ARTICLE

A NEW REMEDY FOR JUNK SCIENCE: ARTICLE 11.073 AND TEXAS'S RESPONSE TO THE CHANGING LANDSCAPE IN THE FORENSIC SCIENCES

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"*The law's greatest dilemma in its heavy reliance on forensic evidence . . . concerns the question of whether—and to what extent—there is* science *in any given forensic science discipline.*"[1]

I. INTRODUCTION

On the morning of March 11, 2004, Islamic militants bombed passenger trains in Madrid, Spain, leaving 191 people dead and injuring more than 1800 others.[2] The Spanish National Police (SNP) recovered latent fingerprints from a bag of detonators, and after digital images of the fingerprints were analyzed at the FBI Laboratory's Latent Print Units (LPU), the FBI determined that Oregon lawyer Brandon Mayfield was the source of Latent Fingerprint Number 17 (LFP 17). The match began with twenty candidate prints generated by a computerized search of millions of fingerprints in FBI databases. An FBI analyst then made a side-by-side comparison of LFP 17 and the candidate prints and concluded that Mayfield was the source of LFP 17. A second analyst, the LPU Unit Chief, and an

1. NAT'L RESEARCH COUNCIL OF THE NAT'L ACADEMIES, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 9 (2009) [hereinafter NAS REPORT].

2. *Madrid Train Bombings of 2004*, BRITANNICA.COM, https://www.britannica.com/event/Madrid-train-bombings-of-2004 (last visited Jan. 27, 2017).

independent expert agreed with this conclusion. On May 6, 2004, the FBI detained Mayfield as a material witness in the Madrid bombings but released him only weeks later after the SNP advised the FBI that an Algerian national named Ouhnane Daoud was the source of LFP 17. On July 16, 2004, in a sharp reversal, the FBI Laboratory released a formal report acknowledging that Daoud was the source of LFP 17.[3]

In the aftermath of the Mayfield case, the Department of Justice's (DOJ) Office of the Inspector General published a 330-page postmortem report on the FBI's handling of the case.[4] According to the report, the FBI Laboratory had described latent fingerprint analysis as the "gold standard for forensic science," and many latent fingerprint analysts had previously "claimed absolute certainty for their identifications and a zero error rate for their discipline."[5] In the Mayfield case, the report found that FBI analysts used "circular reasoning" and "declared that they were 'absolutely confident'" Mayfield was the source of LFP 17 even before determining the basis of the SNP Laboratory's conclusion that Mayfield was not the source.[6]

The Mayfield case was a troubling reminder that many disciplines in the forensic sciences and the analysts who work in the field are fallible. More broadly, the Mayfield case symbolized the changing landscape in the forensic sciences in the United States. We now know that many disciplines in the forensic sciences may not be as valid and reliable as we previously thought.[7] Disciplines in the forensic sciences recognized as valid and reliable in years past are now being questioned and even repudiated as pseudoscience.[8] As a 2009 report by the National Academy of Sciences (NAS Report) concluded, "The bottom line is simple: In a number of forensic science disciplines, forensic science professionals have yet to establish either the validity of their approach or the accuracy of their conclusions . . . ."[9] A 2016 report by the President's Council of Advisors on Science and Technology (PCAST Report) echoed this judgment, noting that the NAS Report found "the problems plaguing the forensic science community are systemic and pervasive."[10] Only recently has the criminal

3. U.S. DEP'T OF JUST., OFFICE OF THE INSPECTOR GEN., A REVIEW OF THE FBI'S HANDLING OF THE BRANDON MAYFIELD CASE 1–4 (Mar. 2006), https://oig.justice.gov/special/s0601/final.pdf.

4. *Id.*

5. *Id.* at 269.

6. *Id.* at 269–70.

7. NAS REPORT, *supra* note 1, at 42–44.

8. *Id.*

9. *Id.* at 53.

10. PRESIDENT'S COUNCIL OF ADVISORS ON SCIENCE AND TECHNOLOGY, FORENSIC

justice system in the United States begun to catch up and respond to the changing landscape in the forensic sciences.

This Article considers a statutory response in the State of Texas to the changing landscape in the forensic sciences—Article 11.073 of the Texas Code of Criminal Procedure—and is intended as a short history and introduction to Article 11.073. Enacted in 2013 and amended in 2015, Article 11.073 provides a statutory, non-constitutional pathway to a new trial in cases in which "relevant scientific evidence" was not available to be offered at a convicted person's trial or "contradicts scientific evidence the state relied on at trial."[11]

Part II of this Article begins with a snapshot of the forensic sciences in the United States today taken from the major findings in the NAS and PCAST Reports. To understand why the Texas Legislature enacted Article 11.073, you have to understand the state of the forensic sciences today, and the NAS and PCAST Reports are perhaps the most thorough studies we have on the health of the forensic sciences as a whole in the United States.

This Article then describes early legislation in Texas tied to the forensic sciences.[12] Article 11.073 can be understood as a new chapter in the Legislature's responses to changes in the forensic sciences. Despite its failures in other areas of criminal justice policy,[13] the Legislature deserves credit for taking the lead nationally and enacting Article 11.073. Thanks to the Legislature's leadership, other states now have a model in Texas to follow and build on.

Finally, as background to Article 11.073's enactment, Part II discusses two cases from Texas's highest criminal court, the Court of Criminal

SCIENCE IN CRIMINAL COURTS: ENSURING SCIENTIFIC VALIDITY OF FEATURE-COMPARISON METHODS 34 (2016) [hereinafter PCAST REPORT].

11. TEX. CODE CRIM. PROC. art. 11.073(a)(1)–(2) (West Supp. 2016).

12. This Section focuses only on legislation because Article 11.073 is a creature of the Legislature. Other institutional players, like the Texas Criminal Justice Integrity Unit, created by Judge Barbara Hervey of the Court of Criminal Appeals, have been active in education and training in the forensic sciences. *See* TEXAS CRIMINAL JUSTICE INTEGRITY UNIT, 2009 ANNUAL REPORT OF ACTIVITIES 3 (2009), http://www.txcourts.gov/media/253235/tcjiu-2009-report.pdf.

13. For example, Texas has not adopted a mandatory electronic recording policy for custodial interrogations. TIMOTHY COLE ADVISORY PANEL ON WRONGFUL CONVICTIONS, REPORT TO THE TEXAS TASK FORCE ON INDIGENT DEFENSE 18–19 (2010), http://www.tidc.texas.gov/media/25663/FINALTCAPreport.pdf [hereinafter ADVISORY PANEL ON WRONGFUL CONVICTIONS]; TIMOTHY COLE EXONERATION REVIEW COMM'N, REPORT TO TEXAS GOVERNOR GREG ABBOTT, TEXAS LEGISLATURE, TEXAS JUDICIAL COUNCIL 11–13 (2016), http://www.txcourts.gov/media/1436589/tcerc-final-report-december-9-2016.pdf [hereinafter EXONERATION REVIEW COMM'N REPORT].

Appeals. In *Ex parte Robbins* (*Robbins I*)[14] and *Ex parte Henderson*,[15] the State's experts retracted their testimony after trial, raising a novel question for the court: Are a defendant's federal constitutional rights violated if a State expert retracts her testimony after trial, but that defendant does not show that he is actually innocent or the expert's testimony was false at trial? The answer to this question would shape the court's future jurisprudence in cases in which testimony or evidence related to the forensic sciences had been contradicted or discredited after trial. Both *Robbins I* and *Henderson* help explain Article 11.073's enactment as a statutory, non-constitutional remedy. They may, in fact, have been the "tipping point" that led to the statute's enactment, as Judge Cochran argued in a subsequent opinion.[16] One thing is clear: After these cases were decided, a Texas defendant like Robbins or Henderson could not rely on the federal Constitution to vindicate his rights unless he showed that he was actually innocent or the expert's testimony in his case was false at trial.

With this as background, Part III discusses the legislative history of Article 11.073 and *Robbins II*,[17] the first decision from the Court of Criminal Appeals interpreting the 2013 enactment of the statute. As early as 2009, Senator John Whitmire introduced legislation that would have enacted an early version of Article 11.073.[18] When the statute was finally enacted in 2013, the Legislature left many of its provisions open to interpretation. Indeed, as the opinions in *Robbins II* made clear, the language in much of the statute was ambiguous.[19] Part III concludes with a short discussion of the 2015 amendment to Article 11.073 and *Robbins III*,[20] which put an end to the litigation that began with *Robbins I*.[21]

Part IV takes up Article 11.073 itself and considers what it means in plain English and how it works in practice. This Part is based on legal decisions and the plain language of the statute and is intended as a nuts-and-bolts guide for litigants. Like this Article as a whole, this Part is largely descriptive rather than prescriptive and is not intended as a primer on how courts will or should interpret and apply provisions in the statute; that is beyond the

14. *Ex parte* Robbins (*Robbins I*), 360 S.W.3d 446 (Tex. Crim. App. 2011).

15. *Ex parte* Henderson, 384 S.W.3d 833 (Tex. Crim. App. 2012).

16. *Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678, 702–03 (Tex. Crim. App. 2014) (Cochran, J., concurring).

17. *Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678 (Tex. Crim. App. 2014).

18. *Id.* at 700–01 (Cochran, J., concurring).

19. *Id.* at 691.

20. *Ex parte* Robbins (*Robbins III*), No. WR-73,484-02, 2016 WL 370157 (Tex. Crim. App. Jan. 27, 2016).

21. *Id.*

scope of this Article.

II. BACKGROUND

A. *The Forensic Sciences in the United States Today*

In 2005, Congress directed the National Academy of Sciences to conduct a study on the forensic sciences.[22] In 2009, the results of the groundbreaking study, the NAS Report, were released, sparking a national debate on the forensic sciences.[23] While the NAS Report found that DNA analysis was based on sound science,[24] the validity of other forensic science disciplines was found wanting. ACE-V—known as "Analysis, Comparison, Evaluation, and Verification," a method for analyzing latent fingerprints—was found not to be specific enough to qualify as a validated method.[25] ACE-V, the NAS Report concluded, "does not guard against bias; is too broad to ensure repeatability and transparency; and does not guarantee that two analysts following it will obtain the same results."[26] The NAS Report faulted other impression evidence like footprints and tire tracks because

22. NAS REPORT, *supra* note 1, at 1 (citing H.R. Rep. No. 109-272, at 121 (2005) (Conf. Rep.)).

23. *See* Kelly Servick, *Reversing the Legacy of Junk Science in the Courtroom*, SCIENCE (Mar. 7, 2016, 4:30 PM), http://www.sciencemag.org/news/2016/03/reversing-legacy-junk-science-courtroom ("The committee's report sent shockwaves through the legal system, and forensic science is now grinding toward reform."); *see also* Daniel Cressey, *Forensics Specialist Discusses a Discipline in Crisis*, NATURE (Feb. 12, 2015), http://www.nature.com/news/forensics-specialist-discusses-a-discipline-in-crisis-1.16870 (interviewing Niamh Nic Daéid of the University of Dundee in Britain, who described how the NAS Report exposed the failings and shortcomings of forensic sciences and who explained the need for lawyers and scientists to work together to identify areas of forensic science that need improvement).

24. In reaching this conclusion, the NAS Report noted that "DNA analysis also has been subjected to more scrutiny than any other forensic science discipline, with rigorous experimentation and validation performed prior to its use in forensic investigations." NAS REPORT, *supra* note 1, at 133.

The reputation of DNA analysis, the proverbial gold standard in the forensic sciences, may be on the decline. In May 2015, the FBI disclosed minor discrepancies in its 1999 and 2001 STR Population Database, which laboratories in the United States use to calculate DNA match statistics in criminal cases. Because of these discrepancies, laboratories were using an outdated protocol for interpreting DNA results in which multiple contributors might have been present. Gabrielle Banks, *Texas Leading Massive Review of Criminal Cases Based on Change in DNA Calculations*, HOUST. CHRON. (Jan. 30, 2016), http://www.houstonchronicle.com/news/houston-texas/houston/article/Texas-leading-massive-review-of-criminal-cases-6796205.php; Letter from Vincent Di Maio, Presiding Officer of the Texas Forensic Science Commission to Members of the Texas Criminal Justice Community (Aug. 21, 2015), http://www.fsc.texas.gov/sites/default/files/documents/Unintended%20Effects%20of%20FBI%20Database%20Corrections%20on%20Assessment%20of%20DNA%20Mixture%20Interpretation%20in%20Texas%20NOTICE.pdf.

25. NAS REPORT, *supra* note 1, at 142.

26. *Id.*

there was no consensus as to the number of individual characteristics for a positive identification, and no data, furthermore, was available on "the variability of class or individual characteristics or about the validity or reliability of the method."[27]

The NAS Report found similar deficiencies in other forensic science disciplines. "The fundamental problem with toolmark and firearm analysis," according to the NAS Report, "is the lack of a precisely defined process."[28] In its investigation of hair analysis, the NAS Report concluded, "There appear to be no uniform standards on the number of features on which hairs must agree before an examiner may declare a 'match.'"[29] Bitemark analysis, a highly controversial discipline that continues to divide experts,[30] was faulted for not being supported by scientific studies. For example, although a majority of forensic odontologists[31] believe bitemarks can show enough detail for a positive identification, the NAS Report found that this was not based on scientific studies and that no large population studies had been conducted.[32] Finally, the NAS Report found that many of the "rules of thumb" used by arson investigators are false:

> Despite the paucity of research, some arson investigators continue to make determinations about whether or not a particular fire was set. However, according to testimony presented to the committee, many of the rules of thumb that are typically assumed to indicate that an accelerant was used (e.g., "alligatoring" of wood, specific char patterns) have been shown not to be true.[33]

In fact, the pseudoscience of early arson investigations presaged the crisis in the forensic sciences today and was perhaps the canary in the coal mine for the forensic science disciplines criticized in the NAS Report. Years before the NAS Report was released, the methods of fire investigators came under scrutiny. Fire experts began to grasp that, in the early days of fire

27. *Id.* at 149.

28. *Id.* at 155.

29. *Id.* at 160. The NAS Report went on to explain, "The categorization of hair features depends heavily on examiner proficiency and practical experience." *Id.*

30. *See* Radley Balko, *How the Flawed 'Science' of Bite Mark Analysis Has Sent Innocent People to Prison*, WASH. POST (Feb. 13, 2015), https://www.washingtonpost.com/news/the-watch/wp/2015/02/13/how-the-flawed-science-of-bite-mark-analysis-has-sent-innocent-people-to-jail/?utm_term=.581895fe1de3.

31. Forensic odontology is "a branch of forensic medicine that deals with teeth and marks left by teeth (as in identifying the remains of a dead person)." *Forensic odontology*, MERRIAM-WEBSTER, https://www.merriam-webster.com/medical/forensic%20odontology (last visited Dec. 22, 2016).

32. NAS REPORT, *supra* note 1, at 176.

33. *Id.* at 173.

investigations, investigators relied on myths and on-the-job training rather than science.[34] This began to change in 1992, when *NFPA 921: Guide for Fire and Explosion Investigations* was published. *NFPA 921*, which would become the investigator's "bible," exploded myths that investigators had relied on in the early days of investigations and marked the beginning of a shift among fire investigators to apply the principles of science to investigations.[35]

What explains the critical picture of the forensic sciences that culminated in the NAS Report?[36] First, after the United States Supreme Court held in *Daubert v. Merrell Dow Pharmaceuticals*[37] that Federal Rule of Evidence 702[38] superseded the "general acceptance" test set out in *Frye v. United States*,[39] the focus of admissibility shifted to scientific validity.[40] Forensic science disciplines not previously questioned were now being scrutinized. As Michael J. Saks, a professor of law at Arizona State University, put it, "Numerous courts found themselves at the brink of excluding expert testimony that had come to be viewed as nearly flawless."[41]

Second, DNA typing became a model for other forensic science disciplines because of its reliability and the fact that, excluding mistakes in handling and labeling, the probabilities of false positives were quantifiable and often miniscule.[42] In short, DNA analysis became the gold standard in the forensic sciences. As the NAS Report noted, DNA analysis "has set the bar higher for other forensic science methodologies, because it has provided a tool with a higher degree of reliability and relevance than any other forensic technique."[43]

34. Mark Hansen, *Long-Held Beliefs About Arson Science Have Been Debunked After Decades Of Misuse*, ABA J. (Dec. 1, 2015 12:30 AM), http://www.abajournal.com/magazine/article/long_held_beliefs_about_arson_science_have_been_debunked_after_decades_of_m.

35. *Id.*

36. Before the NAS Report was released, Michael J. Saks and Jonathan J. Koehler described in a prescient article a future paradigm shift in forensic identification science. Michael J. Saks & Jonathan J. Koehler, *The Coming Paradigm Shift in Forensic Identification Science*, 309 SCIENCE 833, 892–95 (2005).

37. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993). Before *Daubert* was decided, the Texas Court of Criminal Appeals rejected the general acceptance test set out in *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923), and held that the admissibility of novel scientific evidence was governed by Texas Rules of Evidence 702 and 403. Kelly v. State, 824 S.W.2d 568, 572–73 (Tex. Crim. App. 1992).

38. FED. R. EVID. 702.

39. Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923), *superseded by rule*, FED. R. EVID. 702.

40. *See Daubert*, 509 U.S. at 594–95 (explaining Rule 702's "overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed submission").

41. Michael J. Saks, *Forensic Science and the Courts*, 93 JUDICATURE 94, 95 (2009).

42. *Id.*; NAS REPORT, *supra* note 1, at 130.

43. NAS REPORT, *supra* note 1, at 41.

Finally, between 1989 and November 2008, a year before the NAS Report was released, 223 people were exonerated by DNA evidence in the United States,[44] leading observers to ask what went wrong in those cases. According to Saks, forensic science emerged as a large part of the problem.[45] This echoed the NAS Report's conclusions: DNA exonerations exposed "serious limitations in some of the forensic science approaches commonly used in the United States."[46]

While highly critical of many forensic science disciplines, the NAS Report focused on the reliability and validity of these disciplines based on established scientific principles, not on whether these disciplines were presumptively unreliable and invalid. This distinction is worth noting. As the NAS Report explained,

> The simple reality is that the interpretation of forensic evidence is not always based on scientific studies to determine its validity. 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.[47]

In 2016, roughly seven years after the NAS Report was released, the PCAST Report cast further doubt on the state of the forensic sciences in the United States.[48] Asking what other steps could be taken after the release of the NAS Report to strengthen forensic science disciplines and establish the validity of forensic evidence used in the legal system,[49] the PCAST Report focused on validity and reliability in one area of forensic science: forensic feature-comparison methods[50] such as DNA, bitemark, latent fingerprint, firearms, footwear, and hair analysis. Like the NAS Report, the PCAST Report is a comprehensive and detailed study, and what follows is only a synopsis of its major findings.

44. *Id.* at 42.

45. Saks, *supra* note 41, at 95.

46. NAS REPORT, *supra* note 1, at 42.

47. *Id.* at 8.

48. *See generally* PCAST REPORT, *supra* note 10.

49. The PCAST Report identified two important gaps: "(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." *Id.* at 1.

50. Forensic feature-comparison methods include "the wide variety of methods that aim to determine whether an evidentiary sample (e.g., from a crime scene) is or is not associated with a potential source sample (e.g., from a suspect) based on the presence of similar patterns, impressions, features, or characteristics in the sample and the source." *Id.* at 23.

The PCAST Report found that DNA analysis of single-source and simple mixtures of only two contributors was foundationally valid.[51] But DNA analysis of complex mixtures—those with more than two contributors—based on combined probability of inclusion, a statistical method, was determined not to be foundationally valid.[52] While the NAS Report was reluctant to reject bitemark analysis altogether,[53] the PCAST Report concluded that it failed to meet the standards for foundational validity and considered the "prospects of developing bitemark analysis into a scientifically valid method to be low."[54] Based on studies in 2011 and 2014, the PCAST Report found that latent fingerprint analysis was a foundationally valid subjective methodology, though with a substantial false-positive rate "likely to be higher than expected by many jurors based on longstanding claims about the infallibility of fingerprint analysis."[55]

51. *Id.* at 7, 71–73. Foundational validity for a forensic science method "requires that it be shown, based on empirical studies, to be repeatable, reproducible, and accurate, at levels that have been measured and are appropriate to the intended application." *Id.* at 4. Foundational validity is a major problem for subjective forensic feature-comparison methods that depend on the judgment of an individual analyst. For these methods, the PCAST Report recommended that reliability and validity evaluations be based on "'black-box studies,' in which many examiners render decisions about many independent tests (typically, involving 'questioned' samples and one or more 'known' samples) and the error rates are determined." *Id.* at 5–6.

The PCAST Report also evaluated validity as applied, which asks whether a method has been reliably applied in practice. *Id.* at 5. This Article focuses only on foundational validity, though validity as applied is perhaps as important given that analysts do make mistakes and are not infallible. *Id.* at 73–75.

52. *Id.* at 82.

53. *See* NAS REPORT, *supra* note 1, at 176 ("Despite the inherent weakness involved in bite mark comparison, it is reasonable to assume that the process can sometimes reliably exclude suspects.").

54. PCAST REPORT, *supra* note 10, at 87. Months before the PCAST Report was released, the Texas Forensic Science Commission (TFSC) investigated Steven Mark Chaney's case and recommended that bitemark comparison be inadmissible in criminal cases in Texas until further studies and research could establish its validity and reliability. TEX. FORENSIC SCI. COMM'N, FORENSIC BITEMARK COMPARISON COMPLAINT FILED BY NATIONAL INNOCENCE PROJECT ON BEHALF OF STEVEN MARK CHANEY 15–16 (2016), http://www.fsc.texas.gov/sites/default/files/FinalBiteMarkReport.pdf.

In 1987, Chaney was convicted of murdering John Sweek. His conviction was based largely on the testimony of two forensic odontologists who opined that a mark on Sweek's forearm was a human bitemark matching Chaney's dentition. In 2015, Chaney filed an application for a writ of habeas corpus, and the habeas judge found, among other things, that new relevant scientific evidence in the field of forensic odontology contradicted the odontologists' testimony. Suppl. Agreed Findings of Fact and Conclusions of Law on Applicant's Writ of Habeas Corpus, at 733, *Ex parte* Chaney, No. W87-95754-K(A) (Crim. Dist. Ct. No. 4, Dallas Cty., Tex. 2016). On March 30, 2017, the Court of Criminal Appeals filed and set Chaney's application for submission. *Case Information on Case: WR-84,091-01*, COURT OF CRIMINAL APPEALS, http://www.search.txcourts.gov/Case.aspx?cn=WR-84,091-01&coa=coscca (identifying, in the "case events" section, that Chaney's application was filed and set for submission on March 30, 2017).

55. PCAST REPORT, *supra* note 10, at 101.

Firearms analysis failed to meet the criteria for foundational validity because only one proper study had been conducted to measure validity and estimate reliability and that study had not been published or subjected to peer review.[56] Footwear analysis, likewise, fell short of foundational validity.[57] Finally, although its evaluation of the validity of hair analysis was not exhaustive, the PCAST Report faulted a DOJ document released after the NAS Report defending the validity and reliability of microscopic hair comparison.[58] According to the PCAST Report, this document failed to mention that other scientists strongly criticized the studies it relied on.[59] In fact, the studies failed to "provide a scientific basis for concluding that microscopic hair examination is a valid and reliable process."[60]

One day before the PCAST Report was released, Judge Alex Kozinski, a senior advisor to the PCAST Report and a judge on the United States Court of Appeals for the Ninth Circuit, wrote in the *Wall Street Journal* that the PCAST Report "concludes that virtually all of these methods [DNA, fingerprint, bitemark, firearm, footwear and hair analysis] are flawed, some irredeemably so."[61] "Among the more than 2.2 million inmates in U.S. prisons and jails," he continued, "countless may have been convicted using unreliable or fabricated forensic science. The U.S. has an abiding and unfulfilled moral obligation to free citizens who were imprisoned by such questionable means."[62] These are strong words. Whether or not you agreed with Judge Kozinski's moral prescriptions, after reading the NAS and PCAST Reports, you could not deny that there was a crisis in the forensic sciences in the United States. Long in the making, this crisis set the stage for Article 11.073's enactment.

56. *Id.* at 111–12.

57. The PCAST Report found that "there are no appropriate empirical studies to support the foundational validity of footwear analysis to associate shoeprints with particular shoes based on specific identifying marks (sometimes called 'randomly acquired characteristics['). Such conclusions are unsupported by any meaningful evidence or estimates of their accuracy and thus are not scientifically valid." *Id.* at 117.

58. According to the document, "Based on these and other published studies, microscopic hair comparison has been demonstrated to be a valid and reliable scientific methodology." U.S. DEP'T OF JUST., *Supporting Documentation for Department of Justice Proposed Uniform Language for Testimony and Reports for the Forensic Hair Examination Discipline*, https://www.justice.gov/dag/file/877741/download.

59. PCAST REPORT, *supra* note 10, at 118.

60. *Id.* at 120.

61. Alex Kozinski, *Rejecting Voodoo Science in the Courtroom*, WALL ST. J., Sept. 19, 2016, http://www.wsj.com/articles/rejecting-voodoo-science-in-the-courtroom-1474328199.

62. *Id.*; *see also* Alex Kozinski, *Criminal Law 2.0*, 44 GEO. L. J. ANN. REV. CRIM. PROC. iii, iv–vi (2015) (highlighting common misconceptions in criminal law, especially with forensic evidence).

B. *Legislation in Texas Related to the Forensic Sciences*

Before the passage of Article 11.073, the Texas Legislature began responding to changes (and scandals) in the forensic sciences.[63] In 2001, Senate Bill 3 enacted Article 38.39 and Chapter 64 of the Code of Criminal Procedure.[64] According to the Bill Analysis from the Senate Research Center, Texas statutes then regulating the use of biological evidence had been eclipsed "by developments in the science of biological evidence and other related technologies," hindering the use of such evidence.[65] Article 38.39 mandated that evidence containing biological material be preserved under conditions set out in the statute.[66] Before Article 38.39 was enacted, no statutory procedure existed for the preservation of evidence containing biological material. Chapter 64, Article 38.39's counterpart, authorized post-conviction DNA testing of evidence containing biological material. Under the 2001 statute, a convicted person could file a motion for DNA testing in cases in which DNA testing was not previously available or was available "but not technologically capable of providing probative results."[67] A convicted person could also file a motion for DNA testing, even though evidence had been subjected to DNA testing, if the evidence could be "subjected to testing with newer testing techniques that provide a reasonable likelihood of results that are more accurate and probative than the results of the previous test."[68] Because of Chapter 64, convicted persons in Texas have been declared actually innocent and granted new trials based on exculpatory DNA results.[69]

63. For this Section, I am indebted to Judge Cochran's concurring opinion in *Robbins II*. *Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678, 695–700 (Tex. Crim. App. 2014) (Cochran, J., concurring).

64. Act of Apr. 3, 2001, 77th Leg., R.S. ch. 2 (S.B. 3), §§ 1, 2, 2001 Tex. Gen. Laws 2, 2–4 (current version at TEX. CODE CRIM. PROC. art. 38.43), *renumbered by* Act of May 29, 2011, 82nd Leg., ch. 1248, § 1, 2011 Tex. Gen. Laws 3347, 3347.

65. Senate Res. Center, Bill Analysis, Tex. S.B. 3, 77th Leg., R.S. at 1 (2001).

66. Act of Apr. 3, 2001, 77th Leg., R.S. ch. 2 (S.B. 3), § 1, 2001 Tex. Gen. Laws 2, 2 (originally at TEX. CODE CRIM. PROC. art. 38.39(a); current version at TEX. CODE CRIM. PROC. art. 38.43(a)) *renumbered by* Act of May 29, 2011, 82nd Leg., ch. 1248, § 1, 2011 Tex. Gen. Laws 3347, 3347. In 2011, after Article 38.39 was renumbered as Article 38.43, the Legislature amended Article 38.43 to include a definition of "biological evidence." Act of May 29, 2011, 82nd Leg., ch. 1248, § 1, 2011 Tex. Gen. Laws 3347, 3347 (current version at TEX. CODE CRIM. PROC. art. 38.43). And in 2013, the Legislature established new subsections in Article 38.43 for capital murder cases in which the State sought the death penalty. Act of May 27, 2013, 83rd Leg., R.S. ch. 1349, § 1, 2013 Tex. Gen. Laws. 3586, 3586–87 (current version at TEX. CODE CRIM. PROC. art. 38.43(i)–(m)).

67. TEX. CODE CRIM. PROC. art. 64.01(b)(1)(A)(i)–(ii) (2001). Chapter 64 includes other statutory requirements not discussed here.

68. TEX. CODE CRIM. PROC. art. 64.01(b)(2) (2001).

69. *See, e.g.*, *Ex parte* Morton, No. AP-76,663, 2011 WL 4827841, at *1 (Tex. Crim. App. Oct. 12, 2011) (holding that the applicant established that he was actually innocent after Chapter 64 DNA

In 2003, the Legislature shifted its focus to crime laboratories. After a Department of Public Safety (DPS) audit in 2002 found widespread problems at the Houston Police Department (HPD) Crime Lab,[70] a non-accredited laboratory, House Bill 2703 amended Article 38.35 of the Code of Criminal Procedure and conditioned the admissibility of physical evidence subjected to forensic analysis in a criminal case on whether the crime laboratory or other entity that had conducted the analysis was accredited by the DPS.[71] H.B. 2703 also enacted sections 411.0205 and 411.0206 of the Government Code.[72] Section 411.0205 authorized the DPS Director to establish an accreditation process for crime and DNA laboratories and other entities that conducted forensic analysis of physical evidence in the state.[73] Section 411.0206 authorized the DPS Director to regulate DNA testing and DNA laboratories in the state.[74] Supporters of H.B. 2703 thought it would "establish minimum standards that would help bring all laboratories in Texas up to national standards and prevent the kind of shoddy forensic analyses that threaten to taint the criminal justice system in this state."[75] H.B. 2703 would be a harbinger of legislation targeting the forensic sciences.

Indeed, in 2005, House Bill 1068 established the Texas Forensic Science Commission (TFSC).[76] Originally made up of members with backgrounds in the forensic sciences, clinical laboratory medicine, pharmaceutical laboratory research, DNA database research, statistical analyses, and law, the

testing showed that the DNA of the deceased and an unknown male was found on a blood-stained bandana); *Ex parte* Henton, No. AP-75,344, 2006 WL 362331, at *1 (Tex. Crim. App. Feb. 15, 2006) (holding that the applicant established that he was actually innocent after Chapter 64 DNA testing excluded him as a contributor to DNA found on the complainant); *Ex parte* Chabot, 300 S.W.3d 768, 771–72 (Tex. Crim. App. 2009) (holding that the applicant's due process rights were violated after Chapter 64 DNA testing showed that a co-defendant's trial testimony was false).

70. *See* Steve McVicker & Roma Khanna, *House Hearings on HPD Crime Lab to Focus on Audit*, HOUST. CHRON. (Mar. 3, 2003, 6:30 AM) at A15. The findings from an independent investigation of the HPD Crime Lab were released in 2007. *See* Michael R. Bromwich, *Final Report of the Independent Investigator for the Houston Police Department Crime Laboratory and Property Room* (June 13, 2007), http://www.hpdlabinvestigation.org/reports/070613report.pdf.

71. Act of May 31, 2003, 78th Leg., R.S. ch. 698, § 4, 2003 Tex. Gen. Laws 2128, 2128 (current version at TEX. CODE CRIM. PROC. arts. 38.01, 38.35, § 3(d)). Subsection 3(e) made exceptions to this rule.

72. *Id.* at 2128–29 (codified at TEX. GOV'T CODE §§ 411.0205, 411.0206 and subsequently replaced by or redesignated as TEX. CODE CRIM. PROC. arts. 38.01, 38.35).

73. TEX. GOV'T CODE § 411.0205(b) (2003) (redesignated as TEX. CODE CRIM. PROC. art. 38.01, § 4-d).

74. *Id.* § 411.0206 (replaced by TEX. CODE CRIM. PROC. art. 38.01).

75. House Res. Org., Bill Analysis, Tex. H.B. 2703, 78th Leg., R.S. at 2 (2003).

76. Acts 2005, 79th Leg., ch. 1224 (H.B. 1068), § 1 (effective Sept. 1, 2005). The TFSC originated as Senate Bill 1263 and was filed by Senator John Whitmire. Tex. S.B. 1263, 79th Leg., R.S. (2005).

TFSC was tasked with developing and implementing a reporting system for accredited laboratories to report professional negligence or misconduct; requiring laboratories conducting forensic analysis to report professional negligence or misconduct; and investigating complaints of professional negligence or misconduct that would substantially affect the integrity of the results of a forensic analysis conducted by an accredited laboratory.[77]

In 2013, Senate Bill 1238 broadened the scope of the TFSC, authorizing it to conduct an investigation without receiving a complaint when it determined an investigation would advance the integrity and reliability of forensic science in the state.[78] S.B. 1238 also required the TFSC to prepare and publish an annual report that included, among other things, a description of the complaints that had been filed each year and the status of these complaints, a description of a forensic method or methodology recommended to the DPS Director for validation, recommendations for best practices for forensic analysis, and developments in forensic science in other state or federal investigations.[79]

Today, the TFSC stands as a model for the nation in its determination to find solutions to problems in the forensic sciences and to work with stakeholders in the system. As Michael Hall, a writer for *Texas Monthly*, put it, there is an ethos at the TFSC, a "reluctance to condemn people for past mistakes, and the determination to find what went wrong and make changes," and this ethos "is a main reason the commission has been so successful, bringing people to the table who might otherwise stay away, making them a part of the solution."[80] Hall perhaps could have been describing the Legislature's responses to changes (and scandals) in the forensic sciences. Branded as a "law-and-order" state, Texas, in fact, has been a leader in many areas of the criminal justice system in acknowledging problems and working to remedy these problems.[81]

77. TEX. CODE CRIM. PROC. art. 38.01, §§ 3(a)(1)–(3), 4(a)(1)–(3) (2005).

78. Act effective June 14, 2013, 83rd Leg., R.S., ch. 782, § 3, 2013 Tex. Gen. Laws 1994, 1996 (current version at TEX. CODE CRIM. PROC. art. 38.01, § 4(a-1)).

79. TEX. CODE CRIM. PROC. art. 38.01, § 8 (2013). The Legislature continued to make changes to Article 38.01. In 2015, for example, the Legislature made the TFSC, rather than the DPS Director, responsible for determining whether a forensic method or methodology was valid. The Legislature also mandated that a person "may not act or offer to act as a forensic analyst" unless that person held a "forensic analyst license." Acts 2015, 84th Leg., R.S., Ch. 1276 (S.B. 1287), § 1 (effective Sept. 1, 2015) (current version at TEX. CODE CRIM. PROC. art. 38.01, §§ 2(1), 4-a(b) (2015)).

80. Michael Hall, *False Impressions*, TEX. MONTHLY (Jan. 2016), http://www.texasmonthly.com/articles/false-impressions/.

81. The response to Timothy Cole's DNA exoneration is one such example. In 1986, Cole, then a student at Texas Tech University, was convicted of rape and sentenced to prison for twenty-five years. In 2009, after he died in prison and was posthumously exonerated by DNA evidence, the

C. Ex parte Robbins (Robbins I) *and* Ex parte Henderson

In both *Robbins I* and *Henderson*, the State's experts retracted their testimony after trial.[82] While factually distinguishable, both cases raised a novel question for the criminal justice system. As Judge Cochran asked in her dissenting opinion in *Robbins I*,

> When scientific experts honestly and sincerely thought "X" was true at the time they testified, but the science has changed or the experts' understanding of the science has changed and their opinions have changed, what cognizance of that change should the criminal justice system take long after a person has been convicted?[83]

In *Robbins I*, the Court of Criminal Appeals' answer to this question was unambiguous: Robbins was denied a new trial because he failed to show that he was actually innocent or that the State expert's testimony in his case was

Legislature established the Timothy Cole Advisory Panel on Wrongful Convictions (TCAPWC). Act effective Sept. 1, 2009, 81st Leg., R.S., ch. 1256, § 1, 2009 Tex. Gen. Laws 3994, 3995; ADVISORY PANEL ON WRONGFUL CONVICTIONS, *supra* note 13, at 1. The Advisory Panel was charged with working with the Task Force on Indigent Defense to conduct a study and prepare a report on wrongful convictions. In August 2010, the Advisory Panel issued its report and recommendations. In Chapter 4, it recommended that Article 11.07 of the Code of Criminal Procedure be amended for cases in which scientific evidence had changed. *Id.* at 29–31.

In 2015, after the TCAPWC expired, the Legislature created the Timothy Cole Exoneration Review Commission (TCERC). Acts 2015, 84th Leg., ch. 268 (H.B. 48), § 1 (effective June 1, 2015); EXONERATION REVIEW COMM'N REPORT, *supra* note 13. Tasked with, among other things, reviewing cases in Texas in which an innocent person was exonerated on or after January 1, 2010, the TCERC released a report in December 2016, recommending in its section on forensic science practices that the TFSC investigate and consider promulgating policies regarding the use of drug field tests and the process of crime scene investigations. In response to drug-related exonerations, the TCERC also recommended that "crime labs in all cases moving forward complete testing of substances in all drug cases regardless of the results of a drug field test, and that crime labs go back through previous cases in which the collected substance was not confirmed by lab testing." *Id.* at 23.

One final example is the Michael Morton Act. In 1987, Michael Morton was convicted of murder. In 2011, after spending close to twenty-five years in prison, he was exonerated by DNA evidence and declared actually innocent. *Ex parte* Morton, No. AP-76,663 , 2011 WL 4827841, at *1 (Tex. Crim. App. Oct. 12, 2011); *see* State v. Wilson, 324 S.W.3d 595, 598 (Tex. Crim. App. 2010) ("We hold that the term 'actual innocence' shall apply, in Texas state cases, only in circumstances in which an accused did not, in fact, commit the charged offense or any of the lesser-included offenses."). After Morton was exonerated, a court of inquiry found that the prosecutor in his case had engaged in misconduct. In response to Morton's case and others like it, in 2013, the Legislature amended Article 39.14 of the Code of Criminal Procedure, Texas's discovery statute, and mandated an open discovery process. Act effective Jan. 1, 2014, 83rd Leg., R.S., ch. 49, § 2, 2014 Tex. Gen. Laws 106, 106–07. The legislation was named in honor of Michael Morton. *Id.*

82. *Ex parte* Robbins (*Robbins I*), 360 S.W.3d 446, 448 (Tex. Crim. App. 2011); *Ex parte* Henderson, 384 S.W.3d 833, 833–34 (Tex. Crim. App. 2012).

83. *Robbins I*, 360 S.W.3d at 469 (Cochran, J., dissenting).

false at trial.[84] In *Henderson*, on the other hand, the court's answer to this question was ambiguous: The court granted Henderson a new trial but failed to articulate the constitutional basis for its decision.[85] One conclusion stands out from both *Robbins I* and *Henderson*: If a State expert changes his opinion after trial, either because science has changed or the expert's understanding of that science has changed, a defendant does not have a remedy in the federal Constitution unless he shows that he is actually innocent or the State expert's testimony is false at trial.[86] This fact helps explain Article 11.073's enactment, after *Robbins I* and *Henderson* were decided, as a statutory, non-constitutional pathway to a new trial.

1. *Robbins I*

Neal Hampton Robbins was charged with the capital murder of his girlfriend's seventeen-month-old child, Tristen Rivet. Dr. Patricia Moore, an assistant medical examiner for Harris County, conducted the autopsy on Tristen.[87] At trial, she testified that the cause of Tristen's death was asphyxia due to compression of the chest and abdomen and that the manner of death was homicide.[88] She ruled out CPR and sudden infant death syndrome as causes of Tristen's death.[89] Robbins was convicted of capital murder and sentenced to prison for life.[90] His conviction was affirmed on direct appeal.[91] The Court of Criminal Appeals affirmed the judgment of the court of appeals.[92]

Seven years after Robbins was convicted, Moore's autopsy findings were reevaluated.[93] After reviewing trial testimony, Moore's autopsy report, EMS and medical reports, and a police report, Dr. Dwayne Wolf, the deputy chief medical examiner for Harris County, disagreed with Moore's conclusions and amended Tristen's autopsy from homicide to cause and

84. *Id.* at 463.

85. *Henderson*, 384 S.W.3d at 834.

86. *Robbins I*, 360 S.W.3d at 463 ("[T]he State did not use false evidence to obtain Applicant's conviction, and Applicant does not have a due process right to have a jury hear Moore's re-evaluation"); *see also Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678, 689 (Tex. Crim. App. 2014) ("[N]ewly available scientific evidence *per se* generally was not recognized as a basis for habeas corpus relief and could not have been reasonably formulated from a final decision of this Court or the United States Supreme Court, unless it supported a claim of 'actual innocence' or 'false testimony.'"). In *Henderson*, the court might have *sub silentio* concluded that Henderson's constitutional rights were violated.

87. *Robbins I*, 360 S.W.3d at 448.

88. *Id.* at 450.

89. *Id.*

90. *Id.* at 452.

91. Robbins v. State, 27 S.W.3d 245 (Tex. App.—Beaumont 2000).

92. Robbins v. State, 88 S.W.3d 256 (Tex. Crim. App. 2002).

93. *Robbins I*, 360 S.W.3d at 453.

manner of death undetermined.[94] Dr. Joye Carter, the former Harris County Medical Examiner and Moore's former supervisor, also reviewed Moore's autopsy report. Although Carter had agreed with Moore's original opinion, in a letter to the District Attorney she said she would reconsider the case as "an undetermined manner."[95] She also said she would agree if the Harris County Medical Examiner intended to reconsider the manner of death as undetermined.[96] For her part, Moore now believed, as she wrote in a letter to the District Attorney, that an "opinion for a cause and manner of death of undetermined . . . is best for this case."[97]

Given these new developments in his case, Robbins filed an application for a writ of habeas corpus,[98] claiming that he was actually innocent and convicted based on false testimony. The habeas judge concluded that while Robbins had not proved that he was actually innocent, the verdict in his case "was not obtained by fair and competent evidence, but by admittedly false testimony that was unsupported by objective facts and pathological findings and not based on sufficient expertise or scientific validity."[99] The habeas judge recommended that the Court of Criminal Appeals grant Robbins a new trial.[100]

Writing for the court in 2011, Judge Meyers agreed with the habeas judge's recommendation that Robbins had not proved that he was actually innocent.[101] Moore's changed opinion was not enough to establish actual innocence.[102] But the court disagreed with the habeas judge that Moore's

94. *Id.*

95. *Id.* at 454.

96. *Id.* at 453.

97. *Id.* at 454.

98. Robbins's application was filed under Article 11.07 of the Texas Code of Criminal Procedure.

99. *Robbins I*, 360 S.W.3d at 460.

100. *Id.* at 457. Under Article 11.07, a habeas application is filed in the county of conviction and assigned to the convicting court. TEX. CODE CRIM. PROC. art. 11.07, § 3(b). The judge of the convicting court may make findings of fact and conclusions of law and a recommendation to the Court of Criminal Appeals. *Id.* § 3(b), (c). The application is then forwarded to the Court of Criminal Appeals for a ruling. *Id.* §§ 3(c), 5.

101. To prove he is actually innocent, an applicant has the burden of establishing "by clear and convincing evidence that no reasonable juror would have convicted him in light of the new evidence." *Ex parte* Elizondo, 947 S.W.2d 202, 209 (Tex. Crim. App. 1996). This is a "Herculean" burden. *Ex parte* Brown, 205 S.W.3d 538, 545 (Tex. Crim. App. 2006).

102. The court wrote that Moore

> can no longer stand by her trial testimony, but rather than completely retracting her trial opinion, she is of the current opinion that the cause and manner of Tristen's death are "undetermined." Moore cannot rule out her trial opinion as a possibility of how Tristen died. Hence, Moore's re-evaluation falls short of the requisite showing for actual innocence because it does not affirmatively disprove that Applicant intentionally asphyxiated Tristen.

testimony was false. "Moore's trial testimony is not false," the court explained, "just because her re-evaluation of the evidence has resulted in a different, 'undetermined' opinion, especially when neither she nor any other medical expert can exclude her original opinion as the possible cause and manner of death."[103] The court pointed out that at trial Moore had not ruled out other reasonable hypotheses for Tristen's death and that her trial testimony—"that asphyxia was the cause and homicide the manner of Tristen's death"—had not entirely been negated.[104]

The court went on to explain that Moore had not left a false impression and that the early procedural history of *Ex parte Henderson*[105] was distinguishable. In 2007, before handing down *Robbins I*, the court stayed Cathy Lynn Henderson's execution and remanded her Article 11.071 application[106] to the trial court for findings of fact and conclusions of law after the State's expert had retracted his trial testimony based on new developments in the science of biomechanics. Given that the State's expert no longer stood by his trial testimony, *Henderson* was like *Robbins I* in one respect. However, in *Robbins I,* the court pointed out that *Henderson* had been remanded only; the court had not held that the State expert's changed opinion violated Henderson's due process rights.[107] Finally, the court found *Henderson* distinguishable because Moore's new opinion was not based on advances in science but instead on materials available to her at trial.[108] Having concluded that Robbins had not established that he was actually innocent or that Moore's testimony was false, the court denied relief.[109]

Judge Price joined the court's opinion but filed a separate opinion to explain why it was important to understand in false evidence cases "which due process rationale—fairness or accuracy—was predominant" in defeating the State's interest in finality.[110] He believed that because the inadvertent use of false evidence—the facts in *Robbins I*—was not as unfair as the State's deliberate use of false evidence, the "justification for holding that the State's inadvertent use of false evidence may defeat its otherwise legitimate interest in finality must hinge more on a concern for the accuracy

Robbins I, 360 S.W.3d at 458.

103. *Id.* at 461.

104. *Id.* at 462–63.

105. *Ex parte* Henderson, 246 S.W.3d 690 (Tex. Crim. App. 2007).

106. TEX. CODE CRIM. PROC. art. 11.071.

107. *Robbins I*, 360 S.W.3d at 463.

108. *Id.*

109. *Id.*

110. *Id.* at 463–65 (Price, J., concurring).

of the result."[111] Nevertheless, given the "Herculean" burden of establishing actual innocence,[112] he believed the court should not be too liberal in how it characterized false evidence. Otherwise, he cautioned, the court's false evidence jurisprudence would unduly encroach on its actual innocence jurisprudence. "To call Moore's testimony 'false' under these circumstances, and thereby grant the applicant habeas relief out of an overriding concern for the accuracy of the result," Judge Price wrote, "is essentially to grant an actual innocence claim without requiring the applicant to satisfy the usual 'Herculean' burden."[113] Finally, Judge Price agreed that a trial could, retroactively, be unfair if new evidence "objectively and definitively" showed that trial testimony made in good faith was false.[114]

In a dissenting opinion joined by Judges Womack and Johnson, Judge Cochran explained that part of the problem in Robbins's case was the fundamental divide between the worlds of science and law.[115] While science constantly evolves and operates in an unbiased environment, the legal system relies on the adversary process to find truth "for the ultimate purpose of attaining an authoritative, final, just, and socially acceptable resolution of disputes."[116] "The potential problem of relying on today's science in a criminal trial (especially to determine an essential element such as criminal causation or the identity of the perpetrator)," she wrote, "is that tomorrow's science sometimes changes and, based upon that changed science, the former verdict may look inaccurate, if not downright ludicrous."[117]

In the end, Judge Cochran looked to the wisdom and experience of the habeas judge who made the findings of fact and conclusions of law in Robbins's case and concluded that Robbins deserved a new trial.[118] She conceded, though, that Moore's changed opinion did not mean that her trial testimony was false or that Robbins was actually innocent.[119] "Due process

111. *Id.* at 465 (Price, J., concurring).

112. *Ex parte* Brown, 205 S.W.3d 538, 545 (Tex. Crim. App. 2006).

113. *Robbins I*, 360 S.W.3d at 467–68 (Price, J., concurring).

114. *Id.* at 467 (Price, J., concurring).

115. *Id.* at 469 (Cochran, J., dissenting).

116. *Id.* (Cochran, J., dissenting) (quoting *Developments in the Law—Confronting the New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1481, 1484 (1995)).

117. *Id.* at 470 (Cochran, J., dissenting).

118. *Id.* at 472–73, 476 (Cochran, J., dissenting).

119. In a footnote, she agreed with the State that the Court of Criminal Appeals had not held "that the Due Process Clause is violated when a witness provides, in good faith, an opinion that is believed to be *true* by both the witness and the prosecution at the time of trial, even if that opinion is subsequently challenged by other experts or reconsidered by the witness who offered it." *Id.* at 468, n. 3 (Cochran, J., dissenting).

was not violated at the time of trial," she explained, "but nevertheless, the scientific testimony that supported a finding of 'homicide' in the original trial has been retracted. Dr. Moore's current scientific uncertainty, as well as the uncertainty of four other expert pathologists, casts a pall upon the basis for the jury's verdict and upon its accuracy."[120]

Finally, Judge Cochran recognized that there was neither a clear legal nor constitutional doctrine in the criminal justice system for the facts in *Robbins I*. The system needed a "jurisprudential mechanism," as she phrased it, to deal with cases in which a prior conviction based on scientific evidence had subsequently been found to be unreliable, "in whole or in a specific case."[121]

Judge Alcala also filed a dissenting opinion and concluded that Moore's testimony was false because both of her positions could not be right.[122] Nor was Judge Alcala persuaded by the fact that no expert, including Moore, could exclude homicide by asphyxiation as a possible cause of Tristen's death or rule out other reasonable hypotheses. Such "technical splicing of the truth," she wrote, could not insulate false testimony from a due process violation.[123]

2. *Henderson*

On the morning of January 21, 1994, three-and-half-year-old Brandon Baugh was left with his babysitter, Cathy Lynn Henderson.[124] Henderson and Brandon disappeared that day.[125] Henderson was eventually found in Kansas City, Missouri, and after a grand jury subpoenaed maps from her counsel in Travis County, authorities recovered Brandon's body from a grave site.[126] Henderson was charged with the capital murder of Brandon, and in 1995, she was found guilty as charged and sentenced to death.[127] The Court of Criminal Appeals affirmed her conviction and sentence.[128]

In 2007, Henderson filed a subsequent application for a writ of habeas corpus,[129] claiming that she was actually innocent of capital murder and

120. *Id.* at 470 (Cochran, J., dissenting).
121. *Id.* at 471 (Cochran, J., dissenting).
122. *Id.* at 477 (Alcala, J., dissenting).
123. *Id.*
124. Henderson v. State, 962 S.W.2d 544, 548 (Tex. Crim. App. 1997).
125. *Id.*
126. *Id.* at 549–50.
127. *Id.* at 548.
128. *Id.*
129. Henderson's application was filed under Article 11.071 of the Texas Code of Criminal Procedure.

that, but for constitutional violations, she would not have been found guilty.[130] She relied, in part, on a sworn affidavit from Dr. Roberto Bayardo, the Travis County Medical Examiner when Henderson was convicted.[131] At Henderson's trial, Bayardo found her defense—that Brandon's death resulted from an accidental fall—false and incredible.[132] He opined that Brandon's injuries resulted from an intentional blow by Henderson. Brandon, he explained to the jury, "was caught up with the hands by the arms along the body and then swung and slammed very hard against a flat surface."[133]

But after Henderson was convicted, Bayardo reevaluated his trial testimony based on new developments in the science of biomechanics.[134] Given these developments, he explained in an affidavit that he could not "determine with a reasonable degree of medical certainty whether Brandon Baugh's injuries resulted from an intentional act or an accidental fall."[135] Finding that Bayardo's new opinion was a material exculpatory fact, the Court of Criminal Appeals stayed Henderson's execution and remanded her habeas application to the trial court for findings of fact and conclusions of law.[136]

In the remanded proceedings below, Bayardo repeated at an evidentiary hearing that he believed there was no way to determine with a reasonable degree of medical certainty whether Brandon's injuries resulted from an intentional act of abuse or an accidental fall.[137] The habeas judge, who had also presided over Henderson's trial, concluded that Henderson had established "by clear and convincing evidence that no reasonable juror would have convicted her of capital murder in light of her new evidence."[138] The habeas judge recommended that the Court of Criminal Appeals grant her a new trial. In a short *per curiam* opinion, the court agreed with the habeas judge's recommendation—but without explicitly agreeing with his conclusion on actual innocence—and remanded Henderson's case for a new trial.[139]

130. *Ex parte* Henderson, 246 S.W.3d 690, 691 (Tex. Crim. App. 2007).

131. *Id.*

132. *Id.*

133. *Id.*

134. *Id.* at 692.

135. *Id.*

136. *Id.* Judge Price filed a concurring statement. *Id.* at 693 (Price, J., concurring). Presiding Judge Keller filed a dissenting opinion. *Id.* at 692 (Keller, P.J., dissenting). Judge Keasler filed a dissenting statement. *Id.* at 695 (Keasler, J., dissenting).

137. *Ex parte* Henderson, 384 S.W.3d 833, 833–34 (Tex. Crim. App. 2012).

138. *Id.* at 834.

139. "In this case," the court wrote, "the trial court's findings are supported by the record.

Judge Price, who joined the court in *Robbins I*, filed a concurring opinion. He agreed with the habeas judge's recommendation to grant Henderson a new trial, but on the basis of inadvertent use of false evidence. He believed *Robbins I* was distinguishable because there, Moore had "simply changed her mind" after trial, whereas in *Henderson*, Bayardo believed that new developments in the science of biomechanics since Henderson's trial had "undercut his trial testimony," a fact the habeas judge accepted.[140] Given these facts, Judge Price was not as hesitant to characterize Bayardo's testimony as false.[141]

Judge Cochran filed a concurring opinion joined by Judges Womack, Johnson, and Alcala.[142] Like Judge Price, she agreed with the habeas judge's recommendation to grant Henderson a new trial. She believed that both *Robbins I* and *Henderson* raised a novel problem for the criminal justice system that the court had "fumbled" in *Robbins I*: "Changing science had cast doubt on the accuracy of the original jury verdicts."[143] Although she conceded that Bayardo's changed opinion did not mean that Henderson was actually innocent or that Bayardo's testimony was false when given at Henderson's trial, she pointed out that the testimony supporting a finding of homicide had been retracted.[144] "Dr. Bayardo's current scientific uncertainty," she wrote, "as well as the uncertainty of all but one of the experts at the habeas evidentiary hearing, casts a pall upon the basis for the jury's verdict and upon its accuracy."[145] Although Judge Cochran agreed that Henderson's case did not fit neatly into Article 11.071 or the court's actual-innocence jurisprudence, she looked to the wisdom and experience of the habeas judge, as she had done in *Robbins I*, and agreed that Henderson was denied a fundamentally fair trial.[146] "Despite every participant's honesty and good faith," she wrote, "this—as the District Attorney of Travis County forthrightly recognizes—is a case that should be retried to ensure the accuracy of our verdicts and the integrity of our system."[147]

For her part, Judge Alcala concluded in a concurring opinion that

Although we need not accept the trial court's conclusions concerning actual innocence, we accept the court's recommendation to grant relief and remand for a new trial." *Id.* at 834.

140. *Id.* at 835–36 (Price, J., concurring).

141. *Id.* at 836 (Price, J., concurring).

142. *Id.* at 837 (Cochran, J., concurring).

143. *Id.*

144. *Id.* at 844 (Cochran, J., concurring).

145. *Id.*

146. *Id.* at 844–45, 850 (Cochran, J., concurring).

147. *Id.* at 850–51 (Cochran, J., concurring).

Henderson was distinguishable from *Robbins I*.[148] Henderson had been sentenced to death, while Robbins had not, and as she explained, the United States Supreme Court has held that death sentences demand a "greater degree of reliability" given the qualitative difference between death and other punishments.[149] Henderson's death sentence, in short, was adequate reason to find that her due process rights were violated, given the faulty science the State had relied on at her trial. Whether this "faulty-science theory" should apply to other cases, Judge Alcala said, was a question for another day.[150]

In a strongly worded dissent joined by Presiding Judge Keller and Judge Hervey, Judge Keasler objected to the unknown legal basis of the court's decision and disagreed with the habeas judge that Henderson had established that she was actually innocent. "[L]eft without a clear legal path," he wrote, the court had granted Henderson a new trial without "justification or explanation."[151] Indeed, Judge Keasler faulted the court for sending the "unmistakable message" that "despite applicable legal precedent to the contrary and overwhelming inculpatory facts, we grant Henderson relief solely because we want to."[152] Judge Keasler would have remanded Henderson's application so the habeas judge could consider her claim that she would not have been found guilty but for constitutional violations.[153]

Judge Hervey echoed Judge Keasler's criticisms. In a dissenting opinion joined by Presiding Judge Keller and Judge Keasler, she faulted the court for not providing a legal basis for its holding, and she could not find one either.[154] She conceded, though, that advances in science might make an expert's testimony unreliable and that the admission of such testimony might violate a defendant's due process rights.[155] But this had not been established in *Henderson*, she said.[156]

How to explain the results in *Robbins I* and *Henderson*? The court might have found *Henderson* factually distinguishable from *Robbins I*. Bayardo's new opinion, after all, was based on new developments in the science of biomechanics, whereas Moore, as Judge Price pointed out, had simply

148. *Id.* at 851 (Alcala, J., concurring).
149. *Id.* at 852 (Alcala, J., concurring) (quoting Lockett v. Ohio, 438 U.S. 586, 604 (1978)).
150. *Id.*
151. *Id.* at 852–53 (Keasler, J., dissenting).
152. *Id.* at 852 (Keasler, J., dissenting).
153. *Id.* at 853 (Keasler, J., dissenting).
154. *Id.* at 859–60 (Hervey, J., dissenting).
155. *Id.* at 860–61 (Hervey, J., dissenting).
156. *Id.* at 861 (Hervey, J., dissenting).

changed her mind. This distinction may explain why the court remanded Henderson's case for a new trial. Yet, despite granting Henderson a new trial, the court failed to clearly articulate the constitutional basis for its holding. In *Robbins I*, on the other hand, the court clearly articulated the basis for its holding but found no federal constitutional violation.

III. ARTICLE 11.073, *ROBBINS II*, AND *ROBBINS III*

A. *Legislative History of Article 11.073*

In 2009, Senator John Whitmire filed Senate Bill 1976.[157] Co-authored by Senator Juan Hinojosa, S.B. 1976 would have enacted Article 11.073 of the Code of Criminal Procedure. According to the Bill Analysis from the Senate Research Center:

> Scientific evidence, such as DNA, was not always a factor in determining guilt or innocence. Today, scientific evidence has been the sole determinant of restoring liberty to an innocent person. The writ of habeas corpus is a remedy to be used when any person is restrained of their liberty. The Texas Department of Criminal Justice houses almost 158,000 inmates, and unfortunately some were wrongly convicted.[158]

Supporters of S.B. 1976 believed it would allow innocent people who had been falsely convicted to present new scientific evidence unavailable to them when they were convicted.[159] These supporters pointed to past arson investigations that had relied on "pseudo-scientific folklore that has been discredited," and they noted that a method the FBI used to match the chemical signature of bullets had been discredited.[160] S.B. 1976 was voted out of the Senate, but it never reached a vote in the House and died with other bills in the 81st Legislature.

Senator Whitmire stayed the course, and in 2011, he filed Senate Bill 317.[161] Like its predecessor, S.B. 317 would have enacted Article 11.073. The statutory language in S.B. 317 had changed slightly, but the idea behind the statute had not.[162] S.B. 317 never made it out of the Senate Committee

157. Tex. S.B. 1976, 81st Leg., R.S. (2009). In separate opinions in *Robbins II*, Judge Cochran and Judge Keasler set out the legislative history of Article 11.073. *Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678, 700–04 (Tex. Crim. App. 2014) (Cochran, J., concurring); *id.* at 711–14 (Keasler, J., dissenting).

158. Senate Res. Ctr., Bill Analysis, Tex. S.B. 1976, 81st Leg. R.S. at 1 (2009).

159. House Res. Org., Bill Analysis, Tex. S.B. 1976, 81st Leg. R.S. at 3 (2009).

160. *Id.*

161. Tex. S.B. 317, 82nd Leg., R.S. (2011).

162. For example, under S.B. 317, Article 11.073(a)(1) and (2) provided:

on Criminal Justice. House Bill 220, a companion bill to S.B. 317, was also filed in 2011, but H.B. 220 died before reaching a vote in the House.[163]

In 2013, history was on Senator Whitmire's side, and the Legislature finally enacted Article 11.073.[164] According to the House Research Organization, supporters of the 2013 legislation, Senate Bill 344, noted one case in which

> recanted testimony by a medical examiner established the basis of the state's case with respect to the cause and manner of death, without which it would not have obtained a conviction. The Texas Court of Criminal Appeals voted against granting a new trial, with the majority finding no path to habeas relief under current law. The question was raised as to how the criminal justice system should address scenarios in which scientific experts sincerely thought something was true at the time they testified, but the science and the experts' understanding and opinions had changed.[165]

This case could not have been but *Robbins I*. In its 2013 form, Article 11.073 read:

> Procedure Related to Certain Scientific Evidence
>
> (a) This article applies to relevant scientific evidence that:
>
> (1) was not available to be offered by a convicted person at the convicted person's trial; or
>
> (2) contradicts scientific evidence relied on by the state at trial.
>
> (b) A court may grant a convicted person relief on an application for a writ of habeas corpus if:

> (a) This article applies to relevant scientific evidence that:
>
> (1) was not available to be offered by the convicted person at the convicted person's trial; or
>
> (2) discredits scientific evidence relied on by the state at trial.

Tex. S.B. 317, 82nd Leg., R.S. (2011). This language was absent from S.B. 1976, as originally introduced by Senator Whitmire.

163. Tex. H.B. 220, 82nd Leg., R.S. (2011).

164. Act of May 16, 2013, 83rd Leg., R.S., ch. 410, § 1 (effective Sept. 1, 2013), *amended by* Act of May 22, 2015, 84th Leg., R.S., ch. 1263 § 1, 2015 Tex. Gen. Laws 4273, 4273 (current version at TEX. CODE CRIM. PROC. art. 11.073).

165. House Res. Org., Bill Analysis, Tex. S.B. 344, 83rd Leg. R.S. at 2 (2013).

(1) the convicted person files an application, in the manner provided by Article 11.07, 11.071, or 11.072, containing specific facts indicating that:

(A) 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

(B) the scientific evidence would be admissible under the Texas Rules of Evidence at a trial held on the date of the application; and

(2) the court makes the findings described by Subdivisions (1)(A) and (B) and also finds that, had the scientific evidence been presented at trial, on the preponderance of the evidence the person would not have been convicted.

(c) For purposes of Section 4(a)(1), Article 11.07, Section 5(a)(1), Article 11.071, and Section 9(a), Article 11.072, a claim or issue could not have been presented previously in an original application or in a previously considered application if the claim or issue is based on relevant scientific evidence that was not ascertainable through the exercise of reasonable diligence by the convicted person on or before the date on which the original application or a previously considered application, as applicable, was filed.

(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 scientific knowledge or method on which the relevant scientific evidence is based has changed since:

(1) the applicable trial date or dates, for a determination made with respect to an original application; or

(2) 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.[166]

166. TEX. CODE CRIM. PROC. art. 11.073 (West 2013). Texas is not the only state with such a statute. In 2014, the California Legislature amended its Penal Code in response to *In re Richards*, 289 P.3d 860 (Cal. 2012). In that case, after William Richards was convicted of murder, the State's dental expert recanted his trial testimony that a lesion on the deceased's hand was a bitemark matching Richards's teeth. *Id.* at 863. Richards claimed that this evidence showed that he was innocent and that his conviction was based on false evidence. *Id.* The California Supreme Court held that Richards had failed to prove by a preponderance of the evidence that the expert's testimony was "objectively untrue." *Id.* at 873. The Legislature responded by amending section 1473(e)(1) of the Penal Code. Under the amended statute, false evidence now included "opinions of experts that have either been repudiated by

B. Robbins II

On September 3, 2013, just days after Article 11.073 became effective, Robbins filed a subsequent application for a writ of habeas.[167] He relied on no new facts but instead on the newly enacted Article 11.073.[168] In *Robbins II*, as the case would be known, the meaning and scope of Article 11.073 were now directly before the Court of Criminal Appeals.

Writing for the court in 2014, Judge Womack began by considering whether Article 11.073 was a new legal basis under Article 11.07, section 4(a)(1).[169] This was Robbins's second Article 11.07 application, and because it was filed after Robbins challenged his capital murder conviction in his previous application—*Robbins I*—and after a final disposition from the Court of Criminal Appeals, he had to meet one of the statutory exceptions in section 4 for subsequent applications.[170]

Under section 4(b), a legal basis is previously unavailable if it was not "recognized by and could not have been reasonably formulated from a final decision of the United States Supreme Court, a court of appeals of the United States, or a court of appellate jurisdiction of this state . . . ."[171] In *Robbins II*, the court held that Article 11.073 was a new legal basis. The statute, the court explained, was enacted six years after Robbins filed his previous application, and the legal basis of the statute was not recognized by and could not have been reasonably formulated from a final decision of the United States Supreme Court or the Court of Criminal Appeals.[172]

the expert who originally provided the opinion at a hearing or trial or that have been undermined by later scientific research or technological advances." CAL. PENAL CODE § 1473(e)(1) (2014).

In October 2016, the Virginia State Crime Commission published a study on whether Virginia should enact a statute modeled on Article 11.073. The study "contemplate[d] a situation where new or discredited science casts serious doubt on a conviction, but where there were no due process violations and the petitioner cannot meet the burden of proving actual innocence." VA. STATE CRIME COMM'N, HABEAS CORPUS—RESTRICTIONS, DEADLINES AND RELIEF 4 (Oct. 3, 2016), http://vscc.virginia.gov/Habeas%20Present%20Ver.%2012.pdf.

167. TEX. CODE CRIM. PROC. art. 11.07, § 4 (West 2013).

168. In this Section, citations are made to the 2013 enactment of Article 11.073.

169. TEX. CODE CRIM. PROC. art. 11.07, § 4(a)(1).

170. *See Ex parte* Whiteside, 12 S.W.3d 819, 821 (Tex. Crim. App. 2000) ("Under the plain language of the statute, once an applicant files an application challenging the conviction, all subsequent applications regarding the same conviction must meet one of the two conditions set forth in § 4(a)(1) & (2).").

171. TEX. CODE CRIM. PROC. art. 11.07, § 4(b).

172. The court wrote:

> Prior to the enactment of article 11.073, newly available scientific evidence *per se* generally was not recognized as a basis for habeas corpus relief and could not have been reasonably formulated from a final decision of this Court or the United States Supreme Court, unless it supported a claim of "actual innocence" or "false testimony."

Finally, Robbins also had to show that the facts he alleged were "at least minimally sufficient to bring him within the ambit of that new legal basis."[173] The court concluded that he had done so.

The court then turned to the merits of Robbins's habeas application and the substance of Article 11.073. The court found that Article 11.073 applied to the evidence Robbins presented in his second application—Moore's new opinion that the cause and manner of Tristen's death was undetermined—because this evidence contradicted her testimony and the State had relied on it at trial.[174]

Having found that Article 11.073 applied to Robbins's evidence, the court considered whether Moore's new opinion was unavailable at Robbins's trial. Under Article 11.073, an applicant has the burden of showing that

> 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.[175]

In determining whether an applicant has met this burden, Article 11.073 requires a court to next "consider whether the scientific knowledge or method on which the relevant scientific evidence is based has changed . . . ."[176] Was Moore's new opinion unavailable at Robbins's trial? Had "the scientific knowledge or method" in Robbins's case changed?

The court ruled out the possibility that the scientific method had changed. "The process used by Moore did not change," the court explained, "and there is no argument from either the applicant or the State that methods for analyzing the cause of child death in a case like this have changed in the scientific community . . . ."[177] That left the other possibility in Article

Ex parte Robbins (*Robbins II*), 478 S.W.3d 678, 689 (Tex. Crim. App. 2014). The court failed to say, however, if the legal basis of Article 11.073 was recognized by and could have been reasonably formulated from a final decision of a federal or Texas court of appeals. When determining whether the legal basis of a claim was previously available, a court is required to consider these courts, not only the United States Supreme Court and the Court of Criminal Appeals. TEX. CODE CRIM. PROC. art. 11.07, § 4(b).

173. *Robbins II*, 478 S.W.3d at 690 (quoting *Ex parte* Oranday-Garcia, 410 S.W.3d 865, 867 (Tex. Crim. App. 2013)).

174. *Id.* Article 11.073 applies to relevant scientific evidence that "contradicts scientific evidence relied on by the state at trial." TEX. CODE CRIM. PROC. art. 11.073(a)(2).

175. TEX. CODE CRIM. PROC. art. 11.073(b)(1)(A).

176. *Id.* art. 11.073(d).

177. *Robbins II*, 478 S.W.3d at 691. This conclusion was based on the following definition of "scientific method" in *Black's Law Dictionary*: "[t]he process of generating hypotheses and testing them through experimentation, publication, and republication." *Scientific Method*, BLACK'S LAW

11.073: that the scientific knowledge had changed. The court agreed that Moore's opinion had changed, but it asked, "[D]oes 'scientific knowledge' apply to the knowledge of an individual?"[178] This was the central question in *Robbins II*.

The court answered yes, holding that Moore's new opinion was unavailable at Robbins's trial. In reaching this conclusion, the court relied on *Daubert v. Merrell Dow Pharmaceuticals*[179] and *Black's Law Dictionary* for guidance. In *Daubert*, the United States Supreme Court wrote that "in order to qualify as 'scientific knowledge,' an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation—*i.e.*, 'good grounds,' based on what is known."[180] *Black's Law Dictionary* defined "scientific knowledge" as knowledge

> that is grounded on scientific methods that have been supported by adequate validation. Four primary factors are used to determine whether evidence amounts to scientific knowledge: (1) whether it has been tested; (2) whether it has been subjected to peer review and publication; (3) the known or potential rate of error; and (4) the degree of acceptance within the scientific community.[181]

Given these definitions, the court concluded that Moore's new opinion was an "inference or assertion supported by appropriate validation based on the scientific method."[182]

The State argued that Moore's new opinion was, in fact, available at Robbins's trial because his defense had elicited from one of his experts that the cause of Tristen's death could not be determined. The court disagreed, explaining that the relevant evidence was the State's evidence on Tristen's cause of death, and it had changed.[183]

The court granted Robbins a new trial, finding that Moore's new opinion would be admissible under the Texas Rules of Evidence and that, had her new opinion been presented at trial, on a preponderance of the evidence Robbins would not have been convicted.

In a concurring opinion, Judge Johnson explained that because "evidence is what is presented at trial by a witness and is therefore limited by the

DICTIONARY (10th ed. 2014).

178. *Robbins II*, 478 S.W.3d at 691.

179. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993).

180. *Id.* at 590.

181. *Scientific Knowledge*, BLACK'S LAW DICTIONARY (10th ed. 2014).

182. *Robbins II*, 478 S.W.3d at 692.

183. *Id.*

personal knowledge of that witness," Article 11.073 was logically intended to apply to the personal knowledge of an expert witness.[184] She concluded that the Legislature had made it clear that advances in DNA technology may be the bases for reviewing convictions and that "[a]dvances and changes in other forms of scientific knowledge, and thus in scientific testimony from individuals, should also be available as bases for re-examination of convictions."[185]

Judge Cochran filed a concurring opinion joined by Judges Price and Johnson to explain why she believed *Robbins I* and *Henderson* were the "tipping point" in the passage of Article 11.073 and why the statute was intended to be a remedy for cases like *Robbins I*.[186] Given *Robbins I* and *Henderson* and the 2013 legislative history of Article 11.073, she thought it made sense that the Legislature would authorize the Court of Criminal Appeals to review convictions based on an expert's scientific knowledge, which the expert had repudiated or contradicted after trial. "[W]hat would not make sense," she wrote, "is for the Legislature to be concerned about the reliability of general fields of forensic science, but unconcerned about the reliability of a forensic scientist's specific testimony."[187]

Presiding Judge Keller and Judges Meyers and Keasler filed separate dissenting opinions.

Judge Keasler believed the court reached an absurd result in its interpretation of scientific knowledge and scientific method. He argued that the scientific method was a static concept. "The scientific method generally—'the principles and procedure for the systemic pursuit of knowledge' that instill the necessary rigor of valid discovery—is itself unchanging," he wrote. "Science inevitably changes; the process by which that change occurs does not."[188] But the court's definition, he continued, frustrated the legislative intent and purpose of Article 11.073 by requiring "an inherently static concept to change."[189] Judge Keasler also found the court's reliance on *Daubert* misguided. He would have held that the term "scientific knowledge" in Article 11.073 was ambiguous and, based on the statute's legislative history, meant "the collective knowledge within a field of study, not an individual's opinion."[190] Finally, Judge Keasler faulted the

184. *Id.* at 693 (Johnson, J., concurring).

185. *Id.* at 695 (Johnson, J., concurring).

186. *Id.* at 702 (Cochran, J., concurring).

187. *Id.* at 705–06 (Cochran, J., concurring).

188. *Id.* at 709 (Keasler, J., dissenting) (quoting *Scientific Method*, MERRIAM-WEBSTER, http://www.merriam-webster.com/dictionary/scientific method (last visited Oct. 8, 2014)).

189. *Id.* (Keasler, J., dissenting).

190. *Id.* at 710 (Keasler, J., dissenting).

court for not considering subsections (d)(1) and (2) of Article 11.073. The statute directs a court to

> consider whether the scientific knowledge or method on which the relevant scientific evidence is based has changed since:
>
> (1) the applicable trial date or dates, for a determination made with respect to an original application; or
>
> (2) 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.[191]

Robbins II was a subsequent application,[192] and as Judge Keasler pointed out, Moore's changed opinion would probably not meet subsection (d) because Moore changed her opinion after trial but before, *not after*, Robbins filed his previous application.[193]

In her dissenting opinion, Presiding Judge Keller agreed with Judge Keasler that the phrase "the scientific knowledge or method on which the relevant scientific evidence is based" excluded an "expert's particular knowledge or method of doing things."[194] But she agreed with the court that Article 11.073 was a new legal basis.[195]

For his part, Judge Meyers was troubled by the Legislature's intrusion on the Court of Criminal Appeals' authority. He explained that in the past the court reviewed habeas applications filed under Chapter 11 of the Code of Criminal Procedure under a constitutional standard.[196] Article 11.073 contained no such constitutional standard, he said, and its enactment was a "clear attempt at a power grab" by the Legislature.[197]

C. *Amendment to Article 11.073*

In 2015, after *Robbins II* was decided, Representative Abel Herrero filed House Bill 3724.[198] According to the Bill Analysis from the House Committee Report, "observers contend that a recent Texas Court of

191. TEX. CODE CRIM. PROC. art. 11.073(d)(1)–(2) (West 2013).

192. *Id.* art. 11.07, § 4.

193. *Robbins II*, 478 S.W.3d at 715–16 (Keasler, J., dissenting).

194. *Id.* at 706–07 (Keller, P.J., dissenting).

195. *Id.* (Keller, P.J., dissenting).

196. *Id.* at 708 (Meyers, J., dissenting).

197. *Id.* (Meyers, J., dissenting).

198. Act of May 22, 2015, 84th Leg., R.S., ch. 1263, 2015 Tex. Gen. Laws 4273 (current version at TEX. CODE CRIM. PROC. art. 11.073(d)).

Criminal Appeals opinion held that a change in the scientific knowledge of a testifying expert would be a basis for habeas relief under the law. C.S.H.B. 3724 seeks to codify this decision."[199] H.B. 3724 reached a vote in both the House and Senate and was signed by the Governor. As amended, Article 11.073(d) now provided (the new language is underlined):

> 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 <u>field of</u> scientific knowledge<u>, a testifying expert's scientific knowledge,</u> or <u>a scientific</u> method on which the relevant scientific evidence is based has changed since . . . .[200]

This amendment made much of the debate among the judges in *Robbins II* academic on whether scientific knowledge in subsection (d) of Article 11.073 applied to the knowledge of a testifying expert.[201]

D. Robbins III

On May 13, 2015, the Court of Criminal Appeals granted the State's motion for rehearing in *Robbins II*, and on January 27, 2016, the court denied the motion, concluding in a *per curiam* opinion that it was improvidently granted.[202] In doing so, the court left the holding in *Robbins II* standing.

IV. UNDERSTANDING ARTICLE 11.073

Article 11.073 is a new statute, and its construction and operation will become clearer as the Court of Criminal Appeals and other courts weigh in on its meaning and application. In the meantime, it is possible to explain in plain English what the statute means and how it works in practice.

A. *A Substantive, Not a Procedural, Statute*

As the Court of Criminal Appeals held in *Robbins II*, Article 11.073 can be a new legal basis under Article 11.07, section 4(a)(1) for a subsequent application and provide a legal pathway to a new trial.[203] Here Article

199. House Committee Rep., Bill Analysis, Tex. H.B. 3724, 84th Leg. R.S. at 1 (2015).

200. Act of May 22, 2015, 84th Leg., R.S., ch. 1263, 2015 Tex. Gen. Laws 4273 (current version at TEX. CODE CRIM. PROC. art. 11.073(d)).

201. But applications filed on or after September 1, 2013, and before September 1, 2015, the effective date of the amendment, are controlled by the 2013 enactment of Article 11.073. TEX. CODE CRIM. PROC. art. 11.073 (West 2013).

202. *Robbins II*, 478 S.W.3d at 678 (granting rehearing on May 13, 2015, and denying rehearing on January 27, 2016 in *Robbins III*, 2016 WL 370157).

203. *Robbins II*, 478 S.W.3d at 690 (Tex. Crim. App. 2014).

11.073 can be distinguished from Articles 11.07, 11.071, and 11.072 of the Code of Criminal Procedure, which are largely procedural statutes.[204]

B. *A Non-Constitutional Pathway to a New Trial*

As of this writing, Article 11.073 does not incorporate a federal constitutional right that has been recognized by the United States Supreme Court or the Court of Criminal Appeals.[205] A court reviewing an Article 11.073 claim is not required to find that an applicant's federal due process rights were violated—that he is, in other words, actually innocent or that evidence presented at his trial was false and material to his conviction.[206] Instead, Article 11.073 might be understood, broadly speaking, as a "jurisprudential mechanism," in Judge Cochran's words, a statutory creation that allows a court to grant a convicted person a new trial on non-constitutional grounds.[207]

C. *Beyond "Junk Science"*

While Article 11.073 has been described in the media as the "junk science writ,"[208] the scope of the statute reaches beyond junk science. Take subsections (a)(1) and (2):

> (a) This article applies to relevant scientific evidence that:
>
> (1) was not available to be offered by a convicted person at the convicted person's trial; or

204. *See* TEX. CODE CRIM. PROC. art. 11.07 (West 2015) ("Procedure After Conviction Without Death Penalty"); *id.* art. 11.071 ("Procedure in Death Penalty Case"); *id.* art. 11.072 ("Procedure in Community Supervision Case").

205. *See Robbins II*, 478 S.W.3d at 689 ("Prior to the enactment of article 11.073, newly available scientific evidence *per se* generally was not recognized as a basis for habeas corpus relief and could not have been reasonably formulated from a final decision of this Court or the United States Supreme Court, unless it supported a claim of 'actual innocence' or 'false testimony.'"). Given the Court of Criminal Appeals' failure to explain the constitutional basis of *Henderson*, that decision also did not recognize "newly available scientific evidence *per se* . . . as a basis for habeas corpus relief." *Id.* *Henderson*'s precedential value is ambiguous.

206. This is not to say that a court may not find a federal constitutional violation, only that the statute does not require such a finding.

207. *See Ex parte* Robbins (*Robbins I*), 360 S.W.3d 446, 471 (Tex. Crim. App. 2011) (Cochran, J., dissenting) ("Given the current legitimate concerns about the scientific reliability of forensic science used in American courtrooms, I think that the criminal justice system needs some jurisprudential mechanism to deal with cases in which a prior conviction was based upon scientific evidence that has subsequently been found to be unreliable, in whole or in a specific case.").

208. *See* Hall, *supra* note 80.

(2) contradicts scientific evidence relied on by the state at trial.[209]

Subsection (a)(1) does not require that an applicant's conviction be based on junk science or discredited science. Instead, subsection (a)(1) focuses on whether evidence was available. So subsection (a)(1) would conceivably apply in a case in which, years after a defendant pleaded guilty or no contest, Chapter 64 DNA testing,[210] the science of which may not have been previously available, showed by a preponderance of the evidence that the defendant would not have been convicted.[211]

Likewise, subsection (a)(2) does not require the evidence that the State relied on at trial to be false or discredited. The operative word in subsection (a)(2) is instead "contradicts." By using the word "contradicts" rather than, say, the word "discredits," the Legislature might have telegraphed its intent to broaden the reach of Article 11.073.[212] There is, after all, a considerable difference between evidence that contradicts and evidence that discredits.[213]

D. *"In the Manner Provided by Article 11.07, 11.071, or 11.072"*

Subsection (b)(1) of Article 11.073 requires a convicted person to file "an application, in the manner provided by Article 11.07, 11.071, or 11.072."[214] The Court of Criminal Appeals has not explained in a published opinion what the phrase "in the manner provided by" means. But there is no reason to believe the Legislature meant to cloud this phrase in mystery. Unless the Court of Criminal Appeals holds otherwise, when bringing an Article 11.073 claim, litigants should follow the procedures set out in Articles 11.07, 11.071, and 11.072.

209. TEX. CODE CRIM. PROC. art. 11.073(a)(1)–(2) (West Supp. 2016).

210. *See* TEX. CODE CRIM. PROC. art. 64.01.

211. These facts could have been taken from *Ex parte Adams*. *Ex parte* Adams, No. WR-29,889-04, 2016 WL 1161091 (Tex. Crim. App. Mar. 23, 2016). In 1992, Adams pleaded guilty to aggravated sexual assault and was placed on deferred adjudication probation for ten years. Tr. R. at 70, *Ex parte* Adams, No. W92-67691-N (C) (195th Dist. Ct., Dallas Cty., Tex. 2014). In 1993, he was adjudicated guilty and sentenced to prison for twenty-five years. *Id.* Vaginal swab and vaginal smear slides were taken from the complainant in 1992, and in 2009, 2010, and 2014, they were tested using STR, Y-STR, and MiniFiler methods, which the State conceded were not available in 1992. *Id.* Adams raised an Article 11.073 claim. *Id.* at 7. In an unpublished opinion, the Court of Criminal Appeals agreed that his Article 11.073 claim was meritorious and set aside his conviction. *Adams*, 2016 WL 1161091, at *1.

212. The word "discredits" was in Senator Whitmire's S.B. 317 filed in 2011. *See supra* note 162.

213. Although the word "contradicts" in subsection (a)(2) broadens the applicability of Article 11.073 on the front end of the statute, an applicant's evidentiary burden on the back end of the statute narrows Article 11.073 as a remedy.

214. TEX. CODE CRIM. PROC. art. 11.073(b)(1) (West Supp. 2016).

E. *Articles 11.07, 11.071, and 11.072 as the Exclusive Means for Bringing an Article 11.073 Claim?*

Given the language in subsection (b)(1), are Articles 11.07, 11.071, and 11.072 the exclusive means for bringing an Article 11.073 claim? In *Ex parte Herod*, the First Court of Appeals held that an application filed under Article 11.09 of the Code of Criminal Procedure[215] was "ineligible for consideration under Article 11.073(b)."[216] *Herod*, however, is unpublished and the only decision interpreting subsection (b)(1). The Court of Criminal Appeals has not weighed in on whether subsection (b)(1) restricts Article 11.073 to only applications filed under Articles 11.07, 11.071, and 11.072.

F. *Pleading Burdens*

Subsection (b)(1) of the statute places the pleading burden on applicants.[217] This is consistent with the pleading standards the Court of Criminal Appeals has adopted for Article 11.07 and 11.071 applications.[218] That Article 11.073 includes pleading burdens may be obvious, but this point is worth repeating. There is no shortage of habeas applications that come before the Court of Criminal Appeals with conclusory pleadings. Furthermore, litigants who bring an Article 11.073 claim in an Article 11.07 application should be aware of Texas Rule of Appellate Procedure 73.1.[219] While not mentioned in Article 11.073, Rule 73.1 describes the form of an Article 11.07 application.[220] The Court of Criminal Appeals may dismiss

215. *Id.* art. 11.09 ("Applicant Charged with Misdemeanor").

216. *Ex parte* Herod, No. 01-15-00494-CR, 2016 WL 1470074 (Tex. App.—Houston [1st Dist.] Apr. 14, 2016).

217. TEX. CODE CRIM. PROC. art. 11.073(b)(1) (West Supp. 2016) ("A court may grant a convicted person relief" if, among other things, the convicted person files an application "containing specific facts indicating that . . . ."). Interestingly, Article 11.073 does not say that an applicant has the burden of establishing that had his relevant scientific evidence been presented at trial, on the preponderance of the evidence he would not have been convicted. Instead, the statute authorizes a court to grant a convicted person relief if it makes this finding. *Id.* art. 11.073(b)(2). It stands to reason that under the Court of Criminal Appeals' pleading standards, this is an applicant's burden.

218. *See Ex parte* Maldonado, 688 S.W.2d 114, 116 (Tex. Crim. App. 1985) ("In a postconviction collateral attack, the burden is on the applicant to allege and prove facts which, if true, entitle him to relief."); *Ex parte* Tovar, 901 S.W.2d 484, 486 (Tex. Crim. App. 1995) ("[A] post-conviction habeas corpus application must allege facts which show both a cognizable irregularity and harm, and the applicant must prove the same if given an evidentiary hearing."); *Ex parte* Medina, 361 S.W.3d 633, 634–35, 643 (Tex. Crim. App. 2011) (relying on *Maldonado* and finding that the pleadings in an Article 11.071 application were deficient).

219. TEX. R. APP. P. 73.1 ("Form for Application Filed Under Article 11.07 of the Code of Criminal Procedure").

220. *Id.*

an Article 11.07 application if it does not comply with Rule 73.1.[221]

G. *Guilty and No Contest Pleas*

The word "trial" is used throughout Article 11.073, while the words "guilty" and "no contest" are nowhere to be found in the statute. Does the word "trial" in Article 11.073 apply to both contested (not guilty pleas) and uncontested (guilty and no contest pleas) proceedings? No court has answered this question in a published opinion. But in an unpublished opinion, the Court of Criminal Appeals provided a clue as to how it might rule in other cases. In *Ex parte Adams*, the applicant pleaded guilty to aggravated sexual assault, and the court granted him a new trial under Article 11.073, relying on *Robbins II*.[222]

H. *Texas Rules of Evidence*

Under subsection (b)(1)(B) of the statute, an applicant has the burden of showing that his "scientific evidence would be admissible under the Texas Rules of Evidence at a trial held on the date of the application . . . ."[223] By its plain language, this provision means that the evidence an applicant relies on to prove up his claim must be admissible under Rule of Evidence 702, among other rules.[224] For litigants, this is a significant provision. It would be strange for a statute intended as a remedy for convictions based on junk science *not* to include a provision that the evidence an applicant relies on be admissible under Rule 702. Otherwise, applicants could conceivably rely on evidence inadmissible under Rule 702—even junk science—as a pathway to a new trial. Subsection (b)(1)(B) may end up being highly contested, leading to a "battle of the experts," in cases in which the relevant scientific evidence is novel.

I. *Constitutional Standards*

Under subsection (b)(2) of the statute, a court may grant a convicted person relief if it finds, among other things, "on the preponderance of the

221. TEX. R. APP. P. 73.2 ("The Court of Criminal Appeals may dismiss an application that does not comply with these rules.").

222. *Ex parte* Adams, No. WR-29,889-04, 2016 WL 1161091, at *1 (Tex. Crim. App. Mar. 23, 2016). In *Ex parte Tuley*, the Court of Criminal Appeals held that an applicant who had pleaded guilty was not precluded from raising an actual innocence claim. *Ex parte* Tuley, 109 S.W.3d 388, 390 (Tex. Crim. App. 2002). While the court in *Tuley* was not analyzing a statute, its analysis might be useful in determining whether Article 11.073 applies to guilty and no contest pleas.

223. TEX. CODE CRIM. PROC. art. 11.073(b)(1)(B) (West Supp. 2016).

224. *See* TEX. R. EVID. 702 ("Testimony by Expert Witnesses").

evidence the person would not have been convicted."[225] Although Article 11.073 provides a non-constitutional pathway to a new trial, it is helpful to know where the standard in subsection (b)(2) stands in the hierarchy of common constitutional standards in criminal law. The standard is higher than the materiality standard for false evidence claims, the materiality standard for *Brady* claims, and the prejudice standard for ineffective assistance of counsel claims,[226] but the standard is lower than the standard for actual innocence claims.[227]

J. *Punishment*

In *Ex parte White*, a death penalty case, the Court of Criminal Appeals filed and set a subsequent Article 11.071 application to determine whether "new scientific evidence presented pursuant to Article 11.073 can affect only punishment phase evidence."[228] Focusing on the phrase "would not have been convicted" in subsection (b)(2) of the statute, the court held that the statute unambiguously applied to a verdict or finding of guilt only.[229] This was consistent with the court's 2011 opinion in *Ex parte Gutierrez*.[230] There the court considered the phrase "would not have been convicted" in Chapter 64 of the Code of Criminal Procedure,[231] holding that the statute

225. TEX. CODE CRIM. PROC. art. 11.073(b)(2) (West Supp. 2016). This standard might have been borrowed from Chapter 64 of the Code of Criminal Procedure. Under Article 64.03, a trial court may order DNA testing if, among other things, the court finds that a convicted person "establishes by a preponderance of the evidence" that "the person would not have been convicted if exculpatory results had been obtained through DNA testing . . . ." TEX. CODE CRIM. PROC. art. 64.03(a)(2)(A).

226. *See Ex parte* Weinstein, 421 S.W.3d 656, 665 (Tex. Crim. App. 2014) ("[F]alse testimony is *material* only if there is a 'reasonable likelihood' that it affected the judgment of the jury."); Hampton v. State, 86 S.W.3d 603, 612 (Tex. Crim. App. 2002) (stating that an applicant must show that "the evidence is material, that is, there is a reasonable probability that had the evidence been disclosed, the outcome of the trial would have been different"); Strickland v. Washington, 466 U.S. 668, 694 (1984) ("The defendant must show that there is a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different."). The standard in Article 11.073 is akin to the outcome-determinative standard the United States Supreme Court rejected as too onerous in *Strickland*. *See id.* at 693 ("[W]e believe that a defendant need not show that counsel's deficient conduct more likely than not altered the outcome in the case"); *see also* Smith v. Cain, 565 U.S. 73, 75 (2012) ("A reasonable probability does not mean that the defendant 'would more likely than not have received a different verdict with the evidence,' only that the likelihood of a different result is great enough to 'undermine[] confidence in the outcome of the trial.'") (quoting Kyles v. Whitley, 514 U.S. 419, 434 (1995)).

227. *See Ex parte* Elizondo, 947 S.W.2d 202, 209 (Tex. Crim. App. 1996) ("[T]he petitioner must show by clear and convincing evidence that no reasonable juror would have convicted him in light of the new evidence.") (emphasis omitted).

228. *Ex parte* White, 485 S.W.3d 431, 432 (Tex. Crim. App. 2016).

229. *Ex parte* White, 506 S.W.3d 39, 42–43 (Tex. Crim. App. 2016).

230. *Ex parte* Gutierrez, 337 S.W.3d 883 (Tex. Crim. App. 2011).

231. TEX. CODE CRIM. PROC. art. 64.03(a)(2)(A) (2007).

"does not authorize testing when exculpatory testing results might affect only the punishment or sentence that he received."[232]

White may not be the final word on this issue. In a concurring opinion joined by Judges Hervey and Newell, Judge Richardson signaled to the Legislature that the result in *White* was harsh and that Article 11.073 should have been written to apply to both the guilt and punishment phases of a trial.[233] In a dissenting opinion joined by Judges Meyers and Johnson, Judge Alcala argued that the Legislature intended Article 11.073 to apply to both the guilt and punishment phases of a death penalty case.[234]

K. *Article 11.073 as a New Legal Basis Under Article 11.07, Section 4(a)(1)*

Articles 11.07, 11.071, and 11.072 each contain subsequent-application provisions.[235] In Article 11.07, for example, if an applicant files a subsequent application after he has challenged his conviction[236] and there has been a final disposition on the merits of all the grounds in his previous application,[237] a court may not consider the merits of his subsequent application unless it contains sufficient facts establishing

> (1) the current claims and issues have not been and could not have been presented previously in an original application or in a previously considered application filed under this article because the factual or legal basis for the claim was unavailable on the date the applicant filed the previous application; or
>
> (2) by a preponderance of the evidence, but for a violation of the United States Constitution no rational juror could have found the applicant guilty beyond a reasonable doubt.[238]

Article 11.073, however, also contains a subsequent-application provision:

> (c) For purposes of Section 4(a)(1), Article 11.07, Section 5(a)(1), Article

232. *Gutierrez*, 337 S.W.3d at 901.

233. *White*, 506 S.W.3d at 52 (Richardson, J., concurring).

234. *Id.* at 53 (Alcala, J., dissenting).

235. TEX. CODE CRIM. PROC. art. 11.07, § 4 (West 2015); *id.* art. 11.071, § 5; *id.* art.11.072, § 9.

236. *See Ex parte* Evans, 964 S.W.2d 643, 647 (Tex. Crim. App. 1998) (holding that "a challenge to a conviction would appear to be limited to claims regarding 'the final consummation of the prosecution,' 'the judgment or sentence that the accused is guilty as charged,' or 'a judgment of guilty and the assessment of punishment'").

237. *See Ex parte* Torres, 943 S.W.2d 469, 474 (Tex. Crim. App. 1997) (holding that a "'final disposition' of an initial writ must entail a disposition relating to the merits of all the claims raised").

238. TEX. CODE CRIM. PROC. art. 11.07, § 4(a)(1)–(2) (West 2015).

> 11.071, and Section 9(a), Article 11.072, a claim or issue could not have been presented previously in an original application or in a previously considered application if the claim or issue is based on relevant scientific evidence that was not ascertainable through the exercise of reasonable diligence by the convicted person on or before the date on which the original application or a previously considered application, as applicable, was filed.[239]

Which one controls for Article 11.07 applications? In *Robbins II*, the court held that Article 11.073 was a new legal basis under Article 11.07, section 4(a)(1).[240] The court declined to follow Judge Keasler's reading of the subsequent-application provision in Article 11.073. Under his reading, Robbins's application might have been dismissed.[241] In an unpublished order in *Ex parte Avila*,[242] the court applied its holding in *Robbins II* on subsequent applications to a subsequent Article 11.071 application.[243]

L. *"Change" As an Elusive Concept*

Subsections (b)(1)(A) and (d) of Article 11.073 deserve close consideration. Subsection (b)(1)(A) requires an application to contain facts indicating

> 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 . . . .[244]

Subsection (d), in turn, provides:

> 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 . . . .[245]

239. TEX. CODE CRIM. PROC. art. 11.073(c) (West Supp. 2016).

240. *Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678, 689–90 (Tex. Crim. App. 2014).

241. *Id.* at 715–16 (Keasler, J., dissenting).

242. *Ex parte* Avila, No. WR-59,662-02, 2016 WL 922191 (Tex. Crim. App. Mar. 9, 2016).

243. *See id.* at *1 ("We have held that Article 11.073 provides a new legal basis for habeas relief in the small number of cases where an applicant can show by a preponderance of the evidence that he would not have been convicted if the newly available scientific evidence had been presented at trial.").

244. TEX. CODE CRIM. PROC. art. 11.073(b)(1)(A) (West Supp. 2016).

245. *Id.* art. 11.073(d).

These provisions are perhaps the heart of Article 11.073. The reasonable-diligence standard in subsection (b)(1)(A) corresponds to the reasonable-diligence standards in the subsequent-application provisions of Articles 11.07, 11.071, and 11.072,[246] and the Court of Criminal Appeals has written that the term "reasonable diligence" "suggests at least some kind of inquiry has been made into the matter at issue."[247] But reasonable diligence in subsection (d) is tied to change—the idea being that no reasonable diligence can discover what the future holds until "the field of scientific knowledge, a testifying expert's scientific knowledge, or a scientific method" has changed.[248]

In cases like *Henderson*, determining change for purposes of Article 11.073(d) may be simple. In *Henderson*, Bayardo, the State's expert, reevaluated his trial testimony based on new developments in the science of biomechanics. There was a decisive change in Bayardo's opinion that a court could readily determine: He had retracted his trial testimony.[249] Cases like *Henderson* may be exceptional given the degree of change in an expert's opinion based on new developments in science.

But in cases in which the field of scientific knowledge has shifted, determining change may pose a challenge for courts. Take shaken baby syndrome (SBS), now known as abusive head trauma. Not long ago, doctors believed that if the triad of subdural hematoma, retinal bleeding, and brain swelling was present in a baby without a fracture or bruise, shaking caused the symptoms.[250] Today, that consensus has fractured, and expert opinion has shifted.[251] There has not, however, been a revolution, paradigm shift, or fundamental rupture in the prevailing consensus repudiating SBS as a medical diagnosis. Instead, as Caitlin M. Plummer and Imran J. Syed write, "a fierce debate continues, with experts championing both sides."[252] Such

246. TEX. CODE CRIM. PROC. art. 11.07, § 4(c) (West 2015); TEX. CODE CRIM. PROC. art. 11.071, § 5(e) (West Supp. 2016); TEX. CODE CRIM. PROC. art. 11.072, § 9(c) (West 2015).

247. *Ex parte* Lemke, 13 S.W.3d 791, 794 (Tex. Crim. App. 2000), *overruled on other grounds by Ex parte* Argent, 393 S.W.3d 781 (Tex. Crim. App. 2013).

248. TEX. CODE CRIM. PROC. art. 11.073(d) (West Supp. 2016).

249. In an affidavit, Bayardo explained, "In fact, had the new scientific information been available to me in 1995, I would not have been able to testify the way I did about the degree of force needed to cause Brandon Baugh's head injury." *Ex parte* Henderson, 246 S.W.3d 690, 692 (Tex. Crim. App. 2007).

250. Maia Szalavitz, *The Shaky Science of Shaken Baby Syndrome*, TIME (Jan. 17, 2012), http://healthland.time/com/2012/01/17/the-shaky-science-of-shaken-baby-syndrome/.

251. Debbie Cenziper, *Shaken Science: A Disputed Diagnosis Imprisons Parents*, WASH. POST (Mar. 20, 2015), https://www.washingtonpost.com/graphics/investigations/shaken-baby-syndrome; Emily Bazelon, *Shaken-Baby Syndrome Faces New Questions in Court*, NY TIMES (Feb. 2, 2011), http://www.nytimes.com/2011/02/06/magazine/06baby-t.html?_r=0.

252. Caitlin M. Plummer & Imran J. Syed, *"'Shifted Science'" Revisited: Percolation Delays and the*

cases may present a challenge for courts reviewing Article 11.073 claims because the degree of change is incremental.

On the other hand, if a court interpreted the word "changed" in subsection (d) broadly and found that it included incremental change like that in SBS cases, it is conceivable that the reasonable-diligence standard would not be a major hurdle for applicants. With each incremental change in, say, the field of scientific knowledge, an applicant could argue that he could not have discovered his evidence with the exercise of reasonable diligence until each change became evident.[253]

M. *"Testifying Expert's Scientific Knowledge"*

In 2015, Article 11.073 was amended. Now, when determining "whether relevant scientific evidence was not ascertainable through the exercise of reasonable diligence," a court must also consider whether the "testifying expert's scientific knowledge . . . on which the relevant scientific evidence is based" has changed.[254] This amendment recognizes that experts are not infallible. As Brandon Garrett and Peter Neufeld found in a study of 137 trial transcripts of cases in which defendants were exonerated by DNA, "invalid forensic science testimony was not just common but prevalent."[255] Indeed, 82 cases, or 60% of the 137 cases in the study, involved invalid forensic science testimony.[256]

Persistence of Wrongful Convictions Based on Outdated Science, 64 CLEV. ST. L. REV. 483, 516 (2016). The Court of Criminal Appeals recently considered the reliability of expert testimony on abusive head trauma. *See* Wolfe v. State, 509 S.W.3d 325, 327 (Tex. Crim. App. 2017) (affirming the judgment of the court of appeals and holding that the trial court did not abuse its discretion in admitting expert testimony on abusive head trauma).

253. This is only a hypothetical. The subsequent-application provisions in Articles 11.07, 11.071, and 11.072 might be procedural bars. In such cases litigation could conceivably go on forever.

254. TEX. CODE CRIM. PROC. art. 11.073(d) (West Supp. 2016).

255. Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 14 (2009). Other studies have found expert testimony flawed. For example, at least 90% of the trial transcripts the FBI analyzed in a comprehensive review of cases involving microscopic hair analysis contained flawed testimony. *See* F.B.I., *Press Release: FBI Testimony on Microscopic Hair Analysis Contained Errors in at Least 90 Percent of Cases in Ongoing Review* (Apr. 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; *see also* NAS REPORT, *supra* note 1, at 87–88 ("In short, the interpretation of forensic science is not infallible. Quite the contrary. This reality is not always fully appreciated or accepted by many forensic science practitioners, judges, jurors, policymakers, or lawyers and their clients.").

256. The testimony's validity was determined by whether what the analysts said in court was supported by empirical data. Garrett & Neufeld, *supra* note 255, at 7–8.

N. *Finality*

The State and society have a legitimate interest in the finality of convictions.[257] "No one, not criminal defendants, not the judicial system, not society as a whole," in Justice Harlan's words, "is benefited by a judgment providing a man shall tentatively go to jail today, but tomorrow and every day thereafter his continued incarceration shall be subject to fresh litigation on issues already resolved."[258] On the other hand, finality interests should and do yield to other interests.[259] In such cases, as Justice Harlan went on to write, "There is little societal interest in permitting the criminal process to rest at a point where it ought properly never to repose."[260]

What does Article 11.073 mean for the finality of convictions? The short answer is that in enacting Article 11.073, the Legislature made a policy decision not to leave the criminal process at repose. Finality interests yielded to other interests.[261] The long answer is that Article 11.073 may increasingly weaken traditional expectations of finality in the criminal justice system as we begin to understand that experts are human and make mistakes and that the validity and reliability of the forensic sciences is open to debate.[262]

257. *See Ex parte* Smith, 444 S.W.3d 661, 666 (Tex. Crim. App. 2014) ("The expanded approach [of laches] ensures that courts keep, at the fore, the State's and society's interest in the finality of convictions . . . ."); *Ex parte* Perez, 398 S.W.3d 206, 218 (Tex. Crim. App. 2013) ("[I]n determining whether habeas relief is warranted, we must afford adequate weight to the State's broad interest in the finality of a long-standing conviction.") (citing *Ex parte* Moreno, 245 S.W.3d 419, 429 (Tex. Crim. App. 2008)).

258. Mackey v. United States, 401 U.S. 667, 691 (1971) (Harlan, J., concurring).

259. For example, finality interests yield to new substantive rules that apply retroactively. Schriro v. Summerlin, 542 U.S. 348, 351–52 (2004).

260. *Mackey*, 401 U.S. at 693 (Harlan, J., concurring).

261. *See, e.g.*, *Ex parte* Robbins (*Robbins II*), 478 S.W.3d 678, 704 (Tex. Crim. App. 2014) (Cochran, J., concurring) ("In *Robbins*, this Court chose finality over accuracy; in *Henderson* we did the opposite, and in 2013, the Texas Legislature also chose accuracy over finality by enacting Article 11.073"); *Ex parte* Robbins (*Robbins III*), No. WR-73,484-02, 2016 WL 370157, at *27 (Tex. Crim. App. Jan. 27, 2016) (Newell, J., concurring) ("By enacting Article 11.073 without any express limitation on what constitutes 'scientific knowledge,' the Legislature tipped the scales in favor of accuracy perhaps at the expense of finality.").

262. *See also* Dist. Att'y's Office Third Jud. Dist. v. Osborne, 557 U.S. 52, 72–73 (2009) ("The elected governments of the States are actively confronting the challenges DNA technology poses to our criminal justice systems and our traditional notions of finality, as well as the opportunities it affords.").

V. CONCLUSION

"[*T*]*here are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly.*"[263]

In 1992, Sonia Cacy was charged with the murder of her uncle, William R. Richardson.[264] The State's theory of the case was that Cacy doused Richardson with an accelerant and set him on fire, causing his death.[265] At trial, Joe Castorena, a toxicologist at the Bexar County Forensic Lab, testified that fragments of Richardson's clothing tested positive for the presence of an accelerant. Cacy was convicted of murder and, after a retrial on punishment, sentenced to prison for ninety-nine years.[266] In 2016, some twenty-three years after Cacy was convicted, the Court of Criminal Appeals declared her actually innocent.[267]

The missteps in the Cacy prosecution could be a case study on why the Legislature enacted Article 11.073. Well after Cacy was convicted, Castorena disclosed that the Bexar County Forensic Lab, where samples of Richardson's clothing were tested, and the morgue, where his body was autopsied, had been contaminated.[268] Despite knowing this, Castorena tested Richardson's clothing. (He failed to report the contamination because "nobody asked."[269]) In 2013, the Science Advisory Workgroup (SAW), established by the Texas State Fire Marshal's Office, reviewed Cacy's case and concluded that the cause of the fire, as determined by the Fort Stockton Fire and Police Departments, was not supportable under present-day standards of care for fire investigations.[270] The SAW recommended that the cause of the fire in Cacy's case be reported as undetermined.[271] Ten experts reviewed the evidence in Cacy's case and concluded that no accelerant was present on Richardson's clothing.[272] One

263. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 596–97 (1993).

264. Cacy v. State, 901 S.W.2d 691, 694 (Tex. App.—El Paso 1995).

265. *Id.* at 702–03.

266. *Id.*; Cacy v. State, No. 08-96-00239-CR (Tex. App.—El Paso Mar. 19, 1998).

267. *Ex parte* Cacy, No. WR-85,420-01, 2016 WL 6525721 (Tex. Crim. App. Nov. 2, 2016). Cacy also raised a claim under Article 11.073, but the court declared her actually innocent. *See Ex parte* Reyes, 474 S.W.3d 677, 681 (Tex. Crim. App. 2015) ("A declaration of actual innocence, because of its impact on a defendant's reputation, affords greater relief than merely granting a new trial . . . .").

268. Post-Conviction Appl. for Writ of Habeas Corpus, Art. 11.07, at 1, *Ex parte* Cacy, No. WR-85,420-01, 2016 WL 6525721 (Tex. Crim. App. Nov. 2, 2016).

269. *Id.* at 2.

270. *Id.*, Exhibit C.

271. *Id.*

272. *Id.* at 2.

expert opined that Castorena's analysis was based on "junk science" and that a chart Castorena prepared in defense of his analysis completely misinterpreted the data.[273] Another expert stated that "the purge and trap method" Castorena used for isolating accelerants was "frowned upon today" and was no longer in the standards published by the American Society for Testing and Materials.[274] Finally, in 2013, an independent expert for the State agreed that no accelerant was present on Richardson's clothing.[275]

For convicted persons like Cacy, Article 11.073 provides a statutory pathway to a new trial. Given the dramatic changes in the landscape of the forensic sciences in the United States, this is a positive step for the integrity of the criminal justice system. Without Article 11.073, persons in Texas convicted based on, say, discredited forensic science or expert testimony might not otherwise have a legal remedy.

Of course, the meaning and operation of Article 11.073 will only become clearer as courts continue to interpret and apply its provisions. The statute is young compared to other Texas statutes, and although the Court of Criminal Appeals considered many of the statute's provisions in *Robbins II*, courts are only slowly beginning to consider its other provisions. In the future, given the state of the forensic sciences, courts may stay busy reviewing Article 11.073 claims.

Finally, there is an untold story in Article 11.073's enactment: Texas as a national leader in legislation tied to the forensic sciences. In enacting Article 11.073, the Texas Legislature recognized by statute what federal constitutional law has not, and with the exception of a 2014 California law,[276] Article 11.073 may be the only statute in the nation enacted specifically as a remedy for changes in the forensic sciences and expert testimony. After the enactment of Article 11.073, Texas's reputation as a "law-and-order" state deserves a qualification. Indeed, when observers look back years from now, Texas may be credited with prompting other states to adopt statutes modeled on Article 11.073.

273. Tr. Rep. R., vol. I, at 104, 112, *Ex parte* Cacy, No. WR-85,420-01, 2016 WL 6525721 (Tex. Crim. App. Nov. 2, 2016).

274. *Id.*; Tr. Rep. R., vol. II, at 96, *Ex parte* Cacy, No. WR-85,420-01, 2016 WL 6525721 (Tex. Crim. App. Nov. 2, 2016).

275. Post-Conviction Appl. for Writ of Habeas Corpus, Art. 11.07, at 2, *Ex parte* Cacy, No. WR-85,420-01, 2016 WL 6525721 (Tex. Crim. App. Nov. 2, 2016).

276. *See supra* note 166.