syndrome, ballistics analysis, and “junk arson science.” *Id.* at 1370.

18. See *What You Should Know About Habeas Corpus*, ACLU (Apr. 20, 2007), <https://www.aclu.org/other/what-you-should-know-about-habeas-corpus> [<https://perma.cc/9VSA-M9VG>] (“The ‘Great Writ’ of habeas corpus is a fundamental right in the Constitution that protects against unlawful and indefinite imprisonment. Translated from Latin it means ‘show me the body.’”).

19. Daniel S. Medwed, *Up the River Without a Procedure: Innocent Prisoners and Newly Discovered Non-DNA Evidence in State Courts*, 47 ARIZ. L. REV. 655, 665 (2005) (detailing how every state in the United States has a motion for a new trial); see TEX. R. APP. PROC. 21.3(a)–(h) (setting out the grounds for a new trial that does not include discredited forensic evidence); see, e.g., N.Y. CRIM. PROC. LAW § 440.10 (McKinney 2023) (detailing New York’s motion for a new trial); see also *State v. Cassiano*, No. 13-14-00556-CR, 2016 Tex. App. LEXIS 6881, at *1-2 (June 30, 2016) (“Rule 21 of the rules of appellate procedure governs a defendant’s motion for new trial in a criminal case.”).

standard of review on appeal and expanding the ability of appellate courts to review convictions.²⁰ Texas courts have excluded testimony as junk science “[w]hen a witness’s methodology and conclusions cannot be validated or have been otherwise inadequately tested”²¹

The junk science law has been coined by some as the “Texas Junk Science Writ.”²² Texas courts have held that the law “allows a defendant to obtain post-conviction relief based on a change in science relied on by the State at trial” regardless of statute of limitations implications.²³ Procedurally, the law empowers criminal courts to review at a habeas proceeding forensic evidence that was scientifically accepted at the time of a defendant’s trial, and the unreliability of which “was not ascertainable through the exercise of reasonable diligence[,]” but that is no longer considered to be credible in the scientific community.²⁴ To establish that the evidence is no longer scientifically accepted, a defendant must show that its unreliability “was not ascertainable through the exercise of reasonable diligence” at the time of the initial trial.²⁵ A defendant must then demonstrate, by a preponderance of the evidence, that a jury would not have returned a guilty verdict had they been aware that the evidence presented was not scientifically accepted as credible.²⁶

In 2018, the Texas Court of Criminal Appeals had the opportunity to apply this new law to a habeas claim from a death row inmate convicted of a 1989 double murder in *Ex parte Chaney*.²⁷ The conviction was based on testimony from two bite mark experts indicating that a bite mark on one of the victims matched the defendant’s teeth.²⁸ Steven Chaney unsuccessfully appealed his conviction (which was based in

20. See Medwed, *supra* note 19, at 674 (“With respect to habeas corpus, the history of the ‘Great Writ’ in state courts is of little service to this Article’s emphasis on newly discovered evidence claims because habeas corpus traditionally applied to prisoners challenging the lawfulness of their detention and extended *only to errors of law*, not fact.”) (emphasis added) (footnotes omitted). See *infra* Part II for a discussion on issues of law in habeas litigation. Appellate litigation is typically limited to the factual determinations of the lower courts, whereas questions of law are not so limiting. See Medwed, *supra* note 19, at 674.

21. O’Brien v. State, 482 S.W.3d 593, 618 (Tex. Ct. App. 2015) (internal quotations omitted) (quoting Petriciolet v. State, 442 S.W.3d 643, 653 (Tex. Ct. App. 2014)).

22. Cooper, *supra* note 17, at 798.

23. *Ex parte Chaney*, 563 S.W.3d 239, 255 (Tex. Crim. App. 2018).

24. TEX. CODE CRIM. PROC. ANN. art. 11.073(b)(1)(A) (West 2015).

25. *Ex parte Chaney*, 563 S.W.3d at 255.

26. *Id.* at 256-57, 278.

27. *Id.* at 257.

28. See *id.* at 253. At this juncture, it is important to note the role experts play in criminal trials cannot be underestimated, as evidence collected at a crime scene that is later analyzed in a crime laboratory is presented in court to members of the jury through expert testimony. Aliza B. Kaplan & Janis C. Puracal, *It’s Not a Match: Why the Law Can’t Let Go of Junk Science*, 81 ALB. L. REV. 895, 899-900 (2018) (detailing the operation of forensic science in criminal trials and the role expert witnesses have in analyzing forensic evidence).

large part on expert testimony) through available state direct appeal remedies all the way to the highest appellate court.²⁹ His incarceration would last thirty years.³⁰

After the passage of the Texas Junk Science Writ in 2013, Chaney applied for a writ of habeas corpus—distinct from his direct appeals.³¹ In December 2018, the Texas Court of Criminal Appeals ruled, under the new junk science law, that the bite mark evidence used in the original conviction was no longer credible because the expert testimony proffered at the original trial relied upon unfounded support.³² In fact, the court went so far as to hold that “Chaney has proven that he is actually innocent.”³³

The ability to take advantage of this sort of procedure has not yet been explored at the federal level due to the restrictions on habeas corpus review currently in force today.³⁴ The current relevant federal, collateral post-conviction review statute is the Antiterrorism and Effective Death Penalty Act of 1996 (“AEDPA”),³⁵ which places significant burdens—most notably in the form of requiring a predicate state court conviction that “resulted in a decision that was contrary to, or involved an unreasonable application of, clearly established Federal law, as

29. *Ex parte Chaney*, 563 S.W.3d at 254. Following his sentencing at the trial court, Chaney appealed to the Texas Court of Criminal Appeals in 1989 and lost once more. *Chaney v. State*, 775 S.W.2d 722, 723 (Tex. Ct. App. 1989). His petition for discretionary review was denied following loss on appeal, as the Texas Court of Criminal Appeals is the court of last resort for criminal appeals. *Ex parte Chaney*, 563 S.W.3d at 254.

30. *Id.* at 278.

31. *Id.* at 254. The basis of the writ application was that new discoveries regarding the inaccuracy of bite mark evidence pursuant to the junk science writ contradicted the State’s evidence at trial, including a *Brady* claim, a claim of actual innocence, and that the conviction was obtained through the use of false evidence. *Id.*

32. *Id.* at 278. The expert in the original trial confessed at the habeas proceeding that he was not an expert on the aging of wounds, something that was a central facet of the bite mark analysis. *Id.* at 276-77. Further, the expert’s testimony that “there was only a [o]ne to a million” chance that a person other than Chaney bit the victims was now inadmissible under Texas law. *Id.* at 276.

33. *Id.* at 278. It is of utmost importance to recognize that Chaney made separate claims under the junk science writ and the already available application for actual innocence. *Id.* at 274. As will be explored below, federal courts only—in theory—recognize actual innocence claims, whereas Texas recognizes both actual innocence and changed scientific evidence. *See infra* Part III; *see also Ex parte Chaney*, 563 S.W.3d at 254, 274 (emphasis added); Innocence Staff, *History of Impact*, INNOCENCE PROJECT [hereinafter Innocence Staff, *History of Impact*], <https://history.innocenceproject.org/#year-2022> [https://perma.cc/FMA4-AX4Z] (last visited Feb. 21, 2024) (explaining that the decision in *Ex parte Chaney* was the first in the entire nation to cite the NAS report as support for the discrediting of bite mark evidence).

34. *See* 28 U.S.C. §§ 2244, 2254 (2018) (indicating there is no relevant provision for so-called junk science); *see also* Thomas C. O’Bryant, *The Great Unobtainable Writ: Indigent Pro Se Litigation After the Antiterrorism and Effective Death Penalty Act of 1996*, 41 HARV. C.R.-C.L. L. REV. 299, 304-05 (2006) (detailing the new limitations on habeas review that AEDPA imposed).

35. §§ 2244, 2254.

determined by the Supreme Court of the United States”—on reviewing forensic evidence in death penalty convictions.³⁶ In addition, AEDPA implemented a statute of limitations; this would be the first time in American history that “habeas corpus petitions were subject to a statute of limitations”³⁷ Although AEDPA was enacted in the wake of the tragic Oklahoma City terrorist bombing, the Act has much broader implications than even the supporters of the bill anticipated.³⁸

In practice, the lack of an explicit changed-science ground for habeas applications and the lack of binding Supreme Court precedent on such claims means changed science claims are effectively barred regardless of whether new information comes to light discrediting forensic evidence relied upon in the court below.³⁹ Whereas Steven Chaney had the ability to utilize the Texas Junk Science Writ to overturn his conviction based on discredited scientific evidence and thus did not need to seek relief in federal court, those defendants whose state court convictions cannot be reviewed on the basis of such a junk science writ are significantly deprived of a substantial right to justice.⁴⁰ If a defendant is convicted based on faulty junk science in a state where no junk science writ exists, and they exhaust both the direct state level appeals as well as the collateral habeas review process, federal courts will provide no alternative recourse for claims of changed scientific evidentiary foundations.⁴¹ This is

36. See § 2254(d)(1). As interpreted by the Supreme Court, state court rulings are “contrary to” federal law “if the state court arrives at a conclusion opposite to that reached by [the Supreme Court] on a question of law or if the state court decides a case differently than [the Supreme Court] has on a set of materially indistinguishable facts.” *Williams v. Taylor*, 529 U.S. 362, 412-13 (2000).

37. O’Bryant, *supra* note 34, at 303-04 (tracking the historical trajectory of the writ of habeas corpus).

38. See Bryan A. Stevenson, *The Politics of Fear and Death: Successive Problems in Capital Federal Habeas Corpus Cases*, 77 N.Y.U. L. REV. 699, 772-73 (2002). Members of Congress did not realize or intend for AEDPA to be as restrictive as what it materialized into. *Id.* Congress saw the measure as simplifying habeas review, not necessarily as a draconian limitation on meritorious claims. *Id.* For a further discussion on the legislative intent behind AEDPA, see *infra* Part II.B.

39. See § 2254; see also *Dupont v. Phillips*, No. 05-CV-3426 (RRM), 2012 WL 2411858, at *8-9 (E.D.N.Y. June 26, 2012) (analyzing AEDPA’s restrictiveness on reviewing state court decisions).

40. *Ex parte Chaney*, 563 S.W.3d 239, 257, 278 (Tex. Crim. App. 2018); see Valena E. Beety, *Changed Science Writs and State Habeas Relief*, 57 HOUS. L. REV. 483, 485-86 (2020). Chaney could have initiated habeas proceedings in federal court once his direct appeals had been exhausted in 1989, which predated AEDPA. See *Ex parte Chaney*, 563 S.W.3d at 254. However, there was—and still is—no federal basis for habeas relief through remedying faulty forensic evidence. See Beety, *supra*, at 485-86.

41. See *id.* at 489 (emphasizing that “under the Antiterrorism and Effective Death Penalty Act of 1996, federal habeas review became inordinately restrictive, with limited means of review and relief”) (footnote omitted); see, e.g., N.Y. CRIM. PROC. LAW § 440.10 (McKinney 2023) (indicating how the New York statutory provision for a motion to vacate a judgment does not have a habeas carve-out for junk science but does cover *coram nobis*, a motion for a new trial on the ground of newly discovered evidence, and state and federal habeas corpus).

a constitutionally unacceptable proposition that does not secure the liberty the Founders sought to protect when they enshrined the writ of habeas corpus in the Constitution.⁴²

This Note argues that the federal government must keep pace with the current trends in forensic evidence and state-level reforms on regulating post-conviction habeas review based on now-discredited scientific evidence.⁴³ While the Texas Junk Science Writ is by no means perfect, it is far more in touch with modern trends in forensic evidence than AEDPA is at the federal level.⁴⁴ A legislative solution that amends AEDPA to include the language of the Texas Junk Science Writ as an exception to the one-year statute of limitations to encourage scientific research in forensic disciplines and clearly establish a procedure for demonstrating when a forensic discipline has been discredited would modernize federal habeas review.⁴⁵ This would also motivate other states to enact junk science writs through the dynamic federalist interplay the Founders envisioned.⁴⁶

In Part II, this Note will explore the foundations of American habeas corpus litigation as it pertains to junk science, ranging from the constitutional roots of habeas corpus to recent findings in the field of forensic science that have cast doubt on multiple disciplines, and to forensic evidence admission standards.⁴⁷ Part III will delve into how AEDPA functions in habeas litigation, and how junk science constitutional claims are not yet an independent basis for habeas remedies, even though many states have recognized them as such.⁴⁸ Part IV will propose that AEDPA incorporate the Texas Junk Science Writ to secure the original promise

42. U.S. CONST. art. I, § 9, cl. 2 (detailing habeas corpus in the Constitution); see THE FEDERALIST NO. 84 (Alexander Hamilton) (emphasizing the importance of the writ of habeas corpus to the American democratic project); see also *infra* Part II.A.

43. See *infra* Part III.

44. See, e.g., Maurice Chammah, *Old Convictions, New Science*, MARSHALL PROJECT, <https://www.themarshallproject.org/2015/05/28/old-convictions-new-science> [<https://perma.cc/28BD-QPX2>] (Feb. 2, 2016, 6:00 PM) (explaining the Texas Junk Science Writ in operation).

45. See *infra* Part IV.A; cf. Sally F. Goldfarb, *The Supreme Court, The Violence Against Women Act, and the Use and Abuse of Federalism*, 71 *FORDHAM L. REV.* 57, 90 (2002) (“Sometimes, federal civil rights legislation fills a vacuum left by state legislative inaction, and states then follow suit by enacting their own versions of the federal statute. At other times, state statutes provide a model for federal civil rights legislation, which in turn inspires further state legislative activity.”).

46. See Goldfarb, *supra* note 45, at 90 (detailing the federalist interplay between the federal government and states filling vacuums of legislation for one another).

47. See *infra* Part II.

48. See *infra* Part III.

the Founders envisioned with habeas corpus and to stay up to date with modern advances in forensic science.⁴⁹

II. FORENSIC EVIDENCE IN HABEAS PROCEEDINGS: FROM THE CONSTITUTIONAL CONVENTION TO TWENTY-FIRST CENTURY COURTROOMS

Subpart A will discuss the constitutional underpinnings of the Great Writ and how it has morphed.⁵⁰ Subpart B will introduce AEDPA and the legislative history behind it.⁵¹ Subpart C will explore the findings of the NAS report and its impact on forensics.⁵² Subpart D will focus on the President's Council of Advisors on Science and Technology's *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* ("PCAST") report and what steps, if any, have been taken by the federal government to address the findings of both the NAS and PCAST reports.⁵³ Finally, Subpart E will examine the landscape of forensic evidence generally in trials, and how the differing standards and jurors' exposure to such standards interact with junk science.⁵⁴ But first, to understand the modern implications of junk science being considered in habeas proceedings to liberate wrongfully convicted prisoners, it is first necessary to travel back to Philadelphia in the summer of 1787 to understand the constitutional underpinnings of the Great Writ.⁵⁵

A. *The Great Writ: Bases for Federal Post-Conviction Review*

Habeas corpus is mentioned only once in the Constitution despite its essential value to the Founders in its protection of individual liberty, as evidenced by the debates during the 1787 Constitutional Convention.⁵⁶ The clause was held to be so important that Alexander Hamilton, in arguing in favor of ratification of the Constitution, asserted that "[t]he establishment of the writ of habeas corpus . . . [is] perhaps [a] greater securit[y] to liberty and republicanism than any [the Constitution]

49. See *infra* Part IV.

50. See *infra* Part II.A.

51. See *infra* Part II.B.

52. See *infra* Part II.C.

53. See *infra* Part II.D.

54. See *infra* Part II.E.

55. See O'Bryant, *supra* note 34, at 303 n.22, 304 (illustrating the history of the writ of habeas corpus prior to the founding, through the time of the founding of the United States, and up to the present).

56. See Amanda L. Tyler, *The Forgotten Core Meaning of The Suspension Clause*, 125 HARV. L. REV. 901, 969, 971-72 (2012).

contains.”⁵⁷ Article I, Section 9, Clause 2 of the Constitution reads: “The Privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it.”⁵⁸ This clause now guarantees the power of federal courts to hear challenges to state criminal convictions.⁵⁹ However, the original judicial interpretation of this constitutional provision followed the English common law construction that the writ was available “to attack pretrial detention and confinement by executive order”⁶⁰ This judicial authority was limited to prisoners in *federal* custody and did not include state claims.⁶¹

Over time, this limited interpretation was broadened and habeas claims could espouse constitutional claims and jurisdictional questions.⁶² For instance, in 1833 and 1842, Congress expanded the writ to ease certain domestic and international tensions, respectively.⁶³ The most significant changes occurred during the Civil War and the subsequent Reconstruction era.⁶⁴ For the first time ever, Congress expanded habeas review to state convictions, as the writ now applied to “any person . . . restrained of his or her liberty in violation of the constitution . . . or law of the United States.”⁶⁵ These successive expansions sought to embrace practicality, while maintaining the thrust of the Founders’ vision.⁶⁶

57. THE FEDERALIST NO. 84 (Alexander Hamilton) (implying that a Bill of Rights guaranteeing certain rights was unnecessary since the writ of habeas corpus would be a beacon of liberty in the Constitution).

58. U.S. CONST. art. I, § 9, cl. 2.

59. *ArtIII.S1.6.9 Habeas Review*, CONST. ANNOTATED, https://constitution.congress.gov/browse/essay/artIII-S1-6-9/ALDE_00001186 [<https://perma.cc/Q2V2-XTYH>] (last visited Feb. 21, 2024).

60. *Id.* (citing *Ex parte Watkins*, 28 U.S. 193, 201-02 (1830)).

61. See Max Rosenn, *The Great Writ—A Reflection of Societal Change*, 44 OHIO ST. L.J. 337, 340 (1983) (“For much of the first century following the enactment of the Judiciary Act of 1789, federal habeas corpus was limited to petitions filed by persons in the custody of the United States.”); see also O’Bryant, *supra* note 34, at 301.

62. See Rosenn, *supra* note 61, at 340.

63. See *id.* at 340-41 (illustrating how the 1833 expansion sought to protect federal officers operating in the South, while the 1842 expansion provided the writ to citizens of foreign countries “who were detained under state or federal authority for acts done pursuant to the law of a foreign sovereign”).

64. See *id.* at 341.

65. *Id.*

66. See *id.* at 341 (“[T]he habeas court was now empowered to conduct an inquiry into the facts underlying the detention and was no longer limited to bare legal review.”); see also THE FEDERALIST NO. 84 (Alexander Hamilton).

For the next century, there was no further expansion of habeas litigation.⁶⁷ However, the 1953 Supreme Court case of *Brown v. Allen*⁶⁸ spurred a similar revolution in habeas litigation to the congressional action taken after the Civil War.⁶⁹ Now, constitutional challenges that were heard in state court could be subsequently raised in a federal habeas petition.⁷⁰

Whatever revolution occurred, however, was relatively short-lived due to the congressional enactment of AEDPA.⁷¹ AEDPA stymied the broadened scope of habeas litigation by imposing a strict one-year statute of limitations on habeas petitions, something that had never been done in America's two-hundred-plus-year history.⁷² It also limited review of convictions based on junk science, as it required petitioners to show by "clear and convincing evidence" that the factual predicate of a petitioner's case changed.⁷³ It must further be noted that before even getting to the federal level of post-conviction review, petitioners must exhaust their state court appellate review first, further insulating the problems of faulty forensics if no junk science writ is available to them.⁷⁴

67. Rosenn, *supra* note 61, at 345. Due to the success of the Reconstruction federal statutes and jurisprudence surrounding the legislation, no judicial expansion of the writ was necessary. *See id.*; see also Clarke D. Forsythe, *The Historical Origins of Broad Federal Habeas Review Reconsidered*, 70 NOTRE DAME L. REV. 1079, 1083-84 (1995) (illustrating that if any expansion occurred, it was in the form of litigation interpreting the Habeas Corpus Act).

68. 344 U.S. 443 (1953).

69. Marin K. Levy, *Judging the Flood of Litigation*, 80 U. CHI. L. REV. 1007, 1043-44 (2013) (citing *Brown*, 344 U.S. at 458) (emphasizing that *Brown* stands "for the proposition that constitutional challenges considered in state court [can] nevertheless be raised in a federal habeas petition"). *But see* Eric M. Freedman, *Brown v. Allen: The Habeas Corpus Revolution That Wasn't*, 51 ALA. L. REV. 1541, 1621 (2000) (arguing that any revolution that occurred was not so dramatic or helpful).

70. Levy, *supra* note 69, at 1043-44.

71. See Joshua J. Schroeder, *The Body Snatchers: How the Writ of Habeas Corpus Was Taken from the People of the United States*, 35 QUINNIPIAC L. REV. 1, 26-27 (2016) (describing the limitations on habeas litigation imposed by AEDPA and stating that "[t]herefore, the question of reasonable harmless error becomes 'an additional layer of review' that is disjointed from both the facts and the law that form the basis for the Court's jurisdiction in the first place").

72. O'Bryant, *supra* note 34, at 303-04.

73. See 28 U.S.C. § 2244(b)(2)(B)(ii) (2018). In conjunction with this statutory limitation, the success of such claims is further hindered by differing standards of review dependent upon whether a claim is linked to another constitutional violation like due process. *See Schlup v. Delo*, 513 U.S. 298, 315-16 (1995) ("Without any new evidence of innocence, even the existence of a concededly meritorious constitutional violation is not in itself sufficient to establish a miscarriage of justice that would allow a habeas court to reach the merits of a barred claim.").

74. See Jessica Gabel Cino, *Bad Science Begets Bad Convictions: The Need for Postconviction Relief in the Wake of Discredited Forensics*, 7 U. DENV. CRIM. L. REV. 1, 22 (2017).

B. The Great Limitation: AEDPA

The enactment of AEDPA did not occur in a vacuum.⁷⁵ Rather, in response to the tragic Oklahoma City bombing in 1995, proponents of the bill argued that the act was necessary to combat domestic terrorism and to effectuate the death penalty.⁷⁶ A main theme of the congressional debates leading to the enactment was the phrase “*one bite at the apple*[.]” emphasizing the desire to prevent unnecessary and unmerited habeas proceedings.⁷⁷ However, members of Congress did not appreciate how the various provisions of AEDPA—such as the affirmative showing of a state court decision as contrary to established federal law and the one-year statute of limitations—would function in practice.⁷⁸

Some justices have subsequently opined that AEDPA was enacted to “ameliorate the lengthy delay that had often characterized federal habeas proceedings in the past.”⁷⁹ The one-year statute of limitations, various filing deadlines, and the great amount of deference afforded to state court rulings were a means to this end.⁸⁰ Additionally, from a public policy standpoint, it provided a federal-level response to the Oklahoma City bombing, as the proponents of the bill wanted to get it passed before the one-year anniversary of the bombing.⁸¹

C. The NAS Report: Catalyst Toward Modernized Forensics

Despite these seemingly altruistic objectives, AEDPA has been ineffective in addressing the sobering fact that faulty forensics have played a critical role in wrongfully incarcerating a multitude of defendants over the last few decades, which eventually led to Congress mandating the

75. See Stevenson, *supra* note 38, at 701-02 (providing the background and relevant legislative history of the act).

76. See *id.*; see, e.g., 141 CONG. REC. 7877 (1995) (statement of Sen. Bob Dole) (“The most critical element of this bill, and the one that bears most directly on the tragic events in Oklahoma City, is the provision reforming the so-called habeas corpus rules.”).

77. See Stevenson, *supra* note 38, at 771 (emphasis added).

78. See *id.* at 772 (detailing that members of Congress thought litigants would get one fair chance to litigate their habeas claims and did not intend to “foreclose federal habeas corpus review of claims that could not have been litigated at the time of the first habeas corpus petition”).

79. *Christeson v. Roper*, 574 U.S. 373, 381 (2015) (Alito, J., dissenting).

80. See Beety, *supra* note 40, at 485-86 (explaining the divergences between AEDPA and state-level habeas litigation). Notably, as will be explored below, there is no independent ground to apply based on a changed scientific foundation of evidence relied upon at an applicant’s trial. See 28 U.S.C. § 2244 (2018); see also *infra* Part III.

81. See Stevenson, *supra* note 38, at 701. The political pressure to pass AEDPA was felt across the political spectrum, including by President Bill Clinton and members of Congress before the elections of 1996. See *id.*

NAS report.⁸² In a startling finding for the American criminal justice system, the NAS report “concluded that nuclear DNA testing is the only ‘forensic method [that] has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual.’”⁸³ One discipline that especially drew the ire of the NAS report was odontology: the study of bite marks.⁸⁴ Not only have odontologists been shown to be incapable of identifying that a bite mark belongs to a particular individual, but these experts sometimes may be unable to accurately distinguish between animal and human bite marks.⁸⁵ Another discipline that was targeted was hair follicle comparisons, which the NAS report deemed as “limited in important ways.”⁸⁶ The NAS report detailed that hair follicle comparisons are likely to generate only possibilities of matches rather than actual or near matches.⁸⁷

1. A Dog’s Hair and a Man’s Conviction: An Unjust Duo

Santae Tribble was convicted of the 1978 murder of John McCormick based on hair follicles contained in a mask donned by the killer.⁸⁸ The decedent’s wife testified that a man with a mask was seen and heard to have been struggling with the decedent before shooting him.⁸⁹ After fleeing, the killer discarded the mask one block away from where McCormick was shot, and it was later recovered by police with the

82. See, e.g., Daniele Selby, *John Oliver Tackles Wrongful Conviction, Spotlights Innocence Project Client on Death Row on HBO’s ‘Last Week Tonight,’* INNOCENCE PROJECT (Mar. 7, 2022), <https://innocenceproject.org/john-oliver-tackles-wrongful-conviction-spotlights-innocence-project-client-on-death-row-on-hbos-last-week-tonight> [<https://perma.cc/83R5-68KE>] (highlighting the story of a death row inmate seeking habeas relief who was nonetheless impeded by the strict procedural provisions of AEDPA). See generally FABRICANT, *supra* note 13 (presenting the stories of three defendants wrongfully convicted based on discredited junk science).

83. Edward J. Imwinkelried, *The Shifting Battleground Over the Admissibility of Experientially Based Expert Testimony: How Far May Experts Go in Elaborating on the Personal Experience Supposedly Validating Their Methodology?*, 68 DRAKE L. REV. 43, 45 (2020) (quoting NAS REPORT, *supra* note 6, at 7).

84. NAS REPORT, *supra* note 6, at 176.

85. Jennifer D. Oliva & Valena E. Beety, *Discovering Forensic Fraud*, 112 NW. U.L. REV. 121, 132 (2017) (“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.”).

86. NAS REPORT, *supra* note 6, at 159-60 (“Most hair examiners would opine *only* that hairs exhibiting the same microscopic characteristics ‘could’ have come from a particular individual.”) (emphasis added).

87. *Id.*

88. Kaplan & Puracal, *supra* note 28, at 895-96.

89. *Id.* at 895.

assistance of canines.⁹⁰ Inside this mask, police discovered several hair strands, and one strand was sent to the FBI after being deemed suitable for comparison.⁹¹

Tribble became involved in the case after a woman told police that Tribble and his friend sold a .32 caliber revolver to her roommate.⁹² The .32 caliber gun was the same type as the one used in McCormick's killing.⁹³ After investigating Tribble, police charged him with felony murder and armed robbery.⁹⁴ In the state's case-in-chief, the prosecution put an FBI agent on the stand to testify about their prime evidence: that Tribble's hair "matched in all microscopic characteristics" to the hair retrieved from the mask.⁹⁵

Tribble took the stand in his defense to deny any involvement in the murder.⁹⁶ Other defense witnesses provided alibis for Tribble explaining that he was asleep in his mother's home in Maryland at the time of McCormick's killing.⁹⁷ The defense's evidence was unavailing to the jury, as the state emphasized persuasively in its closing argument that the hair found in the mask and Tribble's hair "matched perfectly."⁹⁸ The jury found Tribble guilty, and Tribble subsequently served twenty-seven years in prison for a crime he emphatically denied having any involvement in.⁹⁹

After serving his term, Tribble contacted a public defender who had represented a defendant in another case Tribble had read about where DNA analysis exonerated the defendant who was convicted based on hair analysis.¹⁰⁰ This public defender represented Tribble after hearing his story and successfully secured a post-conviction DNA test of the hair found in the mask.¹⁰¹ A glaring issue with the FBI agent's seemingly confident testimony in Tribble's original trial came to blinding light—not only was the hair determined to not be Tribble's—the hair discovered actually belonged to a *dog*.¹⁰²

90. *Id.*

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.* at 896.

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.*

99. *Id.*

100. *Id.*

101. *Id.*

102. *Id.* at 897 (explaining that a police dog recovered the mask of the killer).

2. Emergence of the Innocence Project

Stories like Tribble's motivated Barry Scheck and Peter Neufeld of the Benjamin N. Cardozo School of Law to found the Innocence Project to litigate similar claims of wrongful convictions.¹⁰³ Since 1992, the Innocence Project has helped exonerate hundreds of wrongfully convicted defendants based on false confessions, misapplications of forensic evidence, eyewitness misidentification, governmental misconduct, and the like.¹⁰⁴ The Innocence Project was integral not only in litigating claims of wrongful convictions, but also in bringing the stories of these defendants to light.¹⁰⁵ Its work has also bolstered the movement to reform forensic evidence following the NAS report's groundbreaking findings, and it has been a staunch supporter of reform to combat forensic injustices.¹⁰⁶

At the federal level, the Innocence Project has sponsored various reports like the NAS report and PCAST report as well as Department of Justice policy changes, such as mandating the recording of interrogations and new science-based eyewitness identification practices.¹⁰⁷ Unfortunately, as will be explored below, while the Innocence Project has made strides in promoting these policy changes, the federal government has failed to adopt *legislative* solutions to prevalent problems in forensic science.¹⁰⁸ AEDPA has been strongly criticized by the Innocence Project as well, being characterized as “destructive” and “an incredibly difficult barrier for wrongfully convicted people to overcome in seeking justice.”¹⁰⁹ On the other hand, the Innocence Project was deeply involved in the passage and enactment of the Texas Junk Science Writ and has continued to encourage its adoption in more states.¹¹⁰

103. See Innocence Staff, *History of Impact*, *supra* note 33.

104. See *id.*

105. See *id.* (“Netflix release[d] *The Innocence Files*, a nine-episode documentary that features the cases of wrongfully exonerated people and delves into the work of the Innocence Project, Pennsylvania Innocence Project, Northern California Innocence Project, and the WMU-Cooley Innocence Project at the Thomas M. Cooley School of Law.”).

106. See Innocence Staff, *Ten Years Later*, *supra* note 16.

107. See *Federal Government Advances in Wrongful Conviction Reforms*, INNOCENCE PROJECT, <https://innocenceproject.org/federal-government-reforms/2022> [https://perma.cc/N9VQ-8CJK] (last visited Feb. 21, 2024).

108. See *id.*

109. See Selby, *supra* note 82.

110. See Innocence Staff, *A Year of Groundbreaking Policy Victories: 21 Reforms in 17 States*, INNOCENCE PROJECT (July 9, 2019), <https://innocenceproject.org/a-year-of-groundbreaking-policy-victories-21-reforms-in-17-states> [https://perma.cc/8KV4-BPNM] (describing legislative forensic reforms aided by the advocacy of the Innocence Project in Michigan and Nevada).

D. NAS Report “Plus”: The PCAST Report

Although many of its findings were not novel and built on the findings of the NAS report, the PCAST report determined two other glaring issues in forensic science.¹¹¹ The PCAST report outlined the insufficient clarity among the scientific community regarding how a forensic discipline is deemed valid and reliable, and called on the scientific community to evaluate “forensic methods to determine whether they have been scientifically established to be valid and reliable.”¹¹² The PCAST report further found that the *only* forensic disciplines that had obtained “foundational validity”—validity established through accurate and responsible studies—were DNA sampling from one or two individuals and latent fingerprint analysis.¹¹³ Unsurprisingly, the PCAST report recommended that the Department of Justice not seek to introduce evidence of those disciplines that lacked a foundational validity.¹¹⁴ These disciplines lacking in foundational validity could be discredited under the Texas Junk Science Writ, and habeas relief could potentially be available to successful petitioners.¹¹⁵

Unfortunately, federal prosecutors and police have failed to fully embrace the recommendations of the PCAST report, thus neglecting to address the gaps in forensic evidence noted within it.¹¹⁶ Not only has law enforcement failed to implement these recommendations, but the National District Attorneys Association even went so far as to criticize the PCAST report’s recommendations as “scientifically irresponsible” due to supposed reliable use of forensics in the past.¹¹⁷ On the legislative

111. PRESIDENT’S COUNCIL OF ADVISORS ON SCI. & TECH., FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS 1 (2016) [hereinafter PCAST REPORT], https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf [<https://perma.cc/RV42-QQ2B>].

112. *Id.*; see also Kaplan & Puracal, *supra* note 28, at 905.

113. PCAST REPORT, *supra* note 111, at 75, 101. Even with fingerprints being deemed foundationally valid, the PCAST report noted that “only two properly designed studies of the foundational validity and accuracy of latent fingerprint analysis have been conducted” with “false positive rates that could be as high as [one] error in 306 cases in one study and [one] error in [eighteen] cases in the other . . .” *Id.* at 101; see also Cino, *supra* note 74, at 3-4. Accordingly, all other forensic disciplines, including bite mark analysis and hair follicle comparison, were called into question as lacking foundational validity. *Post-PCAST Court Decisions Assessing the Admissibility of Forensic Science Evidence*, NAT’L INST. JUST.: NAT’L CTR. ON FORENSICS, <https://nij.ojp.gov/program/national-center-forensics/post-pcast-court-decisions-assessing-admissibility-forensic-science-evidence> [<https://perma.cc/72AG-XM85>] (last visited Feb. 21, 2024).

114. *Id.*

115. See TEX. CODE CRIM. PROC. ANN. art. 11.073 (West 2015).

116. Kaplan & Puracal, *supra* note 28, at 916.

117. *Id.* at 917 (quoting Press Release, Nat’l Dist. Att’ys Ass’n, National District Attorneys Association Slams President’s Council of Advisors on Science and Technology Report (Sept.

front, no amendments to the Federal Rules of Evidence, AEDPA, or any other relevant junk science habeas review provisions have been enacted to combat this pressing issue.¹¹⁸

E. Wait, How Do These Forensic Disciplines Even Come into a Trial?

The admissibility of forensic evidence in American courtrooms has been determined through two standards developed in United States Supreme Court jurisprudence.¹¹⁹ The standard that is employed by a trial court can directly determine the outcome of not only the admission of a particular piece of evidence, but of an entire trial as well.¹²⁰ The two prevalent standards are the *Frye* “general acceptance” standard and the *Daubert* standard.¹²¹

1. The *Frye* Standard

The *Frye* test, whose namesake was derived from the case of *Frye v. United States*,¹²² “required the proponent of scientific evidence to establish that the theory and method used by the expert witness were generally accepted within the relevant scientific community.”¹²³ The *Frye* test is generally deemed the “general acceptance” test.¹²⁴ In *Frye*, the defendant was charged with murder, and defense counsel sought to

2, 2016), <https://www.ndaa.org/pdf/NDAAPress%20Release%20on%20PCAST%20Report.pdf> [<https://perma.cc/SZ3Y-FDKC>] (“[T]he NDAA concluded that ‘[a]dopting any of [PCAST’s] recommendations would have a devastating [impact] on the ability of law enforcement, prosecutors[,] and . . . defense [counsel] to fully investigate . . . cases, exclude innocent suspects, implicate the guilty, and achieve true justice.’”).

118. See *Federal Government Advances in Wrongful Conviction Reforms*, *supra* note 107 (demonstrating the legislative inaction of the federal government in the realm of forensic reform, despite various policy changes).

119. Alice B. Lustre, Annotation, *Post-Daubert Standards for Admissibility of Scientific and Other Expert Evidence in State Courts*, 90 A.L.R.5th 453, § 2, at 481 (2001).

120. See *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 587, 597-98 (1993) (providing an example of divergent material outcomes due to forensic evidence standards). There, petitioners were minor children born with serious defects allegedly stemming from respondent’s drug, Bendectin. *Id.* at 582. Respondents sought to exclude the evidence based on the theory that it had not gained “general acceptance” in the scientific community. *Id.* at 582-83. The petitioners proffered evidence of defects from animal, chemical, and other non-human studies to support their claim. *Id.* at 584. In district court, the respondents were granted summary judgment based on the *Frye* standard but faltered in the Supreme Court based on the new and expanded *Daubert* standard for the admission of expert testimony. *Id.* at 587.

121. *Id.* at 592-94; *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

122. 293 F. 1013 (D.C. Cir. 1923).

123. Lustre, *supra* note 119, at 481.

124. See *id.*; see, e.g., *Sullivan v. City of New York*, 2020 N.Y. Misc. LEXIS 5702, at *7 (Sup. Ct. Sept. 10, 2020) (“New York has long followed the *Frye* rule for admissibility of novel scientific evidence . . . adopting *Frye* general acceptance standard of *Frye v. United States* . . .”) (internal citations omitted).

introduce evidence of a blood systolic deception test in support of the defense's case.¹²⁵ The defense had planned to call an expert to testify that the defendant passed the deception test and did not exhibit the sorts of blood pressure responses consistent with deception regarding questions about the alleged murder.¹²⁶ Under the "general acceptance" standard, the D.C. Circuit excluded the expert's testimony as lacking sufficient support and standing among psychological authorities.¹²⁷ The unusually concise decision without many citations set forth the guiding standard for expert testimony for the next seventy years.¹²⁸ It provided only one hurdle to admission: whether a trial judge believes the purported evidence has adequate standing in a given scientific discipline absent other considerations.¹²⁹

2. The *Daubert* Standard

In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,¹³⁰ the Court overturned the *Frye* construction and held that the new standard, pursuant to Federal Rule of Evidence 702, maintained the general acceptance concept of *Frye*, but added additional factors to be considered by the gatekeeping trial judge in deciding whether the evidence can come in.¹³¹ These additional factors included whether the method sought to be introduced is testable and has been tested; whether the method is or has been subjected to peer review and publication; whether the known or potential error rate is discoverable; and finally, whether the method has gained general acceptance—the *Frye* standard—within the relevant scientific community.¹³² This more liberal approach to evidence was intended to make the analysis for admission of scientific experts more flexible and

125. *Frye*, 293 F. at 1013. The deception test measured the blood pressure of subjects as they were probed with various questions. *Id.* at 1013-14. The theory of the test was that "truth is spontaneous, and comes without conscious effort, while the utterance of a falsehood requires a conscious effort, which is reflected in the [rise in] blood pressure." *Id.* at 1014.

126. *Id.*

127. *Id.* ("We think the systolic blood pressure deception test has not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made.")

128. See *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 585-86 (1993) (discussing the limited analysis of forensic evidence through the *Frye* test).

129. See *id.*

130. 509 U.S. 579 (1993).

131. *Id.* at 592-94; see FED. R. EVID. 702.

132. *Daubert*, 509 U.S. at 592-94; see also Lustre, *supra* note 119, at 481.

pragmatic.¹³³ In *Kumho Tire Co., Ltd. v. Carmichael*,¹³⁴ the *Daubert* approach was extended beyond scientific fields to also enable judges to consider the expert qualifications of individuals in technical fields like tire failure analysis.¹³⁵

Employing an optimistic outlook in *Daubert*, Justice Blackmun writing for the Court dismissed concerns of potential admission of pseudoscientific or foundationally lacking evidence under this standard by emphasizing the value of vigorous cross-examination and the overall structure of the adversarial system.¹³⁶ Further, Justice Blackmun placed his—and a plethora of future defendants’—faith in the notion that “[s]cientific conclusions are subject to perpetual revision[,]” while the “[l]aw . . . must resolve disputes finally and quickly.”¹³⁷ This perspective, though optimistic in the proper functioning of the United States criminal justice system, overlooks the inherent risk that jurors may place significant weight on seemingly valid scientific evidence that a gatekeeping trial judge allows in through the exercise of his or her *Daubert* discretion.¹³⁸

3. How Do These Standards Affect Forensic Evidence in Criminal Trials?

While federal courts follow the *Daubert* standard in criminal trials,¹³⁹ their adherence to this standard has been widely criticized in scholarship as ineffective and not in the true spirit of *Daubert*, with the chief contention being that judges do not fulfill their gatekeeping role.¹⁴⁰

133. *Daubert*, 509 U.S. at 594-95. The Court viewed the abandonment of *Frye* as an expansion of the trial judge’s gatekeeping role, and one that would empower judges with more leeway to admit evidence. *Id.*

134. 526 U.S. 137 (1999).

135. *Id.* at 141-42 (holding that although the tire failure expert was excluded at the trial level, “*Daubert*’s general holding—setting forth the trial judge’s general ‘gatekeeping’ obligation—applies not only to testimony based on ‘scientific’ knowledge, but also to testimony based on ‘technical’ and ‘other specialized’ knowledge”). The Court emphasized the flexibility of the *Daubert* test and further stressed that Federal Rule of Evidence 702’s list of factors was nonexhaustive and need not be exclusively applied by the trial court. *Id.* at 141-42; see FED. R. EVID. 702.

136. *Daubert*, 509 U.S. at 596. Justice Blackmun saw the innate structure of the adversarial system as an inquisitory check on the introduction of faulty evidence, seemingly morphing the question of faulty evidence introduced at trial from a question of law to a blended one of both law and fact. *Id.* What was formerly a question of admissibility of evidence shifts on a pendulum to more of a question of the *weight* of the evidence. See *id.*

137. *Id.* at 597.

138. See N.J. SCHWEITZER, COMMUNICATING FORENSIC SCIENCE 12 (2016), <https://www.ojp.gov/pdffiles1/nij/grants/249804.pdf> [<https://perma.cc/QU94-558M>].

139. See Cino, *supra* note 74, at 2.

140. Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 32 (2009); see Cino, *supra* note 74, at 2 (“Despite these roadblocks

Some scholars have suggested a court-centric solution of a “blanket rule of general disclosure” between the parties in pretrial discovery to solve some of the contentions and critiques of the *Daubert* standard.¹⁴¹ A pressing issue with the *Daubert* standard is that it places an immense amount of responsibility on jurors—and *not* the trial judge—to determine the weight of appealing forensic evidence.¹⁴² When jurors hear the overabundance of credentials from experts or detailed explanations of forensic evidence, even if it could qualify as so-called junk science, they give strong weight to the evidence.¹⁴³

Further, the effectiveness of the *Daubert* standard generally in preventing the introduction of junk science in American courtrooms is debated in scholarship.¹⁴⁴ None of this is to suggest that judges never fulfill their gatekeeping function, nor is it to suggest that judges are incapable of analyzing forensic evidence.¹⁴⁵ Rather, it goes to show that because of the possibility that junk science can—through no ill will on the part of any individual actor—weave its way into a criminal trial, it is vital to preserve another avenue of review for defendants convicted on the basis of junk science that later is discredited.¹⁴⁶

to admissibility, courts have routinely accepted much of the so-called science underlying forensic testing with little, if any, inquiry.”)

141. Oliva & Beety, *supra* note 85, at 123, 136.

142. See *Daubert*, 509 U.S. at 596 (emphasizing the ability of jurors to weigh evidence through effective cross-examinations).

143. See SCHWEITZER, *supra* note 138, at 10-11 (“The findings suggest that jurors tend to over-value some attributes of forensic science expert testimony and under-value other aspects. The most persistent finding is that jurors rely heavily on the ‘experience’ of the testifying expert and the expert’s asserted certainty in his conclusions.”).

144. See Sabra Thomas, Comment, *Addressing Wrongful Convictions: An Examination of Texas’s New Junk Science Writ and Other Measures for Protecting the Innocent*, 52 HOUS. L. REV. 1037, 1043 (2015) (“Although *Daubert* does not explicitly mention ‘junk science,’ a number of courts and commentators subsequently interpreted the opinion as imposing barriers to the use of junk science in the courtroom. The effectiveness of these implicit barriers is debatable.”) (footnote omitted); see also *United States v. 14.38 Acres of Land*, 80 F.3d 1074, 1078 (5th Cir. 1996) (observing that *Daubert* did not “work a sea change over federal evidence law”); Craig M. Cooley & Gabriel S. Oberfield, *Increasing Forensic Evidence’s Reliability and Minimizing Wrongful Convictions: Applying Daubert Isn’t the Only Problem*, 43 TULSA L. REV. 285, 379 (2007) (“When the U.S. Supreme Court decided *Daubert* in 1993, many litigants and evidence scholars presaged that if federal (and state) trial judges *faithfully* applied *Daubert*, they would have to exclude those forms of expert testimony that relied on experience, rather than empirical data, to substantiate the accuracy and reliability of their conclusions. Unfortunately, federal and state trial judges have *not* faithfully applied *Daubert*.”) (emphasis in original).

145. See Cino, *supra* note 74, at 2.

146. See *infra* Part IV.

III. HOW ONE BITE ROTTED THE APPLE

As has been previously established, if a defendant is convicted based on so-called junk science, they must exhaust their direct state-level appeals before they can apply for a writ of habeas corpus at the federal level under AEDPA.¹⁴⁷ In addition to this exhaustion requirement, defendants must initiate their applications for habeas corpus within one year of exhausting the available state appeals, or must file an application within the statute of limitations to preserve the ability to file a subsequent, successive petition under a different theory as governed by AEDPA.¹⁴⁸ Overall, AEDPA itself is lacking under modern forensic standards and under the various state-level standards pertaining to junk science, as there is no special carve-out or exception for habeas petitions based on discredited forensic evidence.¹⁴⁹

Against this backdrop, the discrediting of scientific evidence that was relied upon at a defendant's trial has never been explicitly accepted as a basis for federal post-conviction review of state habeas proceedings.¹⁵⁰ Consequently, the reliance on expert opinions regarding junk science without the potential for federal habeas review has led to many wrongful convictions.¹⁵¹ The first chief issue with the current state of federal habeas review is that although every state has a motion for a new trial based on newly discovered evidence, relying solely upon motions for a new trial is insufficient because new scientific evidence is usually not considered to be newly discovered evidence by judges, and motions for a new trial have strict timing deadlines.¹⁵² The second issue revolves around the interaction between Supreme Court precedent—or the lack thereof—and AEDPA, and how this interaction has ultimately limited

147. 28 U.S.C. § 2254(b)(1)(A) (2018) (“An application for a writ of habeas corpus on behalf of a person in custody pursuant to the judgment of a State court shall not be granted unless it appears that . . . the applicant has exhausted the remedies available in the courts of the State . . .”).

148. See § 2244(c)–(d). While there are equitable tolling exceptions, those exceptions are for truly exceptional and rare circumstances that are reviewed on a case-by-case basis. *Harper v. Ercole*, 648 F.3d 132, 136 (2d Cir. 2011).

149. See §§ 2244, 2254.

150. See *infra* Part III.B.

151. See, e.g., Kaplan & Puracal, *supra* note 28, at 896, 898; Radley Balko, *Federal Appeals Court Refuses Qualified Immunity for Bite-Mark Experts*, WASH. POST (Aug. 23, 2017, 11:11 AM), <https://www.washingtonpost.com/news/the-watch/wp/2017/08/23/federal-appeals-court-refuses-qualified-immunity-for-bite-mark-experts> [<https://perma.cc/4J9M-EWSZ>].

152. Medwed, *supra* note 19, at 665 (observing that every state has a motion for new trial for newly discovered evidence); see Thomas, *supra* note 144, at 1050-51 (“While ‘new evidence’ claims are nothing new for those who are convicted but maintain their innocence, judges have not often regarded changing scientific standards as grounds on which to review convictions.”); see also Laurin, *supra* note 5, at 1760 (“Most problematically from the standpoint of changed science, however, such motions must be brought within a fixed, short time window from the verdict—sometimes a matter of days or months.”).

the scope of federal habeas review beyond what was expected by congressional supporters of AEDPA by restricting the ability to recognize changed science claims independently.¹⁵³

In analyzing how the congressional desire to simplify habeas corpus litigation into “one bite at the apple” caused it to rot, Subpart A will discuss the insufficiency of motions for new trials to appropriately consider claims of changed science.¹⁵⁴ Subpart B will discuss the current operation of AEDPA on habeas applications invoking junk science through the case of *Gimenez v. Ochoa*¹⁵⁵ and explain how the current restrictions on requiring an additional allegation of a constitutional violation are impracticable and unjust.¹⁵⁶ Finally, Subpart C will probe the text of AEDPA and some case law interpreting the provision.¹⁵⁷

A. New Science Alone Will Not Provide a Basis for a New Trial

Newly discovered evidence, as defined in a recent formulation by a Texas appellate court, is “evidence that was not known to the applicant at the time of trial and could not be known to him even with the exercise of due diligence.”¹⁵⁸ Continuing to use Texas as an example, to prevail on a motion for a new trial on the basis of newly discovered evidence, the evidence must be material and admissible, and the failure of discovering such evidence must not be the result of a lack of due diligence on the part of the movant.¹⁵⁹ As introduced above, however, this sort of post-trial motion does not adequately consider junk science due to the inflexibility of the definition of newly discovered evidence and due to the strict timelines surrounding motions for new trials.¹⁶⁰

153. Caitlin M. Plummer & Imran J. Syed, *Criminal Procedure v. Scientific Progress: The Challenging Path to Post-Conviction Relief in Cases That Arise During Periods of Shifts in Science*, 41 VT. L. REV. 279, 317 (2016) (citing *Napue v. Illinois*, 360 U.S. 264, 269 (1959)) (noting that the introduction of faulty forensic evidence at trial amounts to a due process violation only when the prosecutor knew the evidence was false or misleading); Stevenson, *supra* note 38, at 702, 772-73.

154. *See infra* Part III.A.

155. 821 F.3d 1136 (9th Cir. 2016).

156. *See infra* Part III.B.

157. *See infra* Part III.C.

158. *Ex parte* Ferrara, No. 13-21-00101-CR, 2022 Tex. App. LEXIS 4444, at *9 (June 30, 2022).

159. *Keeter v. State*, 74 S.W.3d 31, 36-37 (Tex. Crim. App. 2002).

(1) [T]he newly discovered evidence was unknown or unavailable to the movant at the time of his trial; (2) the movant’s failure to discover or obtain the evidence was not due to a lack of diligence; (3) the new evidence is admissible and is not merely cumulative, corroborative, collateral, or impeaching; and, (4) the new evidence is probably true and will probably bring about a different result on another trial.

Id.

160. *See supra* note 152 and accompanying text.

1. Is Changed Science Newly Discovered Evidence?

Changed science claims rely on post-conviction review through habeas corpus in part because changed scientific foundations do not fit neatly into the definition of “new evidence.”¹⁶¹ For instance, as explained in one article, a new scientific foundation could potentially be introduced with the *same physical evidence* used at trial.¹⁶² It could then be inferred that although there are new scientific conclusions regarding that evidence, the nature of the evidence itself is still not novel and thus fails the rudimentary definition of new evidence.¹⁶³

Courts may also strictly construe the definition of new evidence to foreclose its introduction in post-trial proceedings by deeming it merely impeachment evidence of expert testimony, or already presented cumulative information that is not new.¹⁶⁴ Another way changed scientific foundations could be dismissed in new evidence claims is for a court to assert that there was sufficient knowledge regarding a given scientific discipline to be challenged by defense counsel at the time of trial.¹⁶⁵ Even assuming a given court would deem changed scientific foundations new evidence, the limited timeline for moving for a new trial dramatically reduces the chances of changed scientific foundations providing a basis for direct appeal relief.¹⁶⁶

2. The Unforgiving Timeline of Motions for New Trials

In almost every single jurisdiction in the United States, convicted prisoners have only three years or less after a guilty verdict or entry of judgment to move for a new trial on the basis of newly discovered

161. See Plummer & Syed, *supra* note 153, at 299.

162. See *id.*

163. See *id.*; cf. Maurice Chammah, *Bill Aims to Address Changing Science in Criminal Appeals*, TEX. TRIB. (Feb. 4, 2013, 4:00 PM), <https://www.texastribune.org/2013/02/04/criminal-justice-advocates-renew-call-flawed-scienc> [<https://perma.cc/4RMK-P4C4>] (noting that prior to the passage of the Texas Junk Science writ, judges often disagreed on whether to provide relief for new scientific foundations).

164. See Laurin, *supra* note 5, at 1763 (“But frequently, and oddly, changed science evades classification as ‘new evidence’ due to rules excluding impeachment or cumulative information from the ambit of actionable new evidence.”). The evidence of changed scientific foundations could be interpreted as impeachment of expert testimony that was already given, and more critically, was already subject to cross-examination. See *id.* This interpretation of changed scientific foundations merely being impeachment evidence maintains the perspective of Justice Blackmun in *Daubert*, as he asserted vigorous cross-examination would prevent the introduction of junk science. See *supra* note 136 and accompanying text for how *Daubert* explained the role of cross-examination.

165. See Plummer & Syed, *supra* note 153, at 300 (explaining that courts sometimes stretch this rationale to “cases where that is simply not true”).

166. See *infra* Part III.A.2.

evidence.¹⁶⁷ There are only eleven American jurisdictions that do not have such stringent timing deadlines.¹⁶⁸ Although there are jurisdictions that have tolling provisions for motions for new trials based on newly discovered evidence, these jurisdictions are the exception and not the rule.¹⁶⁹ These restricted timelines are especially problematic because the speed in which scientific consensus changes is far slower than the length of time afforded to prisoners to move for a new trial.¹⁷⁰ This essentially forecloses direct, appellate review for changed science relief and shifts the locus of changed science claims to habeas, collateral review.¹⁷¹

B. The Great Writ: Is It Still Great? Junk Science as an Insufficient Basis for Relief Under AEDPA

Defendant-Petitioner Alan Gimenez was convicted of murder in the second degree for the death of his seven-week-old daughter under the theory that she died of shaken baby syndrome (“SBS”), as Gimenez—according to prosecutors—had violently shaken his daughter on two

167. See Cino, *supra* note 74, at 19-20 (analyzing the motions for new trial timelines in every American jurisdiction, including the federal level); see also Laurin, *supra* note 5, at 1760 n.48 (“Three years is the longest time window, applicable in the federal system and a small number of states.”).

In most jurisdictions, prisoners have only three years or less from a particular event—usually the verdict or finding of guilty, entry of judgment, or sentencing—to request a new trial based on new evidence (though many jurisdictions extend or toll this time limit if newly discovered evidence is the primary basis for bringing the motion). The time limits vary widely among jurisdictions, ranging from three years or more in federal court, the District of Columbia, and four states, to a month or less in fifteen states. In four other states, a prisoner may potentially bring a new trial motion on the basis of newly discovered evidence at any time, subject to the court’s discretion. Only seven states allow a prisoner to seek a new trial at any time.

Cino, *supra* note 74, at 19-20 (footnotes omitted).

168. See *id.* at 19-20. Out of these eleven states, only seven provide the ability for prisoners to seek a new trial at any time. See *id.* at 20. The remaining four states do allow prisoners to move for a new trial based on newly discovered evidence at any time subject to the court’s discretion. See *id.* at 19-20.

169. See *id.* at 19 & n.160 (noting that Alaska, Delaware, Maryland, New Mexico, and West Virginia have relevant tolling provisions).

170. See Laurin, *supra* note 5, at 1760 (“Such time limits frequently preclude relief in the context of changed science, evidence of which can emerge only at the pace at which a given scientific consensus evolves. The barrier created by time limitations is only exacerbated by dynamics, described below, that systematically suppress public awareness of scientific shifts.”). The idealistic words of Justice Blackmun that “[s]cientific conclusions are subject to perpetual revision” and the “[I]aw . . . must resolve disputes finally and quickly” seem to not acknowledge the great lengths of time it takes for scientific consensus to change. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993).

171. See Laurin, *supra* note 5, at 1760 (“Postconviction relief, then, is the most likely outlet for changed-science claims.”).

separate instances.¹⁷² Twenty years after his conviction and a previous federal application for a writ of habeas corpus, Gimenez again applied for the writ in federal court.¹⁷³ This time, he applied under a different theory.¹⁷⁴ Gimenez previously asserted a claim of ineffective counsel for failing to discover all relevant medical records at the original trial.¹⁷⁵ Different from this previous claim, Gimenez now claimed that new scientific evidence discredited the prosecution's theory of SBS-induced death.¹⁷⁶

Gimenez argued that the newfound consensus among the medical community required evidence of impact to a child before a diagnosis of SBS could be made, something the prosecution had not established in its case at the trial level.¹⁷⁷ Pursuant to AEDPA, Gimenez argued that relief was available to him under section 2244(b)(2)(B)(ii), the provision governing *successive* petitions.¹⁷⁸ Critically, section 2244(b)(2)(B)(ii) "requires petitioners to state a predicate 'constitutional error.'"¹⁷⁹ This is

172. *Gimenez v. Ochoa*, 821 F.3d 1136, 1138-40 (9th Cir. 2016). Gimenez's daughter had a history of seizures, vomiting after being fed, difficulty breathing, and was diagnosed with epilepsy. *Id.* at 1138-39. Some common symptoms of SBS are brain swelling, retinal hemorrhage, and rib fractures, all of which prosecution experts testified Gimenez's daughter had suffered. *Id.* at 1139.

173. *Id.* at 1138.

174. *Id.* at 1141, 1143.

175. *Id.* at 1141. In habeas petitions revolving around forensic evidence, ineffective counsel claims could arise when counsel allegedly fails to identify a changing scientific consensus of the prosecution's forensic evidence. Plummer & Syed, *supra* note 153, at 286-87.

[A] defendant might turn to ineffective assistance of counsel, arguing: if the information was available for counsel to discover at the time of trial, then her failure to do so is constitutionally deficient performance, which prejudiced the defendant at trial and thus relief is warranted. As logical as that may sound, the U.S. Supreme Court has made clear that a defense attorney cannot be responsible for tracking down all conceivable knowledge available on a subject. A court could find that while a trial counsel is required to perform her duties with reasonable diligence, it would take more than reasonable diligence to discover things like the beginnings of a shift in consensus on canine alerts

Id. (footnote omitted).

176. *Gimenez*, 821 F.3d at 1143.

177. *Id.* at 1139, 1143. Specifically, Gimenez pointed to numerous articles supporting the claim that the medical community had changed its mind on SBS. *Id.* at 1143.

178. *Id.*; see 28 U.S.C. § 2244(b)(2)(B)(ii) (2018).

(2) A claim presented in a second or successive habeas corpus application under section 2254 that was not presented in a prior application shall be dismissed unless—(A) the applicant shows that the claim relies on a new rule of constitutional law, made retroactive to cases on collateral review by the Supreme Court, that was previously unavailable; or (B)(i) the factual predicate for the claim could not have been discovered previously through the exercise of due diligence; and (ii) the fact underlying the claim, if proven and viewed in light of the evidence as a whole, would be sufficient to establish by clear and convincing evidence that, but for constitutional error, no reasonable factfinder would have found the applicant guilty of the underlying offense.

§ 2244(b)(2)(B)(ii).

179. See *Gimenez*, 821 F.3d at 1143.

because the Supreme Court has never recognized actual innocence or discredited scientific evidence as standalone constitutional claims subject to the remedy procedures of AEDPA.¹⁸⁰

Gimenez thus tethered his independent discredited scientific evidence claim to a claim of a due process violation of the prosecution introducing the discredited scientific evidence.¹⁸¹ Although the Ninth Circuit acknowledged the importance of enabling petitioners to bring claims of constitutional error grounded in faulty or junk science, the court emphasized that the claim *must* be tied to the constitutional link of the fundamental fairness of a trial.¹⁸² The court held that Gimenez was not entitled to relief because he failed to demonstrate that fundamental concepts of justice were violated in the prosecution's presentation of the SBS theory.¹⁸³ The Third Circuit also employs a similar standard for changed science claims, again requiring that a defendant show that the introduction of the forensic evidence "infect[ed] his entire trial with error of constitutional dimensions."¹⁸⁴

1. Anchoring Changed Science Claims to Due Process: Sinking Meritorious Habeas Claims

Although seemingly unproblematic, requiring a habeas applicant to link their changed science claim to a violation of due process can lead to a distorted analysis which could confuse the average court.¹⁸⁵ While albeit unsuccessful from the perspective of habeas applicants, federal precedent has gained traction in this area of litigation in district and

180. See *Schlup v. Delo*, 513 U.S. 298, 315-16 (1995) (explaining that actual innocence is not an independent constitutional error); *Herrera v. Collins*, 506 U.S. 390, 400-01 (1993); see also § 2254(a) (restricting habeas applications to those which claim a prisoner "is in custody in violation of the Constitution or laws or treaties of the United States"). Because actual innocence has never been independently held to be a basis for habeas relief, although it has been hypothesized by the Supreme Court to be available in extraordinary circumstances, "changed science by its own force is unlikely to meet such a threshold." Laurin, *supra* note 5, at 1761.

181. *Gimenez*, 821 F.3d at 1143.

182. *Id.* at 1145. The court, in allowing petitioners to allege constitutional violations of junk science, emphasized that petitioners must "show that permitting the prosecution's experts to testify . . . was 'so extremely unfair that it[] . . . violate[d] fundamental conceptions of justice.'" *Id.* (citing *Dowling v. United States*, 493 U.S. 342, 352 (1990)).

183. *Id.* at 1145.

184. *Id.* at 1144. In a successful claim from the Third Circuit, the court granted relief to a petitioner who was convicted based on flawed arson forensics because the remaining evidence—with the arson evidence excluded—from the trial did not prove that the petitioner was guilty beyond a reasonable doubt. *Lee v. Houtzdale SCI*, 798 F.3d 159, 162, 167, 169 (3d Cir. 2015).

185. Plummer & Syed, *supra* note 153, at 318-19 ("Though the average court will likely struggle with the idea that due process could be violated even though no one could have recognized the violation at the time of trial, there is no denying that this claim is a live one in shifted science cases.").

circuit courts.¹⁸⁶ Yet, this is still troublesome when considered in the context of AEDPA, as relief under AEDPA cannot be granted unless the relief is based on clearly established Supreme Court precedent or federal law—which changed science claims are not.¹⁸⁷

2. Has the Supreme Court Even Considered Expanding Constitutional Coverage to Changed Science Claims?

In *District Attorney's Office for the Third Judicial District v. Osborne*,¹⁸⁸ the Supreme Court left unresolved the question of whether a freestanding constitutional right asserting actual innocence lived in substantive due process.¹⁸⁹ In dicta, the Court declined to expand substantive due process to actual innocence claims out of fear that the Court “would soon have to decide if there is a constitutional obligation to preserve forensic evidence that might later be tested[,]” directly bringing changed science claims into focus.¹⁹⁰ This refusal to expand coverage to these sorts of claims in conjunction with the already mentioned limitations of AEDPA dramatically hinder the ability of federal courts to provide the relief with which they are constitutionally empowered.¹⁹¹

C. AEDPA Needs to Put Some R-E-S-P-E-C-T on Habeas Review

AEDPA, as the above cases indicate, does not recognize discredited forensic evidence as an independent basis for constitutional review,

186. See *supra* notes 172-84 and accompanying text (analyzing the *Gimenez*, *Dowling*, *Schlup*, and *Herrera* cases).

187. See *Plummer & Syed*, *supra* note 153, at 317 n.197.

188. 557 U.S. 52 (2009).

189. See *id.* at 72 (“[Respondent] asks that we recognize a freestanding right to DNA evidence untethered from the liberty interests he hopes to vindicate with it. We reject the invitation and conclude, in the circumstances of this case, that there is no such substantive due process right.”).

190. *Id.* at 73-74; see Justin Brooks et al., *If Hindsight is 20/20, Our Justice System Should Not Be Blind to New Evidence of Innocence: A Survey of Post-Conviction New Evidence Statutes and a Proposed Model*, 79 ALB. L. REV. 1045, 1056 (2016) (detailing that “federal relief is not currently available” for new evidence claims).

191. Cf. Brooks et al., *supra* note 190, at 1053.

The Supreme Court’s decision to leave this question unresolved has been further complicated by the passage of the Anti-Terrorism and Effective Death Penalty Act (“AEDPA”), which provides that federal courts may not grant relief for constitutional claims that were denied on the merits by a state court unless the denial was “contrary to, or involved an unreasonable application of, clearly established Federal law, as determined by the Supreme Court of the United States; or . . . resulted in a decision that was based on an unreasonable determination of the facts in light of the evidence presented” to the state court. Therefore, the narrow limitations of AEDPA, coupled with the Supreme Court’s failure to hold that innocence is a freestanding constitutional claim, currently preclude federal courts from reviewing the merits of freestanding claims of innocence.

Id. (footnote omitted) (citing 28 U.S.C. § 2254(d)(1)–(2)).

unlike the Texas Junk Science Writ and the six other states that have adopted a similar writ.¹⁹² The text of AEDPA offers insight into how federal habeas review has been crucially limited and remains limited due to AEDPA's inflexibility for considerations of changed science claims.¹⁹³ First, the one-year statute of limitations has unnecessarily hindered the ability of first-time petitioners to apply for relief based on faulty forensic evidence, as it is difficult for litigants to determine the "date on which the factual predicate of the claim or claims presented could have been discovered through the exercise of due diligence."¹⁹⁴ Even if this statute of limitations is set aside by an appellate court like it was in the actual innocence claim of *Cleveland v. Bradshaw*,¹⁹⁵ there is no guarantee the lower district court will certify its decision for appeal.¹⁹⁶ As one federal judge asserted, the *Cleveland v. Bradshaw* case "confirms that the federal courts will not necessarily use the writ to vindicate the innocent and may even seek to avoid review"¹⁹⁷

Second, notwithstanding the one-year statute of limitations, federal courts treat state court factual determinations with a great amount of deference, requiring applicants to prove by *clear and convincing*

192. See, e.g., *Gimenez v. Ochoa*, 821 F.3d 1136, 1145 (9th Cir. 2016); see also *supra* note 17 and accompanying text.

193. See §§ 2244, 2254; cf. O'Bryant, *supra* note 34, at 305.

Because of AEDPA, habeas corpus proceedings for state prisoners now have: (1) a one-year statute of limitations; (2) a prohibition against successive applications for a writ, except when, in very limited circumstances, an appellate court grants prior approval; (3) restrictive limits on obtaining permission to appeal decisions of the trial court; (4) modified exhaustion of remedies requirements for pursuing claims prior to seeking federal review; (5) a requirement that federal courts defer to state court determinations on federal constitutional issues; and (6) additional restrictive procedures that become available to states if they conform with certain requirements.

O'Bryant, *supra* note 34, at 305 (footnotes omitted).

194. § 2244(d)(1)(D); see also O'Bryant, *supra* note 34, at 306 (detailing the difficulty for prisoner-litigants to understand the complexities of criminal procedure and evidence while they are incarcerated). Under AEDPA, petitioners only have one year to file for their initial writ of habeas corpus after learning of a change in factual predicate of their case. § 2244(d).

195. 693 F.3d 626 (6th Cir. 2012).

196. *Cleveland v. Bradshaw*, 65 F. Supp. 3d 499, 506, 542 (N.D. Ohio 2014) ("Further, because this Court finds Cleveland has not made a 'substantial showing of the denial of a constitutional right,' it declines to issue a certificate of appealability.") In this case, an applicant filed for a writ of habeas corpus on the ground that he was actually innocent of the murder he was charged with. *Id.* at 506. After the Sixth Circuit set aside AEDPA's statute of limitations through equitable tolling and remanded the evidentiary hearing for Bradshaw's actual innocence claim, the district court nonetheless found insufficient evidence of a constitutional violation. *Id.* at 506, 542. Essentially, even though Bradshaw's claim was in fact heard, its appealability was denied directly because of AEDPA. *Id.* at 542. Although this was an actual innocence claim, the same problem could arise with changed science claims, too. See J. Philip Calabrese, *Codifying Innocence: A Modest Step Toward Reform*, 72 CASE W. RES. L. REV. 745, 749 (2022).

197. *Id.*

evidence that but for the introduction of this evidence, no reasonable factfinder would find the petitioner guilty of the offense.¹⁹⁸ The clear and convincing standard is a burden of proof harder to meet than the preponderance of the evidence standard but easier to meet than beyond a reasonable doubt.¹⁹⁹ This standard has been criticized in literature as essentially foreclosing any ability for new evidence to operate in habeas cases, insofar as it requires affirmative evidence of innocence rather than a showing that no reasonable jury would have convicted the defendant.²⁰⁰

Finally, the provision of AEDPA requiring a state decision to be “contrary to” established Supreme Court precedent or federal law necessarily hinders the ability of changed science claims to ever be recognized.²⁰¹ This is because federal law is fairly silent on changed science claims and forensic developments, beyond its occasional mandating of research as seen in the NAS report.²⁰² It must again be reemphasized that the Supreme Court has never struck down the constitutionality of AEDPA and has applied the provision a multitude of times.²⁰³ Almost as importantly, the government continues to emphatically defend its constitutionality as it has done so on many occasions.²⁰⁴

198. See § 2254(e)(2)(B) (“[T]he facts underlying the claim would be sufficient to establish by clear and convincing evidence that but for constitutional error, no reasonable factfinder would have found the applicant guilty of the underlying offense.”).

199. See *Clear and Convincing Evidence*, LEGAL INFO. INST. AT CORNELL L. SCH., https://www.law.cornell.edu/wex/clear_and_convincing_evidence [https://perma.cc/YHB6-RUHL] (last visited Feb. 21, 2024). Another way clear and convincing can be understood is “highly and substantially more likely to be true than untrue.” See *id.* (citing *Colorado v. New Mexico*, 467 U.S. 310, 316 (1984)).

200. See Brooks et al., *supra* note 190, at 1062-63. Specifically, the authors noted that the requirement of clear and convincing evidence in actual innocence cases—and by extension changed science cases—contradicts the foundational American belief in requiring the State to prove guilt rather than defendants proving innocence. See *id.* at 1063 (“Finally, requiring affirmative evidence of innocence ignores the reality upon which our criminal justice system was built: even the most innocent person cannot always prove innocence, which is why it is the state’s obligation to prove guilt.”).

201. § 2254(d)(1); *cf.* *Herrera v. Collins*, 506 U.S. 390, 400-01 (1993) (holding that actual innocence alone is an insufficient basis for relief).

202. See § 2254(a) (requiring that federal habeas corpus petitioners allege a constitutional claim in the text of the statute itself).

The Supreme Court, a Justice thereof, a circuit judge, or a district court shall entertain an application for a writ of habeas corpus in behalf of a person in custody pursuant to the judgment of a State court only on the ground that he is in custody in violation of the Constitution or laws or treaties of the United States.

Id.; see also *supra* notes 107-10 and accompanying text (exploring the lack of congressional action).

203. See Justin F. Marceau, *Challenging the Habeas Process Rather Than the Result*, 69 WASH. & LEE L. REV. 85, 87 n.2 (2012).

204. See *id.*

Due to the ineffectiveness of motions for new trials based on changed science, the inability for changed science to be consistently and effectively applied through due process, and the strict interpretation of AEDPA by federal courts—combined with the fact that since the release of the NAS report, courts have neglected to adopt the NAS report’s recommendations—a legislative solution is most apt to achieve meaningful progress in forensic evidence reform.²⁰⁵

IV. EVERYTHING’S BIGGER IN TEXAS: THE TEXAS JUNK SCIENCE WRIT APPLIED FEDERALLY

To solve the problems addressed above,²⁰⁶ a legislative solution to amend AEDPA, modeling the portion of the Texas Junk Science Writ making discredited forensic evidence a standalone, independent basis for habeas review, must be established.²⁰⁷ Then, an exception to AEDPA’s statute of limitations will be created for these types of habeas applications, which will aid the progress of both habeas review and forensic evidence reform, too.²⁰⁸ This solution will go far in addressing the modern difficulties in forensic evidence and hopefully encourage more states to adopt this writ.²⁰⁹ The federal level is better equipped to adapt to scientific change because piecemeal state reform fails to keep pace with changed scientific foundations; therefore, one unified front of reform is the most effective option.²¹⁰

205. See *supra* Part III.A–C; see also Plummer & Syed, *supra* note 153, at 345 (concluding that legislation “is where this all leads” in regard to habeas reform for changed science claims). For a discussion of how courts handled the NAS report’s findings in the immediate years following its release, see Radley Balko, *The Path Forward on Bite Mark Matching — and the Rearview Mirror*, WASH. POST (Feb. 20, 2015, 1:57 PM), <https://www.washingtonpost.com/news/the-watch/wp/2015/02/20/the-path-forward-on-bite-mark-matching-and-the-rearview-mirror> [<https://perma.cc/4J9M-EW5Z>] (noting how any factoring of the NAS report’s findings has been limited).

206. See *supra* Parts I–III.

207. See *infra* Part IV.A.

208. See Eve Brensike Primus, *Equitable Gateways: Toward Expanded Federal Habeas Corpus Review of State-Court Criminal Convictions*, 61 ARIZ. L. REV. 291, 299 (2019). Primus’s solution emphasizes a sense of equity, which this Note also addresses through the elimination of the one-year statute of limitations on filing. *Id.* at 304.

209. Kaplan & Puracal, *supra* note 28, at 933 (“Federal-level reform, therefore, seems to be a natural fit.”).

210. See *id.*

Forensic disciplines should be uniform across the country. The underlying science is uniform, regardless of whether the legal decision of admissibility changes from state to state. Federal-level reform, therefore, seems to be a natural fit. The federal government occupies a unique position to bring together independent scientists, judges, lawyers, and other stakeholders in an effort to create standards that account for changes in science. It was that hope for “top-down” change that created the promise of PCAST.

Id. (footnotes omitted).

The Texas Junk Science Writ contains neither a statute of limitations nor the needlessly high standard of “clear and convincing” evidence.²¹¹ Instead, the law only requires that had the new and credited “scientific evidence been presented at trial,” the petitioner show by a “preponderance of the evidence” that they “would not have been convicted.”²¹² The preponderance standard is more reasonable in analyzing scientific evidence at a habeas proceeding, as it would only require a showing that it is more likely than not that the newly discovered evidence would have led to a not guilty verdict.²¹³ The lack of a statute of limitations enables petitioners to seek out meritorious habeas claims, rather than simply making a claim to preserve the right to a successive claim later.²¹⁴ In the words of Justice Blackmun on the *Daubert* Court, this approach recognizes that “[s]cientific conclusions are subject to perpetual revision” and enables habeas litigation to respond to alterations in scientific literature.²¹⁵

Subpart A will set forth a new changed science provision to 28 U.S.C. § 2254(d) of AEDPA that incorporates various elements of the Texas Junk Science Writ.²¹⁶ Subpart B will explore the implementation of a preponderance standard to replace the current clear and convincing standard enumerated in AEDPA.²¹⁷ Subpart C will analyze the removal of the one-year statute of limitations for these types of habeas applications and the interplay between the removal of this statute of limitations and successive habeas applications.²¹⁸ Finally, Subpart D will consider a relevant counterargument to this proposal that was also evinced by congressional supporters of AEDPA: the floodgates of litigation.²¹⁹

211. See TEX. CODE CRIM. PROC. ANN. art. 11.073 (West 2015).

212. *Id.* art. 11.073(b)(2) (emphasis added).

213. Cooper, *supra* note 17, at 799 (detailing the case of Steven Chaney and how the preponderance standard enabled the overturing of Chaney’s conviction); see *Preponderance of the Evidence*, LEGAL INFO. INST. AT CORNELL L. SCH., https://www.law.cornell.edu/wex/preponderance_of_the_evidence [https://perma.cc/N7X3-Y6E9] (last visited Feb. 21, 2024).

214. See *Gimenez v. Ochoa*, 821 F.3d 1136, 1141 (9th Cir. 2016) for a discussion on the initial habeas corpus application and its relation to the successive application.

215. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993).

216. See *infra* Part IV.A.

217. See *infra* Part IV.B.

218. See *infra* Part IV.C.

219. See *infra* Part IV.D.

A. Section 2254(d)(3): The New Federal Junk Science Writ

As explored throughout this Note, relying solely on the current gatekeeping role of trial judges under *Daubert*,²²⁰ motions for new trial based on newly discovered evidence,²²¹ current habeas review under AEDPA,²²² changed science claims tethered to due process claims,²²³ ineffective assistance of counsel claims,²²⁴ or actual innocence claims²²⁵ is ineffective and inadequate when considering the modern state of forensic science.²²⁶ Incorporating portions of the Texas Junk Science Writ into section 2254 will ensure that the federal government and Congress plant a new habeas apple seed to replace the one that has rotted under AEDPA.²²⁷ Section 2254 is ripe for reform because it applies to state court judgments, which would allow for uniform forensic evidence reform.²²⁸ Specifically, section 2254(d) is the most logical section to amend because it assumes that a state court judgment was adjudicated on the merits, meaning that a changed science claim would not be precluded merely because a state court had adjudicated the merits of a habeas claim.²²⁹ The purpose of providing such an amendment is to provide

220. See *supra* Part II.E.2; see also Plummer & Syed, *supra* note 153, at 290-91 (exploring the current state of *Daubert*).

221. See *supra* Part III.A.

222. See *supra* Part III.C; see also Plummer & Syed, *supra* note 153, at 285-86 (reviewing the “Enigma of Post-Conviction Remedies” in current habeas review).

223. See *supra* Part III.B; see also Plummer & Syed, *supra* note 153, at 305-06 (analyzing the interaction between due process claims and changed science claims).

224. See *supra* Part III.B; see also Plummer & Syed, *supra* note 153, at 319 (discussing the interaction between ineffective assistance of counsel and changed science claims).

225. See *supra* Part III.B; see also Plummer & Syed, *supra* note 153, at 323 (observing that actual innocence is not a standalone constitutional basis for relief).

226. See NAS REPORT, *supra* note 6, at 8 (“Although research has been done in some disciplines, there is a notable dearth of peer-reviewed, published studies establishing the scientific bases and validity of many forensic methods.”); PCAST REPORT, *supra* note 111, at 144.

PCAST expresses no view on the legal question of whether any past cases were “erroneously decided.” However, PCAST notes that, from a scientific standpoint, subsequent events have indeed undermined the continuing validity of conclusions that were not based on appropriate empirical evidence. These events include (1) the recognition of systemic problems with some forensic feature-comparison methods, including through study of the causes of hundreds of wrongful convictions revealed through DNA and other analysis; (2) the 2009 NRC report from the National Academy of Sciences, the leading scientific advisory body established by the Legislative Branch, that found that some forensic feature-comparison methods lack a scientific foundation; and (3) the scientific review in this report by PCAST, the leading scientific advisory body established by the Executive Branch, finding that some forensic feature-comparison methods lack foundational validity.

PCAST REPORT, *supra* note 111, at 144 (emphasis in original) (footnotes omitted).

227. See Kaplan & Puracal, *supra* note 28, at 933.

228. See 28 U.S.C. § 2254 (2018).

229. See § 2254(d).

federal courts with a guideline to provide relief on changed science claims.²³⁰ The proposed amendment reads:

(3) or resulted in a decision affirming a conviction based on scientific evidence the foundation of which has materially changed since the original date of trial.

(A) This provision applies to relevant scientific evidence that:

- (i) was not available to be offered by a convicted person at the convicted person's trial; or
- (ii) contradicts scientific evidence relied on by the state at trial.

(B) A federal court, district or circuit, may grant a convicted person relief on an application for a writ of habeas corpus if the convicted person files an application that contains facts specifying that a material change in a scientific consensus has occurred by indicating that:

- (i) relevant scientific evidence is currently available and was not available at the time of the convicted person's trial because the evidence was not ascertainable through the exercise of reasonable diligence by the convicted person before the date of or during the convicted person's trial; and
- (ii) the scientific evidence would be admissible under the Federal Rules of Evidence at a trial held on the date of the application; and

(C) The court finds that had the scientific evidence been presented at trial, by a preponderance of the evidence the person would not have been convicted.

(D) In making a finding as to whether relevant scientific evidence was not ascertainable through the exercise of reasonable diligence on or before a specific date, the court shall consider whether the field of scientific knowledge, a testifying expert's scientific knowledge, or a scientific method on which the relevant scientific evidence is based has changed since:

- (i) the applicable trial date or dates, for a determination made with respect to an original application; or
- (ii) the date on which the original application or a previously considered application, as applicable, was filed, for a determination made with respect to a subsequent application.

230. See Chammah, *supra* note 163 (observing that in Texas before the Texas Junk Science Writ was passed, judges had no special guideline for how to provide relief on changed science claims).

(E) The one-year statute of limitations provision of 28 U.S.C. § 2244 can be tolled within the discretion of the district or circuit court.²³¹

B. Incorporating the Preponderance Standard

The Texas writ requires applicants to proffer new evidence that would be admissible at the time of the habeas application and then requires a demonstration by a preponderance of the evidence that a jury would have acquitted the applicant had this evidence been considered.²³² The current standard, as indicated by the relevant case law and AEDPA itself, is the clear and convincing standard.²³³ The preponderance standard here would thus eliminate any requirement of affirmative evidence of innocence and transform the analysis into whether any reasonable jury would have likely found the defendant not guilty had the evidence been introduced at trial.²³⁴

C. Statute of Limitations Exemption from Section 2244

A chief contention with AEDPA is that its one-year statute of limitations from final judgment to initiate a proceeding is too strict for habeas review.²³⁵ Therefore, under the proposed version of the statute, those claims grounded in discredited junk science would no longer be subject to the one-year statute of limitations through a new provision under section 2254.²³⁶ Judges would have discretion as to whether to toll the statute of limitations to prevent an automatic flooding of the federal court system with habeas proceedings.²³⁷

D. Counterargument: The Drowning Floodgates of Litigation

The main contention associated with applying Texas's Junk Science Writ federally is that the new law would flood the courts with new applications and litigation and overwhelm the already crowded federal

231. See TEX. CODE CRIM. PROC. ANN. art. 11.073 (West 2015).

232. *Ex parte Chaney*, 563 S.W.3d 239, 255-56 (Tex. Crim. App. 2018).

233. See *Gimenez v. Ochoa*, 821 F.3d 1136, 1145 (9th Cir. 2016); see also §§ 2244(b)(2)(B)(ii), 2254(e)(2)(B).

234. See *Brooks et al.*, *supra* note 190, at 1062-63 (observing the “other potential injustices” with requiring affirmative evidence to prove innocence).

235. See *Beety*, *supra* note 40, at 485-86.

236. See *O'Bryant*, *supra* note 34, at 306 (explaining the immense difficulties the one-year statute of limitations places on litigants).

237. See *supra* Part IV.A.

docket.²³⁸ Therefore, the new subsection of section 2254 will be applied prospectively so as to avoid older cases and claims from drowning the courts.²³⁹ For one, the current amount of habeas cases requiring evidentiary hearings is “few in number.”²⁴⁰ Furthermore, this prospective application is buttressed by the capability of federal courts to adequately handle an increased caseload.²⁴¹ In fact, in 2022, federal courts actually saw a thirty-four percent *decrease* from the previous year in the amount of second or successive habeas corpus claims made at the federal level.²⁴² This decrease has created a vacuum for new cases and claims to fill, presenting an orchard of opportunity for federal courts to finally nurture the roots of junk science claims.²⁴³

V. CONCLUSION

Federal habeas review of state court convictions has become far too limited.²⁴⁴ Forensic evidence has evolved, and the courts have failed to evolve with it, even under the *Daubert* standard where judges can be gatekeepers of evidence and, consequently, of justice.²⁴⁵ The proposed legislative solution works around the static nature of precedent and judicial adherence to it, and would increase the ability of the courts to uphold the very same writ the Framers held to be so essential to American liberty.²⁴⁶ It provides the legislative “bite” needed to silence the deafening bark of unrealized forensic evidence reform.²⁴⁷

238. See Levy, *supra* note 69, at 1048-49 (describing the evolution of floodgates arguments for and against habeas expansion).

239. See *supra* Part IV.A.

240. See Levy, *supra* note 69, at 1048 (quoting *Schiro v. Landrigan*, 550 U.S. 465, 499 (2007) (Stevens, J., dissenting) (citations omitted)).

241. See *Federal Judicial Caseload Statistics 2022*, U.S. CTS., <https://www.uscourts.gov/statistics-reports/federal-judicial-caseload-statistics-2022> [<https://perma.cc/N38N-LEPK>] (last visited Feb. 21, 2024) (noting over a one-third decrease in second or successive habeas corpus petitions from 2021 to 2022).

242. *Id.*

243. See *supra* notes 150-53 and accompanying text.

244. See Beety, *supra* note 40, at 485-86.

245. Garrett & Neufeld, *supra* note 140, at 32.

246. See Tyler, *supra* note 56, at 971-72; see also THE FEDERALIST NO. 84 (Alexander Hamilton).

247. See *supra* Part IV.A.

*Robert Harry Saylor III**

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