

No. 20-5342

IN THE
Supreme Court of the United States

RIGOBERTO AVILA, JR.,
PETITIONER,

V.

THE STATE OF TEXAS,
RESPONDENT.

*On Petition for Writ of Certiorari to the
Court of Criminal Appeals of Texas*

**BRIEF OF *AMICI CURIAE*
SCIENTISTS, TECHNICIANS, AND SCHOLARS
IN SUPPORT OF PETITIONER**

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QUESTION PRESENTED

Does a conviction violate the Due Process Clause if a key part of the prosecution's case was scientific evidence that later developments have proven false? If so, what legal standard governs this claim?

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INTEREST OF THE *AMICI CURIAE*¹

Under Supreme Court Rule 37.3, the interested scientists, technicians, and scholars listed below in Appendix A, respectfully submit this brief as *amici curiae*, in support of the petition for writ of certiorari filed by Rigoberto Avila, Jr.

Amici are scientifically trained professionals whose work brings us regularly into contact with the legal system. As a result, we are familiar with how science interacts with the law and share an interest in seeing that legal standards mesh sensibly with the best current understanding across different fields of scientific knowledge. Many of us have worked as consulting experts on a wide range of cases, bringing our specialized and technical knowledge to bear on legal disputes. We are also active in the professional and scholarly associations in our respective fields of expertise and have contributed our efforts to the broad and ongoing scientific enterprise of promoting the development of useful knowledge.

We value and encourage the thoughtful use of sound science by the courts. We submit this brief to help the Court to gain a more complete understanding of relevant scientific issues implicated by the first question presented in the petition, which asks whether a conviction should be held to violate due process if a

¹ Pursuant to this Court's Rule 37.6, this brief was not authored in whole or in part by counsel for any party and no person or entity other than the *amici curiae* or its counsel made a monetary contribution intended to fund the preparation or submission of this brief. Pursuant to this Court's Rule 37.2(a), both parties received timely notice of the intent to file this brief and have consented to its filing.

key part of the prosecution's case was scientific evidence that later scientific developments have proven false. *Amici* believe that criminal convictions obtained on the basis of scientific testimony that is undermined by subsequent developments should be susceptible to review in the courts. The role that discredited scientific evidence plays in contributing to wrongful convictions erodes the public trust in science more broadly. We have an interest in assuring that the fruits of our professional labors are understood and properly used by others. Scientists are not perfect, but we respond to our discipline's unrelenting call to improve the field and build more knowledge. When science advances, law should do the same.

Petitioner asks the Court to declare that the Constitution provides recourse to an individual convicted on the basis of scientific testimony that has been subsequently discredited. Because significant changes in science have sometimes demonstrated that earlier testimony is not trustworthy, amici agree that the issue is an urgent one.

SUMMARY OF ARGUMENT

Scientific evidence presents unique challenges in the context of criminal convictions because it is both highly persuasive and inherently probabilistic. Scientists must often qualify their statements and conclusions, which are made against a backdrop of particular theoretical assumptions or experimental methodologies. Giving proper weight to scientific evidence requires sensitivity to those assumptions and methodologies, and to the reality that scientific knowledge evolves over time. Though science does not typically lend itself to definitive pronouncements, a jury's verdict—and, in Petitioner's case, the sentence of death—

is nothing if not definitive. This duality—the unique persuasive power of scientific evidence and its inherent probabilism—should inform how courts in post-conviction proceedings engage retrospectively with scientific evidence used to obtain a criminal conviction. Scientific developments do not typically or frequently demonstrate that an earlier-obtained criminal conviction is invalid or legitimately uncertain. Recent experiences with evolutions in forensic science, however, have shown amici that it happens often enough that this Court should consider seriously the phenomenon.

ARGUMENT

I. DEVELOPMENTS OVER TIME IN SOME FORENSIC SCIENCE DISCIPLINES HAVE RAISED SIGNIFICANT AND TROUBLING QUESTIONS ABOUT THE RELIABILITY OF CRIMINAL CONVICTIONS BASED ON OUTDATED PRECEPTS

Science represents an ongoing process of inquiry in an effort to explain natural phenomena. It is not a fixed body of factual knowledge about the universe. Instead, it is a process for proposing and refining theoretical explanations about the world that in their turn are subject to further testing and refinement. Scientists accept a scientific explanation for an event when that explanation is corroborated by experiments using accepted methodologies and when it is consistent with other accepted explanations. Corroboration is generally based on the accurate prediction of observed events or results. At its core, science is a process of evaluating testable propositions to assure that theoretical explanations conform with observable reality.

Forensic science disciplines differ in some fundamental ways from traditional sciences. Working through the National Research Council, the National Academy of Sciences published a groundbreaking report called “Strengthening Forensic Science in the United States: A Path Forward” [hereinafter “NAS Report”]. This report was the culmination of an unprecedented and comprehensive effort to catalogue the status of forensic science in this nation. According to that report, “[t]he term ‘forensic science’ encompasses a broad range of disciplines, each with its own distinct practices. The forensic science disciplines exhibit wide variability with regard to techniques, methodologies, reliability, level of error, research, general acceptability, and published material” NAS Report, at 38. The breadth of this range explains in part why the NAS Report found that it was “clear that change and advancements, both systemic and scientific, are needed in a number of forensic science disciplines—to ensure the reliability of the disciplines, establish enforceable standards, and promote best practices and their consistent application.” *Id.* at Introduction, xix. In the period leading up to the publication of the Report and in the years since then, significant advancements have been made in several disciplines. “Those advances . . . have revealed that, in some cases, substantive information and testimony based on faulty forensic science analyses may have contributed to wrongful convictions of innocent people.” *Id.* at 4. We will discuss developments in three forensic science disciplines that illustrate our concerns with criminal convictions based on science that is subsequently discredited: arson investigations; microscopic hair analysis; and bitemark comparisons.

A. Developments in the Science of Arson Investigation Have Called Into Question Previously Accepted Tenets

Arson investigation focuses on finding indicators at a fire scene that a qualified investigator may interpret as evidence of an intentionally set fire. More than two decades ago, the field of arson investigation looked markedly different. It was much more art than science, with techniques and beliefs passed down and honed through apprenticeship rather than through scientific or even academic study. *See, e.g.*, Marc Price Wolf, *Habeas Relief from Bad Science: Does Federal Habeas Corpus Provide Relief for Prisoners Possibly Convicted on Misunderstood Fire Science?* 10 MINN. J. L. SCI. & TECH. 213, 215-19 (2009) (reviewing the history of arson investigation).² Major developments began in the 1990's and took hold early in this century. Simply put, investigators and academics started to employ a scientific approach to the field. In 1992, the National Fire Protection Association ("NFPA") published the first edition of *NFPA 921: Guide for Fire and Explosion Investigations*. This seminal handbook was developed by the NFPA's Technical Committee on Fire Investigations "to assist in improving the fire investigation process and the quality of information on fires resulting from the investigative process." *NFPA 921* at 921-1. It provided the fire investigation community with some

² *See also* Maurice Possley, *Arson Myths Fuel Errors: Debunked Theories Plague Fire Probes, Lead to Wrongful Arrests, Prosecution*, CHI. TRIB., Oct. 18, 2004, § 1 ("For decades, arson investigators relied on a collection of beliefs and folk wisdom that was accepted as truth. In the last 30 years, however, many of these one-time certainties have been exposed by research and laboratory tests as unclear or just plain wrong.").

of the earliest and most authoritative guidance regarding accepted scientific principles and research. Unfortunately, but unsurprisingly, it took many years for *NFPA 921* to transform the arson investigation field.

When “scientists and researchers began to test the reliability” of beliefs long held in the relevant professional community, “many foundational principles of fire investigators were deemed incorrect.” Wolf, *supra* at 220. Many once-prevalent “principles” turned out to be myths—and these myths had profound implications, likely leading investigators to characterize many accidental fires as intentional ones. Although many myths have been identified,³ an overview of the most common ones effectively capture the problem:

- (1) “Pour patterns” or “burn patterns”: investigators long believed that such patterns could be used to identify where flammable liquid had been poured, which provided evidence of arson. It turns out, however, that if a fire burns long enough (reaching “full-room involvement”), indistinguishable patterns can be produced even if no accelerant was present. Researchers discovered the phenomenon of flashover, which happens when a fire burning inside an enclosed room is allowed to burn long enough. At around 1100°F, a fire reaches a “flashover point” at which any item in or near the superheated layer of smoke and gases that forms within the room may ignite and combust. Many burn patterns

³ See JOHN J. LENTINI, SCIENTIFIC PROTOCOLS FOR FIRE INVESTIGATION 433-67 (2006), for an excellent discussion of these long-running myths; see also NAS Report at 173 (“many of the rules of thumb that are typically assumed to indicate that an accelerant was used . . . have been shown not to be true”).

that investigators previously assumed were caused by liquids having been poured can be created in accidental fires through post-flashover burning, which produces on the floor a pattern indistinguishable from the “pour patterns” arson investigators had been taught to identify.

- (2) “Crazed glass”: it was long believed that glass fragments found in a fire that had burned quickly—i.e., fueled by an accelerant—would be “crazed” or irregularly shaped pieces with striations and light smoke deposits. In contrast, glass fragments found in non-accelerated fires would be larger and have heavy smoke deposits. The crazed glass theory was not tested until 1992.⁴ Careful experimentation showed the concept to be a myth.
- (3) “Alligatoring”: this referred to a pattern of “deep, shiny, rolling blisters caused in wood that burns rapidly in a fast fire, as opposed to more slowly in a normal fire.” Caitlin Plummer & Imran Syed, “*Shifted Science*” and *Post-Conviction Relief*, 8 STAN. J. CIV. RTS. & CIV. LIBERTIES 259, 273 (2012). The NFPA 921 dismantled the myth: “These types of blisters can be found in many different types of fires.” LENTINI, *supra* note 3, at 438-39.

Needless to say, these myths, which were widely-believed principles in fire investigation for decades, informed the judgment of countless arson investigators and thus the testimony they provided in court, on which basis many purported criminals were convicted

⁴ See *id.* at 439.

of arson. This may help explain in part the reluctance of many arson investigators to embrace the scientific developments that began in the 1990's.

In 2000, *NFPA 921* received a crucial endorsement from the U.S. government. The U.S. Department of Justice issued a report noting that it “has become a benchmark for the training and expertise of everyone who purports to be an expert in the origin and cause determination of fires.” NATIONAL INSTITUTE OF JUSTICE, U.S. DEPT. OF JUSTICE, *Fire and Arson Scene Evidence: A Guide for Public Safety Personnel*, 6 (2000). The International Association of Arson Investigators (“IAAI”), which initially resisted the application of scientific standards to arson investigation, adopted *NFPA 921* after the DOJ's endorsement. *NFPA 921*'s eventual adoption signaled a sea change because it utilized the scientific method and gave guidance on the interpretation of post-fire artifacts based on empirical testing, which disproved and discredited many traditional interpretations.

These scientific developments in arson investigations have led to several exonerations. In Texas, for example, Ernest Ray Willis was sentenced to death for the purported 1986 arson of a home in which two women were killed. *See Willis v. State*, 785 S.W.2d 378, 380 (Tex. Crim. App. 1989). In affirming his conviction on direct appeal, the Texas Court of Criminal Appeals observed that “[a] variety of arson experts investigated the wreckage and testified at trial that the burn patterns and degree of burning indicated that a flammable liquid was poured on the floor of the house throughout the [interior]” *Id.* at 380-81. Years later, a federal district court granted him a new trial on multiple grounds. *See Willis v. Cockrell*, No. P-01-CA-20,

2004 WL 1812698, at *34-35 (W.D. Tex. Aug. 9, 2004). A new District Attorney had different arson experts help reinvestigate the case, applying the advances in fire science that had taken place since Mr. Willis's trial. These experts determined the State's trial experts had been incorrect, and that there was no indication of arson. "As a result of this evaluation, the District Attorney moved to dismiss the charges, and on October 5, 2004, Willis was released from prison." THE NATIONAL REGISTRY OF EXONERATIONS, *Ernest Ray Willis*, available at: <https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3755>. Others individuals like Mr. Willis spent years in prison before the purported expert testimony in their "arson" cases was debunked. See, e.g., Deborah Becker, *Lowell Man Who Spent 3 Decades In Prison For Fatal Fire Is Exonerated*, WBUR.ORG (Sept. 13, 2017), <https://www.wbur.org/news/2017/09/13/lowell-man-who-spent-3-decades-in-prison-for-fatal-fire-is-exonerated> (exploring the case of Victor Rosario); Mike Hayes, *This Chicago Man Was Sentenced To Life On A Faulty Arson Conviction—Now He's Getting Out*, BUZZFEED NEWS (May 3, 2017), <https://www.buzzfeednews.com/article/mikehayes/adam-gray-getting-out-of-prison> (describing the case of Adam Gray).

B. The FBI, in Partnership with Other Organizations, Spearheaded a Nationwide Reexamination of Criminal Convictions Based on Microscopic Hair Analysis

Like other forensic science disciplines based on "matching," microscopic hair analysis is performed by comparing known samples to those found at a crime scene. "[T]he scientist examined the hair to determine

which characteristics were similar to the sample and if the similarities outweighed the differences between the specimens. . . . Based on whether the hairs [we]re microscopically indistinguishable or consistent with one another, the ultimate conclusion of the analysis is: exclusion, association, or no conclusion.” Samuel D. Hodge, Jr. & Amelia Holjencin, *A Post-Mortem Review of Forensic Hair Analysis—A Technique Whose Current Use in Criminal Investigations Is Hanging on by A Hair*, 64 ST. LOUIS U. L.J. 219, 224 (2020). The significance of this comparison relies on two hypotheses: that a properly trained hair examiner can make an association between a questioned sample hair and a sample hair from a known individual; and that a properly trained hair examiner can provide a scientifically valid estimate of the rareness or frequency of that association. The NAS Report raised concerns about this forensic discipline because “[n]o scientifically accepted statistics exist about the frequency with which particular characteristics of hair are distributed in the population. There appear to be no uniform standards on the number of features on which hairs must agree before an examiner may declare a ‘match.’” NAS Report, at 160.

There have been transformational developments in this area since the Report was published in 2009. On July 18, 2013, the FBI—a longtime and vocal proponent of hair microscopy—publicly acknowledged that much of the testimony offered *for decades* by its hair examiners had been exaggerated and scientifically invalid with respect to the claimed significance of the link between a suspect’s hair and a crime-scene hair.⁵

⁵ The FBI has now identified three types of testimonial errors that its examiners typically made: Type 1 Error: The examiner

See FBI Statement on Microscopic Hair Comparison Analysis (annexed hereto as Appendix B).

To determine the scope of the problem with the expert testimony its own hair microscopy analysts had presented in previous cases, the FBI entered into a partnership with the Innocence Project, the National Association of Criminal Defense Lawyers, and the Department of Justice to independently review thousands of cases in which FBI analysts had performed comparisons. See FEDERAL BUREAU OF INVESTIGATION, *FBI Testimony on Microscopic Hair Analysis Contained Errors in at Least 90 Percent of Cases in Ongoing Review* (April 20, 2015), <https://www.fbi.gov/news/pressrel/press-releases/fbi-testimony-on-microscopic-hair-analysis-contained-errors-in-at-least-90-percent-of-cases-in-ongoing-review>. That review initially identified an error rate of over 90 percent—gravely worrisome, to say the least. Moreover, according to the agency, “[h]air analysts testifying on the stand had made erroneous statements in at least 33 death penalty cases. ‘Nine of these defendants have already been executed and five died of other causes while on death row.’” Liliana Segura & Jordan

stated or implied that the evidentiary hair could be associated with a specific individual to the exclusion of all others; Type 2 Error: The examiner assigned to the positive association a statistical weight or probability or provided a likelihood that the questioned hair originated from a particular source, or an opinion as to the likelihood or rareness of the positive association that could lead the jury to believe that valid statistical weight can be assigned to a microscopic hair association; Type 3 Error: The examiner cited the number of cases or hair analyses worked in the lab and the number of samples from different individuals that could not be distinguished from one another as a predictive value to bolster the conclusion that a hair belongs to a specific individual.

Smith, *Bad Evidence*, THE INTERCEPT (May 5, 2019), <https://theintercept.com/2019/05/05/forensic-evidence-aafs-junk-science/>.

Microscopic hair analysis has largely fallen by the wayside in recent years, not simply due to its massive inherent flaws, but also because “mitochondrial DNA testing supplanted [it] as a means of assessing the likelihood that a questioned hair matches a specimen from a known source.” Norman L. Reimer, *The Microscopic Hair Comparison Analysis Review Project: A Milestone in the Quest for Forensic Science Reform*, CHAMPION (May 2015), at 9. But the demise of a problematic forensic discipline, if welcome, does not solve all of the problems it created; unreliable hair analysis has contributed to many wrongful convictions. Because hair can often be tested for DNA, some exonerations have occurred in recent years. *See, e.g.*, Keith L. Alexander, *DNA Tests Set Free D.C. Man Held in Student’s 1981 Slaying*, WASH. POST, Dec. 16, 2009 (describing the exoneration of Donald Gates); Spencer S. Hsu, *Kirk Odom Officially Exonerated: DNA Retesting Cleared Him in D.C. Rape, Robbery*, WASH. POST, July 13, 2012; Spencer S. Hsu, *D.C. Judge Exonerates Santae Tribble in 1978 Murder, Cites Hair Evidence DNA Test Rejected*, WASH. POST, Dec. 14, 2012.

With error rates in the vicinity of 100%—a mind-blowing number—the entire discipline raises public skepticism about scientific evidence more broadly. The prospect that someone convicted on the basis of microscopic hair analysis might be unable to obtain judicial review of the integrity of his conviction is a deeply troubling one.

C. Bitemark Evidence, Which Prosecutors Have Relied Upon for Many Years, Has

Been Shown to Be Untrustworthy and Unscientific

Since the 1970's, prosecutors have relied on forensic dentists and bitemark examiners to conduct bitemark comparisons, purportedly to identify the source of a questioned bitemark. These comparisons rely on two premises: first, that each individual's bitemark is unique; and second, that bitemarks left on things like human skin capture the marks in a way that preserves their uniqueness and makes meaningful scientific comparisons possible. Relying on these premises, bitemark examiners have used molds of criminal defendant's teeth to "match" those individuals to purported bitemarks found on victims. The accuracy of this entire endeavor is now under a cloud of deep doubt. Scientific scrutiny of bitemark analysis has revealed it to rest on an extremely limited foundation of scientific fact.

Before 1974, forensic dentists focused on identifying victims of mass disasters. They did not attempt to identify the source of bitemarks observed on the skin of crime victims. The two tasks are fundamentally distinct: in the disaster context, "there is a finite number of candidates to identify, and full dentition often is available;" in contrast, in forensic bitemark cases, "the number of potential suspects is huge, the bitemarks include only a limited portion of the dentition, and flesh is a far less clear medium than having the teeth" C. Michael Bowers, *Identification from Bitemarks* § 37:1, in *MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY* (David L. Faigman, et al., eds, 2014). A single case became the exception that swallowed the rule.

In *People v. Marx*, three forensic dentists saw what they regarded as a rare exception to the then generally accepted rule that crime scene bitemarks could not yield accurate source identifications. 54 Cal. App. 3d 100 (1975). Several aspects of the case made it exceptional. The teeth that made the bitemark impression were highly unusual. The bitemark was exceptionally well defined and three-dimensional because it was in cartilage, not the soft tissue of other body areas where bitemarks usually are found. The forensic dentists characterized these bite impressions as the clearest they had ever seen, either personally or in the literature. In the long run, these limitations and qualifications did not matter. Subsequent cases ignored them. The courts converted *Marx* into a justification for throwing open the door to forensic odontology; these witnesses walked through.

Although bite-mark comparisons by forensic dentists became relatively common in criminal prosecutions over time, and were widely presumed to be accurate by courts, it eventually became apparent that there was “a lack of valid evidence to support many of the assumptions and assertions made by forensic dentists during bite-mark comparisons.” Iain Pretty & David Sweet, *The Scientific Basis for Human Bite Mark Analyses—A Critical Review*, 41 SCIENCE & JUSTICE 85, 85 (2001).⁶ Systematic scrutiny demonstrated that the field lacked scientific validation, determination of

⁶ See also Mary A. Bush & Peter J. Bush, *Current Context of Bitemark Analysis and Research*, in BITEMARK EVIDENCE: A COLOR ATLAS AND TEXT § 6-303 (Robert B.J. Dorion ed., 2d ed. 2010); Ademir Ranco, et al., *The Uniqueness of the Human Dentition as Forensic Evidence: A Systematic Review on the Technological Methodology*, 129 INT’L J. LEGAL MED. 1277 (Nov. 15, 2010).

error rates, and reliability testing. Despite some efforts, it has never even established sufficient support for its fundamental premise that each person's bitemark is unique. *See, e.g.*, Erica Beecher-Monas, *Reality Bites: The Illusion of Science in Bite-Mark Evidence*, 30 *CARDOZO L. REV.* 1369, 1380-83 (2009). By the time of the NAS Report, it was possible to observe that core challenges make the discipline unworkable: "bite marks on the skin will change over time and can be distorted by the elasticity of the skin, the unevenness of the surface bite, and swelling and healing. These features may severely limit the validity of forensic odontology." NAS Report, at 174. It concluded that "[m]ore research is needed to confirm the fundamental basis for the science of bite mark comparison." *Id.* at 175.

In 2016, the President's Council of Advisors on Science and Technology ("PCAST") issued a report about forensic sciences. *See* PCAST, *FORENSIC SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS* (Sept. 2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf [hereinafter "PCAST Report"]. After reviewing the few empirical studies on the accuracy of bitemark comparisons, that report concluded:

PCAST finds that bitemark analysis does not meet the scientific standards for foundational validity, and is far from meeting such standards. To the contrary, available scientific evidence strongly suggests that examiners cannot consistently agree on whether an injury is a human

bitemark and cannot identify the source of bitemark with reasonable accuracy.

PCAST Report, at 87. It “advise[d] against devoting significant resources” to further validation of the discipline. In its own painstaking review of this discipline, the Texas Forensic Science Commission concluded that “there is no scientific basis for stating that a particular patterned injury can be associated to an individual’s dentition,” and recommended a moratorium on the use of bite-mark evidence. Segura & Smith, *supra*.

As with discredited arson investigation principles and microscopic hair comparisons, several convictions based on bitemark comparisons have fallen apart under further investigation and critical scrutiny. The most famous bitemark exoneree is Ray Krone, whom the local media dubbed “the Snaggletooth killer.” At his first trial and a re-trial, the State relied on expert testimony purporting to match Mr. Krone’s bitemark on a Styrofoam cup to bitemarks that appeared on the homicide victim’s body. The jury convicted him both times. “[A]fter Krone had served more than 10 years in prison [] DNA testing proved his innocence.” The DNA test excluded Krone and “matched a man named Kenneth Phillips [who] was incarcerated on an unrelated sex crime and, although he had lived a short distance from the bar where the victim worked, he had never been considered a suspect in her murder.” NATIONAL REGISTRY OF EXONERATIONS, Ray Krone, *available at*: <https://www.law.umich.edu/special/exoneration/Pages/casedetail.aspx?caseid=3365>.

Just a few weeks ago, the Supreme Court of Mississippi granted Eddie Howard a new trial. *See Howard v. State*, No. 2018-CA-01586-SCT, 2020 WL 5051367,

at *6-7 (Miss. Aug. 27, 2020) (finding, among other things, “Howard’s evidence as to the change in the scientific understanding of the reliability of identification through bite-mark comparisons was almost uncontested”). According to the Innocence Project, Mr. Howard became the 34th person wrongfully accused and convicted on the basis of bitemark testimony. INNOCENCE PROJECT, *Mississippi Innocence Project and Innocence Project Client Eddie Lee Howard’s Mississippi Capital Murder Conviction and Death Sentence Vacated* (Aug. 31, 2020), <https://www.innocenceproject.org/mississippi-eddie-lee-howard-innocence-project-vacated-conviction/>. Mr. Howard has spent nearly three decades incarcerated for this offense, and most of that time was on death row.

CONCLUSION

Although it is difficult, courts should consider subsequent scientific developments when reviewing the accuracy and fairness of criminal convictions. *Amici* recognize that it is not easy for courts to keep pace with developments in science and discern what they might mean for criminal convictions obtained years ago. In many instances, there was no wrongdoing by the State or its witnesses; instead, they introduced evidence that was considered reliable at the time. See Jennifer E. Laurin, *Criminal Law’s Science Lag: How Criminal Justice Meets Changed Scientific Understanding*, 93 TEX. L. REV. 1751, 1762 (2015) (observing that “changed science can rarely be squeezed into these molds [of existing case law] since the essence of the changed science problem is that the prevailing view of experts *was* accurate at the time of trial, and that the revised understanding was essentially unavailable”) (emphasis in original). The key point here is that the

changes in scientific understanding are real. And the tension these changes create will likely bring more cases like the Petitioner’s to this Court’s doorstep.⁷

When science comes to discredit expert testimony upon which a conviction relies, the “public may reasonably perceive that the criminal justice system is sometimes unjust and inaccurate. Finality of judgment is essential in criminal cases, but so is accuracy of the result—an accurate result that will stand the test of time and changes in scientific knowledge.” *Ex parte Robbins*, 360 S.W.3d 446, 470 (Tex. Crim. App. 2011) (Cochran, J., dissenting). One legal scholar captured it well when she wrote:

the potential for changed scientific understanding to undermine the factual basis for criminal convictions is endemic to the justice system’s use of scientific evidence in adjudicating guilt. Law’s quest for truth must end at some point; we call that point “justice” and accept, to a degree, the socially constructed nature of its truth function. Science, by contrast, embraces contingent understanding, subject to testability and empirical support. Law cannot, of course, fully bend to science’s pace and manner of truth production. *But neither can it shut its eyes to scientific*

⁷ See, e.g., Edward J. Imwinkelried, *Debunked, Discredited, but Still Defended Revising State Post-Conviction Relief Statutes to Cover Convictions Resting on Subsequently Invalidated Expert Testimony*, 48 SETON HALL L. REV. 1095, 1099 (2018) (“In the future the courts will probably face a large number of cases in which the basis for relief is the claim that subsequent scientific research has invalidated expert testimony that contributed to the prior conviction.”).

change without compromising the integrity of justice. The consequences of that incomplete accommodation are magnified in criminal law, where the individual and societal costs of error are at their peak.

Laurin, *supra* at 1753 (emphasis added). Today, we ask the Court not to shut its eyes.

Respectfully submitted,

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