JUNK STATUTE: HOW POST-CONVICTION STATUTES FAIL PETITIONERS CONVICTED BASED ON FALSE OR MISLEADING FORENSIC EVIDENCE

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"To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science." – Albert Einstein

"Slow and painful has been man's progress from magic to law." – Chinese proverb

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INTRODUCTION

The misuse or misapplication of forensic evidence is one of the leading causes of wrongful conviction in the United States.[1] Nationwide, convictions based on false or misleading evidence account for 24% of all exonerations.[2] The problems with forensic science are now well known, yet for decades disciplines that had never been validated were used to convict.[3] At the same time forensic sciences became ubiquitous in the criminal justice system, reform to post-conviction remedies tightened the pathway to relief from a wrongful conviction.[4] The system came to transparently prioritize finality over accuracy. Such a system is incompatible with using science, which necessarily changes and advances, as evidence in criminal cases.

The injustices caused by the use of flawed, outdated, or misleading forensic evidence are clear, yet most post-conviction statutory schemes make it impossible to obtain relief based on scientific advances. Using the Pennsylvania Post Conviction Relief Act as an example, we will argue that current post-conviction schemes are inadequate to deal with the problem of flawed forensic evidence. We will explore potential solutions and guidance from other jurisdictions and advocate for potential solutions.

THE RISE AND FALL OF FORENSIC EVIDENCE IN CRIMINAL CASES

In 1911, Thomas Jennings was convicted of murder in Illinois after prosecutors argued that his fingerprint matched a fingerprint left on a freshly painted window in the house where the decedent was killed.[5] The evidence that convicted Jennings was provided by an expert, whose testimony was later described by the Illinois Supreme Court as "not . . . within the common experience of all men of common education in the ordinary walks of life."[6]

Fingerprint comparison was introduced to the United States at the 1904 World's Fair and by the end of the 1920s, all state courts adopted

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1. *Exonerations by Contributing Factor and Type of Crime*, NAT'L REGISTRY OF EXONERATIONS, https://www.law.umich.edu/special/exoneration/Pages/ExonerationsContribFactorsByCrime.aspx [https://perma.cc/UP68-NQ4Y] (last visited Sept. 10, 2023).

2. *Id.*

3. Radley Balko, *A Brief History of Forensics*, WASH. POST (Apr. 21, 2015), https://www.washingtonpost.com/news/the-watch/wp/2015/04/21/a-brief-history-of-forensics/.

4. *Id.*

5. People v. Jennings, 96 N.E. 1077, 1081–83 (Ill. 1911).

6. *See* Balko, *supra* note 3.

fingerprint comparison as reliable following the reasoning of the Illinois Supreme Court, which upheld Jennings' conviction and concluded "there is a scientific basis for the system of finger-print identification and that the courts are justified in admitting this class of evidence."[7] From this auspicious beginning, fingerprint comparison permeated the country, driving police investigations and criminal prosecutions without interrogation for nearly a century. So too did the fundamental idea behind fingerprinting—that features could be compared and used to identify a human being to the exclusion of all others. Experience-based methods of pattern recognition came to dominate forensic science, leading to the rise of comparison disciplines such as microscopic hair comparison, footwear and tire tread impressions, toolmarks, bitemark analysis, and handwriting analysis.[8]

The use of forensic evidence in criminal prosecutions was so commonplace that it spawned its own ecosystem—popular crime shows centered around forensic science—and was so ubiquitous that it inspired much hand wringing about whether it was possible to get a conviction without forensic evidence.[9]

Until 2004, it was unthinkable that fingerprint comparison could be inaccurate.[10] In March 2004, the FBI identified Oregon lawyer Brandon Mayfield as a potential match to a fingerprint found on an explosive device used in a terrorist bombing of a Madrid train station following a database search.[11] Two analysts then visually compared Mayfield's

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7. *See* John A. Lupton, *Illinois Supreme Court History: Fingerprints*, ILL. CTS. (July 27, 2021), https://www.illinoiscourts.gov/News/999/Illinois-Supreme-Court-History-Fingerprints/news-detail/; *see also Jennings*, 96 N.E. at 1081–83.

8. *See* HON. HARRY T. EDWARDS ET AL., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 136 (2009) [hereinafter 2009 NAS REPORT], https://www.ojp.gov/pdffiles1/nij/grants/228091.pdf.

9. *See* Simon Cole & Rachel Dioso-Villa, *Investigating the 'CSI Effect': Media and Litigation Crisis in Criminal Law*, 61 STAN. L. REV. 1335, 1337 (2009).

10. In the early 2000s, some defense attorneys began to mount attacks on fingerprint comparison as unreliable under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 579 (1993). *See, e.g.*, United States v. Llera Plaza, 179 F. Supp. 2d 492 (E.D. Pa. 2002) [hereinafter *Llera Plaza I*], *vacated,* 189 F. Supp. 2d 549 (E.D. Pa. 2002) [hereinafter *Llera Plaza II*]. Judge Pollak initially ruled for the defense, holding that experts could not testify that a particular latent print "matches" a rolled print from a particular person. *Llera Plaza I*, 179 F. Supp. 2d at 518. The government moved for reconsideration and, after hearing three days of evidentiary hearing, Judge Pollak reversed his decision and held that experts could offer such testimony, relying heavily on the fact that other courts, including those in the United Kingdom, had accepted the reliability of fingerprint comparison evidence. *Llera Plaza II*, 189 F. Supp. 2d at 576. In light of the subsequent developments in the Brandon Mayfield case, Judge Pollak's initial decision may have been ahead of its time.

11. OFF. OF THE INSPECTOR GEN., A REVIEW OF THE FBI'S HANDLING OF THE BRANDON MAYFIELD CASE 1 (Mar. 2006), https://oig.justice.gov/sites/default/files/archive/special/s0601/final.pdf.

prints to the unidentified print on the device and concluded that he was the source of the print.[12] That same print was later identified as belonging to an Algerian national Ouhane Daud, showing that this discipline that was thought to be infallible could lead to flawed conclusions.[13]

This is just one example of the exposure of the potential flaws in forensic science. Beginning in the 2000s, forensic disciplines faced a reckoning as DNA testing revealed that they were not as infallible as previously thought.[14] Unvalidated or improper forensic evidence was a contributing factor in 53% of the first 199 DNA exonerations.[15] In 2012, the FBI, Department of Justice, National Association of Criminal Defense Lawyers, and Innocence Project announced a joint review of all convictions in which an FBI analyst had provided microscopic hair comparison analysis testimony.[16] This review, which is the largest post-conviction review of flawed forensic evidence to date, arose following the exoneration of three men in the District of Columbia who had been convicted based on the testimony of FBI hair analysts.[17] In each case the hairs that were identified by the analyst as coming from the defendant were later DNA tested, and the testing excluded him.[18] In one case the hair came from a dog.[19] The FBI/DOJ review revealed that FBI analysts routinely overstated the strength of their conclusions.[20] The review found such errors in over 95% of trials reviewed and in over 90% of cases overall.[21]

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12. *Id.* at 1–2.
13. *Id.* at 12–13.
14. Balko, *supra* note 3.
15. *See The Issues,* INNOCENCE PROJECT, https://innocenceproject.org/the-issues/ [https://perma.cc/TEL4-7R4Q] (last visited Sept. 10, 2023); *Explore the Numbers: Innocence Project's Impact*, INNOCENCE PROJECT, https://innocenceproject.org/exonerations-data/ [https://perma.cc/G8RV-E67W] (last visited Sept. 10, 2023).
16. *See FBI/DOJ Microscopic Hair Comparison Analysis Review*, FED. BUREAU OF INVESTIGATION, https://www.fbi.gov/how-we-can-help-you/fbidoj-microscopic-hair-comparison-analysis-review (last visited Sept. 10, 2023).
17. Spencer Hsu, *Santae Tribble, Whose Wrongful Conviction Revealed FBI Forensic Hair Match Flaws, Dies at 59*, WASH. POST (July 5, 2020), https://www.washingtonpost.com/local/legal-issues/santae-tribble-whose-wrongful-conviction-revealed-fbi-forensic-hair-match-flaws-dies-at-59/2020/07/04/eb953b40-bbbf-11ea-bdaf-a129f921026f_story.html.
18. *Id.*
19. *Id.*
20. *Testimony on Microscopic Hair Analysis Contained Errors in at Least 90 Percent of Cases in Ongoing Review,* FED. BUREAU OF INVESTIGATION (Apr. 20, 2015), https://www.fbi.gov/news/press-releases/fbi-testimony-on-microscopic-hair-analysis-contained-errors-in-at-least-90-percent-of-cases-in-ongoing-review.
21. *Id.*

Most critically, two holistic reviews of the use of forensic evidence in criminal cases identified serious flaws in nearly all disciplines: first the National Academies of Science ("NAS") report in 2009 and then the 2016 President's Council on Science and Technology ("PCAST") report in 2016.[22] In 2009, the NAS published *Strengthening Forensic Science in the United States: a Path Forward.* Congress directed the NAS to study these disciplines, "recognizing that significant improvements are needed in forensic science."[23] The NAS troublingly concluded:

> With the exception of nuclear DNA analysis, however, 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 . . . . [T]here are important variations among the disciplines relying on expert interpretation . . . These disparities between and within the forensic science disciplines highlight a major problem in the forensic science community: The simple reality is that the interpretation of forensic evidence is not always based on studies to determine its validity. This is a serious problem.[24]

The NAS was particularly critical of feature comparison disciplines, including any discipline in which observable features are identified and compared by a human examiner, such as fingerprint comparison, ballistics, bite mark comparison, hair comparison, shoeprint comparison, and tire tread analysis.[25] In 2016, PCAST issued a report titled *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods*.[26] PCAST identified two important remaining gaps in in ensuring the validity of forensic evidence:

> (1) the need for clarity about the scientific standards for the validity and reliability of forensic methods and (2) the need to evaluate specific forensic methods to determine whether they have been scientifically established to be valid and reliable [and

22. *Id.*
23. 2009 NAS REPORT, *supra* note 8, at xix.
24. *Id.* at 7–8.
25. *See generally id.*
26. *See generally* PRESIDENT'S COUNCIL ON SCI. & TECH., FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS (2023),https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf.

> attempted] to help close these gaps for a number of forensic 'feature-comparison' methods.[27]

PCAST found that most feature-comparison disciplines had still not established foundational validity for their methods and identified important cross-disciplinary issues that could affect the reliability of a forensic examiner's conclusions—specifically cognitive bias, and the admissibility and boundaries of expert testimony.[28]

As a result of the foregoing moments of reckoning in forensic science, the federal government attempted to act on the recommendations of the NAS and PCAST.[29] Some states followed suit, implementing their own forensic science commissions.[30] And individual litigants attempted to take advantage of the fact that the disciplines used to convict them had been revealed to be unreliable to obtain post-conviction relief. As discussed below, those efforts were stifled by the restrictive legal landscape facing post-conviction litigants.

SIMULTANEOUS RESTRICTION OF POST-CONVICTION REMEDIES

At nearly the same time unreliable forensic evidence was flooding courtrooms around the county, legislatures and courts were moving to restrict access to post-conviction remedies. In 1995, using the Oklahoma City bombings as justification, Congress enacted the Antiterrorism and Effective Death Penalty Act ("AEDPA"), which was "the most significant habeas reform since 1867."[31] The mood in 1995 was similar to today—lawmakers wanted to appear "tough on crime"—and President Bill Clinton signed the law to avoid appearing "soft" on crime.[32] As such, AEDPA imposed "a number of daunting procedural hurdles for habeas petitioners, including a tighter exhaustion requirement, a one-year statute of limitations, and a ban on 'successive petitions.'"[33]

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27. *Id.* at 1.

28. *Id.* at 17–20, 22.

29. *National Commission on Forensic Science*, U.S. DEP'T OF JUST., https://www.justice.gov/archives/ncfs (last visited Apr. 24, 2023).

30. JERI D. ROPERO-MILLER & NICOLE JONES, FORENSIC SCIENCE STATE COMMISSIONS AND OVERSIGHT BODIES—A 2022 UPDATE 7 (June 2022), https://forensiccoe.org/private/6387e3c0cb5a7.

31. Kenneth Williams, *The Antiterrorism and Effective Death Penalty Act: What's Wrong with It and How to Fix It*, 33 CONN. L. REV. 919, 923 (2001).

32. *Id.*

33. Nathan Narasallah, *The Wall That AEDPA Built: Revisiting the Suspension Clause Challenge to the Antiterrorism and Effective Death Penalty Act*, 66 CASE W. RSRV. L. REV. 1147, 1150–51 (2016).

Congress intentionally restricted habeas remedies to promote finality—the principle that the criminal process must come to an end.[34] Finality had come to play an important role in the Supreme Court's attempts to reform habeas corpus in the years leading up to the passage of AEDPA.[35] The path to AEDPA was laid by twenty years of Supreme Court decisions which shifted the balance of the purpose of habeas corpus from fairness to finality.[36] Only just last term, the Supreme Court reiterated its view that AEDPA was meant to restrict access to the courts, particularly for state prisoners challenging their convictions in federal habeas proceedings.[37]

In *Shinn v. Ramirez*, the Supreme Court made it even more difficult for state prisoners to challenge their convictions in federal court. In a six-three opinion written by Justice Clarence Thomas, the Court held that a federal habeas court may not conduct an evidentiary hearing or otherwise consider evidence beyond the state court record based on the ineffective assistance of state post-conviction counsel.[38] The Court's reasoning for restricting a petitioner's ability to raise ineffective assistance of counsel claims in federal habeas proceedings rested firmly on the concept of finality, emphasizing that "[s]erial relitigation of final convictions undermines the finality that 'is essential to both the retributive and deterrent functions of criminal law.'"[39]

This decision significantly undermines Sixth Amendment protections for state prisoners challenging their convictions in federal court. Indeed, "[f]or the subset of these petitioners who receive ineffective assistance both at trial and in state postconviction proceedings, the Sixth Amendment's guarantee is now an empty one. Many, if not most, individuals in this position will have no recourse and no opportunity for relief."[40]

Innocent litigants are uniquely affected by the narrowing of post-conviction and habeas remedies because there is currently no established

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34. *See* Harrington v. Richter, 562 U.S. 86, 102 (2011) ("If this standard is difficult to meet, that is because it was meant to be."); *see also* Barry Friedman, *Failed Enterprise: The Supreme Court's Habeas Reform*, 83 CAL. L. REV. 485, 489 (1995).

35. Friedman, *supra* note 34, at 490.

36. *Id.* at 491; *see* Withrow v. Williams, 507 U.S. 680, 687 (1993) (stating that the public has an interest in "(i) the most effective utilization of limited judicial resources, (ii) the necessity of finality in criminal trials, (iii) the minimization of friction between our federal and state systems of justice, and (iv) the maintenance of the constitutional balance upon which the doctrine of federalism is founded"(quoting Schneckloth v. Bustamonte, 412 U.S. 218, 259 (1973))).

37. *See* Shinn v. Ramirez, 596 U.S. 366, 390–91 (2022).

38. *See generally id.*

39. *Id.* at 391 (quoting Calderon v. Thompson, 532 U.S. 538, 556 (1998)).

40. *Id.* at 410 (Sotomayor, J., dissenting).

independent right to relief based on actual innocence in federal habeas proceedings and in many states.[41] Federal habeas corpus petitioners are also barred from raising new evidence claims, which is the most common way for petitioners to prove their actual innocence.[42]

Innocent petitioners are also uniquely challenged in that the evidence that would exonerate them is usually not a part of the trial record. This is particularly true for litigants who are challenging the validity of the science used to convict them at trial based on new scientific developments. As Justice Sotomayor stated in the *Shinn* dissent, claims "frequently turn on errors of omission: evidence that was not obtained, witnesses that were not contacted, experts who were not retained, or investigative leads that were not pursued. Demonstrating that counsel failed to take each of these measures by definition requires evidence beyond the trial record."[43]

Shinn provides a path to further restrict the ability of state petitioners to challenge their convictions under AEDPA. The decision clearly signals the continued narrowing of habeas remedies beyond the context of ineffective assistance of counsel claims.[44]

If federal habeas proceedings were meant to be restrictive so that petitioners fully litigate their post-conviction claims in state court, it would make sense to expand coherent state remedies while federal remedies contract. Instead, states followed suit and pared down common law remedies, often superseding them with statutes that emphasize the finality of convictions and efficient administration of justice over fundamental fairness. Such a scheme has been described as a "judgment model," defined as a model that (1) emphasizes the responsibility of the defendant to raise claims as required by state or federal procedure; (2) focuses on the law at the time of trial; and (3) "might stretch the finality

41. *See, e.g.*, Herrera v. Collins, 506 U.S. 390, 404–05 (1993) (leaving open the question of whether a "freestanding" actual innocence claim exists); McQuiggin v. Perkins, 569 U.S. 383, 392 (2013) ("We have not resolved whether a prisoner may be entitled to habeas relief based on a freestanding claim of actual innocence.").

42. Townsend v. Sain, 372 U.S. 293, 317 (1963).

43. *Shinn*, 596 U.S. at 402 (Sotomayor, J., dissenting) (quoting Trevino v. Thaler, 569 U.S. 413, 424 (2013)). "'[T]he inherent nature of most ineffective assistance' of trial counsel 'claims' means that the trial court record will often fail to 'contai[n] the information necessary to substantiate' the claim." *Trevino*, 569 U.S. at 424 (quoting *Ex parte* Torres, 943 S.W.2d 469, 475 (1997)).

44. *Shinn*, 496 U.S. at 377 ("In light of these significant costs, we have recognized that federal habeas review cannot serve as 'a substitute for ordinary error correction through appeal. The writ of habeas corpus is an 'extraordinary remedy' that guards only against 'extreme malfunctions in the state criminal justice systems.'" (quoting Harrington v. Richter, 562 U.S. 86, 102–03 (2011))).

point to exclude facts not known at the time of trial."[45] Judgment models have been criticized as inadequate for dealing with post-conviction claims which raise compelling evidence of actual innocence.[46] The Pennsylvania Post Conviction Relief Act is an example of a judgement model statute.

Pennsylvania enacted the Post Conviction Relief Act ("PCRA") in the mid-1990s.[47] The statute provides that it is the "sole mans of obtaining collateral relief."[48] It "encompasses all other common law and statutory remedies," including habeas corpus and coram nobis.[49] Common law remedies only continue to exist where a claim is not cognizable under the PCRA.[50] Aside for three limited exceptions, all petitions under the PCRA must be filed within one year of the petitioner's conviction becoming final.[51] Petitions outside of that one year are presumptively barred "unless the petition alleges and the petitioner proves that":

> (i) [T]he failure to raise the claim previously was the result of interference by government officials with the presentation of the claim in violation of the Constitution or laws of this Commonwealth or the Constitution or laws of the United States;
>
> (ii) [T]he facts upon which the claim is predicated were unknown to the petitioner and could not have been ascertained by the exercise of due diligence; or
>
> (iii) [T]he right asserted is a constitutional right that was recognized by the Supreme Court of the United States or the Supreme Court of Pennsylvania after the time period provided in this section and has been held that to apply retroactively.[52]

Any petition invoking one of these exceptions must be filed within one year "of the date the claim could have been presented."[53] The

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45. George C. Thomas III et al., *Is it Ever Too Late for Innocence? Finality, Efficiency, and Claims of Innocence*, 64 U. PITT. L. REV. 263, 290—92 (2003).

46. *Id.* at 290–91.

47. 42 PA. CONS. STAT. § 9542.

48. *Id.*

49. *Id.*

50. Thomas M. Place, *The Pennsylvania Post Conviction Relief Act—Recent Developments*, PA. BAR ASS'N Q., Oct. 2018, at 178, 179 (2018).

51. 42 PA. CONS. STAT. § 9545(b)(1).

52. *Id.* §§ 9545(b)(1)(i)-(iii).

53. *Id.* § 9545(b)(2). Until 2018, PCRA petitions invoking one of these exceptions were required to be filed within sixty days of the date the claim could have been presented. *See* Act of Oct. 24, 2018, 2018 Pa. Laws 146, §§ 2, 4 (2018) (amending sixty-day time period to make it one year).

Pennsylvania Supreme Court has held that the PCRA's timing requirements are jurisdictional in nature, so a court may not address the merits of any claim raised unless the petition was timely filed.[54]

While "the goal of the PCRA [is] to provide relief to the wrongfully convicted by ferreting out colorable claims of wrongful convictions,"[55] it is among the most restrictive post-conviction statutory schemes in the United States. The PCRA presents a particular challenge for the actually innocent because a petitioner must tie the filing of his or her petition to the earliest date upon which a claim could have been presented and must also prove that the claim could not have been raised any earlier with the exercise of due diligence.

PARTICULAR PROBLEMS FACING PENNSYLVANIA PETITIONERS CHALLENGING CONVICTIONS BASED ON FORENSIC EVIDENCE

In the context of flawed forensic science cases, precedent from the Pennsylvania Supreme Court has made raising a claim under the PCRA even more difficult. The PCRA and other post-conviction statutes are geared toward dealing with traditional new factual developments (i.e., witness recantations), not new scientific developments. Traditional factual developments can be tied to particular moments in time—for example, the moment a witness recants their testimony to an investigator or the moment a CODIS search returns a "hit" to the true perpetrator's DNA. Science is not nearly as linear or definite, and yet Pennsylvania law attempts to fit changes in science into the rubric of a new fact.

In *Commonwealth v Edmiston*, the Pennsylvania Supreme Court held that, in the context of new scientific evidence, the new fact for purposes of the PCRA is not an expert analysis of the science in a particular case but instead the publication of the scientific principles underlying that opinion.[56] Current law therefore requires a PCRA petitioner to file a petition seeking a new trial within one year for the development of a new scientific principle.[57]

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54. Commonwealth v. Cox, 146 A.3d 221, 227 (Pa. 2016).

55. *Id.* at 229 n.11.

56. Commonwealth v. Edmiston, 65 A.3d 339, 352 (Pa. 2013), *overruled in part on other grounds by* Commonwealth v. Small, 238 A.3d 1267 (Pa. 2020); *see also* Commonwealth v. Fisher, 870 A.2d 864, 871 (Pa. 2005) (holding that the petitioner's expert had expressed the opinions stated in his 2005 report since 2002, therefore his affidavit did not meet the newly discovered evidence exception to the PCRA time bar).

57. *See* Commonwealth v. Brensinger, 218 A.3d 440, 453–55, 457 (Pa. Super. Ct. 2019) (en banc) (considering the timeliness of a PCRA petition based on developments in forensic science and remanding for the PCRA court to determine, *inter alia,* "which scientific

This analysis is nearly impossible to administer. When does a new scientific principle develop? Must the new principle have obtained some level of acceptance to support a PCRA claim? How is an incarcerated layperson, who is likely to lack financial resources and to be without access to the internet, to know of scientific developments? How can you know if the principle actually applies to your case without an expert analysis? But the law requires you to file based on the development of a principle, not the application of it to your case by an expert.[58] This scheme has allowed PCRA petitioners seeking relief based on forensic science advancements to succeed only in limited and truly extraordinary contexts—for example, the Pennsylvania Supreme Court held that a PCRA petition was timely when filed within the then-required sixty days from when the FBI made the historic announcement that its microscopic hair comparison analysts made erroneous statements in 95% of the cases in which they testified.[59] Thus, current law requires petitioners to file before they even know if they have a claim.

In addition to the timing requirements, the PCRA's diligence requirements disparately impact those seeking relief based on scientific developments. The PCRA requires petitioners seeking to invoke the "new facts" exception to the PCRA's one-year time bar to show that the facts upon which their claims are predicated "could not have been ascertained" earlier "by the exercise of due diligence."[60] Courts interpreting this diligence requirement often do not take into account the particular challenges that indigent, incarcerated individuals face in bringing claims based on new scientific evidence.[61] Forensic evidence can be highly technical, and it often requires training and education to even begin to understand developments in science. Forensic evidence requires an expert to educate a court, and yet a lay person who is incarcerated, without access to the internet or to scientific journals, is expected to track and understand the significance of scientific developments on their own. This system puts an almost insurmountable burden on a petitioner.

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principles constitute the facts upon which Brensinger's petition is based."). The Pennsylvania Innocence Project represents the petitioner in this case.

58. *Id.*

59. *See* Commonwealth v. Chmiel 172 A.3d 617 (Pa. 2017) (holding that the FBI's press release publicly admitting that testimony and statements provided by its analyst in microscopic hair comparison were based on faulty science in vast majority of cases spanning two decades constituted newly discovered facts within the meaning of the exception of the PCRA's one-year time bar).

60. 42 PA. CONS. STAT. § 9545(b)(1)(ii).

61. *See, e.g.*, Commonwealth v. Smallwood, 155 A.3d 1054, 1057–58 (Pa. Super. Ct. 2017).

Letitia Smallwood's case starkly illustrates that problems petitioners face when trying to raise claims based on post-trial scientific developments through rigid post-conviction statutory regimes. Smallwood was convicted of arson and murder in Cumberland County, Pennsylvania in 1973; the charges arose from an August 1972 apartment building fire in which two people died and one was injured.[62] Smallwood received two concurrent sentences of life imprisonment without the possibility of parole, with an additional concurrent sentence of ten to twenty years on the arson count.[63]

Smallwood spent the next four decades trying to prove her innocence. In 2014, she filed a PCRA petition based on the opinion of a fire investigation expert who opined, based on scientific advances in the field since the time of trial, that the cause of the fire should have been classified as undetermined; in other words, there was no arson and thus no crime.[64] The PCRA court, after an evidentiary hearing, found that Smallwood's petition was timely because she had successfully invoked the "new facts" exception to the one-year time bar; it cited a "revolution in fire science" since the 1972 fire investigation and found that Smallwood had been duly diligent in seeking out the new evidence that formed the basis for her claim.[65] The court then held a hearing on the merits of the claim and granted Smallwood a new trial, concluding that her expert's "testimony, if believed by a jury, would compel a different result."[66] The court again found that Smallwood had been diligent, especially "since she was an incarcerated layperson and did not have access to the internet."[67] The court noted that once Smallwood learned of advances in the field of fire investigation from watching a television program in 1999 she "attempted to acquire more information on the current advances in fire science while trying to secure legal assistance to pursue her claim," efforts that eventually led to the expert opinion applying fire science developments to her case.[68]

The Commonwealth appealed.[69] In analyzing the case, the Pennsylvania Superior Court acknowledged that Smallwood's expert's

62. *Id.* The Pennsylvania Innocence Project represented the petitioner in this case. *See id.* at 1062.

63. *Id.* at 1057.

64. *Id.* at 1058–59.

65. *Id.* at 1057; *see also* Order Granting New Trial, Commonwealth v. Smallwood, No. CP-21-CR-88-1972 (Cumberland Cnty. Ct. Com. Pl. Apr. 20, 2015).

66. *Smallwood*, slip op. at 1.

67. Commonwealth v. Smallwood, No. CP-21-CR-88-1972, slip op. at 6 (Cumberland Cnty. Ct. Com. Pl. July 27, 2015).

68. *Id.* at 6–7.

69. Commonwealth v. Smallwood, 155 A.3d 1054, 1056 (Pa. Super. Ct. 2017).

affidavit contained "newly-discovered facts that would permit the PCRA court to consider an otherwise untimely petition,"[70] and it outlined the numerous steps Smallwood had taken during her decades of incarceration to obtain new evidence, including filing Right to Know requests seeking fire department records, trying to reconstruct the apartment building's floor plans, and writing to numerous legal services agencies, investigators, and fire experts.[71] The Court further found the case to be "deeply troubling on several levels," and concluded that "[i]t seems *axiomatic* that a jury hearing Smallwood's statements and the evidence in light of the uncertainty of the origin of the fire might well reach a different conclusion as to Smallwood's guilt than that determined by the original jury who heard Trooper Sweet's testimony that the fire was of incendiary origin."[72] Despite all of this, the Superior Court reversed the grant of PCRA relief.[73] It held that Smallwood had not been sufficiently diligent in bringing the newly discovered facts in her expert's affidavit to the courts.[74] In particular, it determined that the use of the scientific method in fire investigations, as embodied in National Fire Protection Association 921, Guide to Fire and Explosion Investigations ("NFPA 921"), was the new scientific principle at issue and that Smallwood had known about this since hearing about it in the 1999 television program.[75] Thus, even though the Court acknowledged that NFPA 921 had been changed over time, it held Smallwood should have filed her petition sooner.[76] This case underscores the difficulty of bringing post-conviction claims based on forensic science developments under the regime in which a "new fact" for PCRA purposes is deemed to be the development of a scientific principle (rather than the expert application of that principle to a particular case) and in which the obstacles for indigent, incarcerated people in discovering such principles, understanding them, and bringing them to court are not adequately considered. Even in a case where all judges to look at the petitioner's post-conviction evidence were convinced a jury would no longer convict, procedural bars blocked relief. This case also underscores the effects of the tightening of pathways to post-conviction relief. The PCRA's predecessor statute, Pennsylvania's Post-Conviction Hearing Act, had far

70. *Id.*
71. *Id.* at 1062–63.
72. *Id.* at 1070 (emphasis added).
73. *Id.* at 1071.
74. *Id.*
75. Commonwealth v. Smallwood, 155 A.3d 1054, 1071 (Pa. Super. Ct. 2017).
76. *Id.* at 1070.

fewer restrictions and would likely have given Smallwood an avenue for relief.

Restrictive new-evidence tests are also problematic for those who had some favorable scientific evidence presented at their trials.[77] The PCRA requires that new evidence not be "merely" corroborative or cumulative of the trial evidence.[78] Therefore, petitioners who had some scientific evidence presented at their trials (e.g., DNA results with rudimentary testing, early editions of NFPA 921 in arson cases)[79] are trapped, as courts reviewing post-conviction petitions are likely to view any new scientific evidence as just more of what was already presented, disregarding further developments that can require nuanced analysis. Recently, the Pennsylvania Superior Court held that DNA that excluded the petitioner and was found on the weapon used in a violent assault and murder was cumulative evidence under the PCRA because the jury heard at trial that the petitioner was excluded from other DNA evidence before trial.[80] The Court failed to appreciate the scientific difference between the pre-trial DNA testing performed in 2004 and post-conviction DNA testing performed in 2016.[81] Despite the meteoric advancement in the sensitivity and accuracy of DNA technology in the last twenty years, the Superior Court's holding in *Murchison* could mean that where some exculpatory DNA testing was available before trial, any new exculpatory DNA evidence is not sufficient for PCRA relief.

The same reasoning has prevented Pennsylvania courts from even granting petitions for DNA testing under the post-conviction DNA testing statute. In *Commonwealth v. Hardy*, the Pennsylvania Superior Court upheld the trial court's denial of the petitioner's motion for post-conviction DNA testing of the murder weapon—twine used to strangle the decedent—even though touch DNA testing of such evidence was

77. *See generally* Commonwealth v. Murchison, 294 A.3d 1251 (Pa. Super. Ct. 2023) (en banc), *petition for allowance of appeal pending*, 156 EAL 2023 (Pa. June 8, 2023). The Pennsylvania Innocence Project represents the petitioner in this case. *See id.*

78. *See, e.g.*, Commonwealth v. Small, 189 A.3d 961, 972 (Pa. 2018).

79. *See e.g.*, Order Denying Pet., Commonwealth v. Young, CP-65-CR-0000627-1994 (Westmoreland Cnty. Ct. Com. Pleas July 26, 2022). In that case, the PCRA court denied Mr. Young's petition based on significant changes in arson science published for the first time in the 2021 Edition of NFPA 921 because the first edition of NFPA 921 existed at the time of trial. The Superior Court then reversed, but the Commonwealth has asked the Pennsylvania Supreme Court to review the case. *See* Commonwealth v. Young, No. 901 WDA 2022, 2023 WL 5275161 (Pa. Super. Ct. Aug. 16, 2023), *petition for allowance of appeal pending*, 230 WAL 2023 (Pa. Sept. 14, 2023). The Pennsylvania Innocence Project represents the petitioner in this case. *See id.*

80. *Murchison*, 294 A.3d at 1251.

81. *Id.* at 1257–58.

impossible before the petitioner's 1993 trial.[82] Again, the petitioner had been excluded from rudimentary DNA testing conducted before trial.[83] The superior court held that even finding DNA from someone other than the petitioner on the murder weapon could not outweigh the "considerable" circumstantial evidence of guilt such that post-conviction DNA testing was not warranted.[84] In denying testing, both the trial court and the superior court placed great weight on the fact that, "[t]he items Appellant seeks to test were available at trial, and some of the items were tested and the test results excluded Appellant as a contributor."[85]

Together these decisions betray a lack of appreciation for the nature of scientific evidence that permeates the courts. Judges are certainly capable of understanding the idea that science may change significantly. But our current jurisprudence, as embodied by the PCRA, does not recognize that science is ever evolving and ever changing, and that change can be incremental but that does not mean it is insignificant. This disconnect between how science evolves and how post-conviction petitions are analyzed means that petitioners with valid claims often will not be able to obtain relief.

POTENTIAL SOLUTIONS

The problems created by restrictive post-conviction statutes in the context of forensic science cases are likely only to compound as technology continues to advance. We advocate for three solutions, all of which are necessary to correct wrongful convictions in this space.

Statutory Reform

First, innovative statutory reform is necessary. The Supreme Court has signaled that they will continue to restrict post-conviction remedies, making the role of the legislative branch in protecting the innocent all the more important. Post-conviction statutes must expressly allow for claims based on evolving scientific principles. California, Connecticut, Michigan, Nevada, Texas, West Virginia, and Wyoming have all adopted

82. Commonwealth v. Hardy, 274 A.3d 1240, 1250 (Pa. Super. Ct. 2022), *petition for rehearing denied* (Pa. Super. Ct. June 7, 2022), *appeal granted*, 289 A.3d 889 (Pa. 2022). The Pennsylvania Innocence Project represents the petitioner in this case. *See id.*

83. *Id.* at 1250.

84. *Id.* at 1249.

85. *Id.* at 1249.

this framework.[86] While each statute differs, the majority explicitly define "new evidence" under the statute to include shifts in science.[87] This explicit definition is necessary to ensure that courts properly regard changes in the science as new evidence.

At the same time, it is critical to loosen the timing restrictions which impair innocent litigant's ability to raise post-conviction claims. As discussed above, these restrictions have a compounding effect on innocent litigants in the context of flawed forensic science cases.

It is also necessary to enshrine in statute constitutional claims that may exist in federal court but have not been adopted by state courts. In *Lee v. Glunt*, the Third Circuit held that it is a due process violation where "newly developed scientific evidence establishes that the expert testimony at . . . trial was fundamentally unreliable."[88] State legislatures should enshrine the due process right expressed in *Lee*. Similarly, though less settled, actual innocence should be both an independent statutory right to relief and a defined gateway to avoid procedural hurdles.[89]

Forensic Science Commissions

Second, states should establish their own forensic science commissions. Following the NAS report, several states and the federal government established forensic science commissions and other oversight bodies.[90] Though the potency and efficacy of these entities varies, a robust forensic science commission can play a critical role in both preventing and rectifying wrongful convictions. For example, the Texas Forensic Science Commission is not only the accreditation and oversight body for Texas forensic laboratories, but it also conducts discipline-specific reviews, evaluates individual cases, and issues recommendations to the judiciary regarding the use and limits of testimony in particular fields.[91] The Commission was created out of the

86. *Forensic Evidence: Changed Science*, NAT'L REGISTRY OF EXONERATIONS https://www.law.umich.edu/special/exoneration/Pages/Forensics.aspx (last visited Nov. 24, 2023).

87. *Id.*

88. Lee v. Glunt, 667 F.3d 397, 407 (3d Cir. 2012). The Pennsylvania Innocence Project participated in this case as an *amicus curiae*. *See id.*

89. *See, e.g.*, Herrera v. Collins, 506 U.S. 390, 404–05 (1993); *see also* McQuiggin v. Perkins, 569 U.S. 383, 386 (2013) ("Actual innocence, if proved, serves as a gateway through which a petitioner may pass whether the impediment is a procedural bar, as it was in *Schlup* and *House*, or, as is this case, expiration of the statute of limitations.").

90. ROPERO-MILLER & JONES, *supra* note 30, at 7.

91. *Texas Forensic Science Commission*, TEX. JUD. BRANCH, https://www.txcourts.gov/fsc/about-us/ (last visited Sept. 10, 2023).

state legislature's concern about the integrity of forensic work within the state and has increased confidence in Texas's criminal legal system.[92]

In particular, the need for an entity to conduct specialized discipline-specific reviews is critical. Even where one petitioner achieves relief based on a change in a particular science, that decision does not necessarily open up a timely pathway for other people convicted based on the same flawed evidence. A forensic science commission can not only scientifically assess the accuracy and reliability of a particular discipline but can review the work of specific laboratories or analysts. These are critical methods which are currently completely lacking in Pennsylvania and other states.

Bench/Bar Education on Science

Finally, the need to better educate judges and lawyers regarding forensic evidence is clear. While efforts have been made at the margins to provide more resources to train lawyers, and in particular defense lawyers, judges have largely been left out of educational reform efforts. The Reference Manual on Scientific Evidence has been a boon to judges and practitioners but is mainly geared toward understanding scientific disciplines that are used in complex civil litigation and to the *Daubert* standard for the admissibility of such evidence.[93] We advocate for the creation of a reference manual that focuses on forensic science disciplines and also takes into account state evidentiary standards such as the *Frye* test for the admissibility of scientific evidence. We also suggest mandatory CLE training for criminal court judges, and any judges reviewing post-conviction petitions, on general scientific principles as well as specific forensic disciplines.

CONCLUSION

It is time for the law to catch up to what science now reveals to have been magic, a patently insufficient basis to convict people of crimes.

92. *See Raising the Bar: Progress and Future Needs in Forensic Science: Hearing Before the H. Comm. on Sci., Space, & Tech.*, 107th Cong. 1–12 (2019) (statement of Lynn R. Garcia, General Counsel, Texas Forensic Science Commission).

93. *See generally* NAT'L RSCH. COUNCIL, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (Nat'l Acads. Press, 3d ed. 2011).