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## Looking Backwards at Old Cases: When Science Moves Forward

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# LOOKING BACKWARDS AT OLD CASES: WHEN SCIENCE MOVES FORWARD

JULES EPSTEIN\*

*Forensic evidence—be it in the form of science-derived analyses such as DNA profiling or drug identification, or in more subjective analyses such as pattern or impression [latent print, handwriting, firearms] examinations—is prevalent and often critical in criminal prosecutions. Yet, while the criminal court processes prize finality of verdicts, science evolves and often proves that earlier analyses were inadequate or plainly wrong. This article examines the tension between those two concerns by focusing on the 2015 decision of the United States Supreme Court in Maryland v. Kulbicki, addresses the inadequacies of the Court’s analysis, and suggests some factors for judges confronted with changing science to weigh when reviewing convictions where the forensic evidence was core to the prosecution’s proof.*

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## INTRODUCTION

How should judges evaluate lawyers' alleged mishandling of forensic science evidence (forensic evidence) when the challenge is brought years after the trial? One recent United States Supreme Court decision grapples with this issue,<sup>1</sup> and this article contextualizes that holding, analyzes its weaknesses, and suggests some factors for judges to weigh.

In criminal cases, the importance of science (and understanding the limits of science) cannot be gainsaid. The statistics are clear: in a review of homicide cases in Cleveland, Ohio, the clearance rate<sup>2</sup> was higher (63.1%) for cases with probative results after collection of a variety of types of forensic evidence—DNA, firearms evidence, fingerprints, etc.—than in cases without such evidence (56.3%), and the average sentence imposed was higher in the former category.<sup>3</sup>

Yet, there is a perplexing problem—the judges, prosecutors and defense counsel who are consumers of forensic evidence have little or no scientific training, either at the college level or on the job. Perhaps 5% of lawyers (and judges) studied science, a number confirmed repeatedly by polling attendees at legal education conferences. And the consequences may be severe, because when lawyers do not understand science and its limitations, they can neither assess, nor challenge the proof being presented in court.

## SCIENTIFIC ILLITERACY: A PROBLEM IN THE LEGAL PROFESSION

The scientific illiteracy of lawyers was highlighted in the 2009 Report of the National Academy of Sciences, *Strengthening Forensic Science: A Path Forward*, which concluded, “[t]he judicial system is encumbered by, among other things, judges, and lawyers who generally lack the scientific expertise necessary to comprehend and evaluate forensic evidence in an informed manner.”<sup>4</sup>

This was brought home directly in a recent judgment, overturning a

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<sup>1</sup> *Maryland v. Kulbicki*, 577 U.S. 1 (2015) (per curium).

<sup>2</sup> The term “clearance rate” refers, in the law enforcement context, to arrest. FBI, UNIFORM CRIME REPORT: CRIME IN THE U.S., 1 (2012), <https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2012/crime-in-the-u.s.-2012/offenses-known-to-law-enforcement/clearances> (“In the FBI’s Uniform Crime Reporting (UCR) Program, law enforcement agencies can clear, or ‘close,’ offenses in one of two ways: by arrest or by exceptional means.”).

<sup>3</sup> Tom McEwen & Wendy Regoeczi, *Forensic Evidence in Homicide Investigations and Prosecutions*, 60 J. FORENSIC SCI. 1188, 1193 (2015).

<sup>4</sup> COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCI. COMM., NAT’L RESEARCH COUNCIL, STRENGTHENING FORENSIC SCI. IN THE U.S.: A PATH FORWARD 110 (2009).

Pennsylvania capital conviction based on DNA evidence.<sup>5</sup> As argued at trial, “[t]hat hat that was left at the scene in the middle of the street has [the defendant’s] sweat on it and has [the victim’s] blood on it . . . DNA is a witness. It is a silent, unflappable witness.”<sup>6</sup>

There was only one problem—the blood was on the victim’s hat, not the hat of the accused.<sup>7</sup> The prosecutors misread the report and the defense lawyers never caught the error.<sup>8</sup> This was not the only science-related error made at trial. The prosecutor also argued to the jury that, because the defendant was the major contributor of the DNA on the hat, he was the person who wore it most recently, a statement contrary to science.<sup>9</sup> The defense made no objection.<sup>10</sup>

It cannot be said that this is an isolated incident of scientific illiteracy on the part of lawyers, although documenting instances is difficult because it takes later scrutiny by courts or scientifically-knowledgeable lawyers to uncover the phenomenon. But the concern over lawyers not knowing and challenging science has been expressed for decades.<sup>11</sup>

The late Judge Louis Pollak acknowledged as much in 2002 when he expressed concern over how a law-trained person could decide questions of science:

The most important question here, of course, is, Am I the right person to be a gatekeeper?” he said. “I, who know little of science. . . . As society comes to rely more fully on technology, the question will become acute.” Pollak said that he found it worrisome that the Supreme Court ruling in the Daubert case meant that he could rule one way on an issue like fingerprints and another federal judge in a different jurisdiction could do the opposite, and neither ruling would be reversed (the Court

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<sup>5</sup> See Claudia Vargas, *Mistaken DNA Interpretation Sends Death-Row Case to Retrial*, PHILADELPHIA INQUIRER (Aug. 25, 2015), [http://articles.philly.com/2015-08-25/news/65812999\\_1\\_dna-evidence-dna-analysis-kareem-johnson](http://articles.philly.com/2015-08-25/news/65812999_1_dna-evidence-dna-analysis-kareem-johnson).

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

<sup>8</sup> Katie Stuhldreher, *Guilty Verdict in Killing of Witness*, PHILADELPHIA INQUIRER (June 26, 2007), [http://articles.philly.com/2007-06-26/news/25235484\\_1\\_key-witness-johnson-s-dna-first-degree-murder](http://articles.philly.com/2007-06-26/news/25235484_1_key-witness-johnson-s-dna-first-degree-murder).

<sup>9</sup> See, e.g., Corissa J. Harris et al., *Comparing Wearer DNA Sample Collection Methods for the Recovery of Single Source Profiles*, 1 RES. J. JUST. STUD. & FORENSIC SCI. 81, 83 (2013) (“Often, the major contributor’s profile is that of the habitual wearer. A minor contributor’s profile may be detected from those who have borrowed or most recently worn the item of clothing.”).

<sup>10</sup> See Stuhldreher, *supra* note 8.

<sup>11</sup> Some commentators suggest that lawyers generally possess “an appalling degree of scientific illiteracy, which ill equips them to educate and guide the bench.” ANDRE A. MOENSSENS ET AL., *SCIENTIFIC EVIDENCE IN CRIMINAL CASES* 7 (3d ed., 1986) (discussing the difficulties experienced by judges in determining the admissibility of expert evidence); see also *United States v. Bogusz*, 43 F.3d 82, 90 (3d Cir. 1994).

will hear appeals only on procedure, not on the law). He was frank about how poorly prepared most judges are for making decisions based on scientific issues.<sup>12</sup>

#### *KULBICKI: THE LAWYER'S DUTY WHEN FACED WITH SCIENTIFIC EVIDENCE*

With this background, one would hope that when confronted with a claim that counsel erred by not researching the science being used against his client, the United States Supreme Court would emphasize that the lawyer's first duty is to learn—ask questions, conduct basic research, and consult with an expert before trial. But the exceptional deference<sup>13</sup> paid to lawyers' judgment calls, especially when viewed through a retrospective prism that emphasizes finality, dominated the Court's analysis.

The case is *Maryland v. Kulbicki*,<sup>14</sup> and its story is worth telling. James Kulbicki, a police officer, had an extra-marital affair in which the woman gave birth to a child.<sup>15</sup> Kulbicki was subsequently the subject of a paternity and child support action.<sup>16</sup> In 1993, the woman was murdered by a shot in the head.<sup>17</sup> Two days later, when Kulbicki's home and vehicles were searched, a bullet fragment was found in his truck.<sup>18</sup> Metallurgic analysis of that fragment showed that it had the same elemental composition as a bullet fragment found in the victim's brain.<sup>19</sup> This is called Comparative Bullet-Lead Analysis (CBLA).<sup>20</sup> This testimony was scientifically based.

The problem came when FBI analyst Ernest Peele testified at the 1995 trial about the significance of this finding:

Peele testified that the bullet fragments from Gina's brain and Kulbicki's truck exhibited "the same amounts of each and every element ... detected," and were thus "analytically indistinguishable." Peele added that the results were "what you'd expect if you were examining two pieces of the same bullet, they are that close, two pieces of the same source."<sup>21</sup>

Time marched on, as does science, and CBLA evidence came to be

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<sup>12</sup> Michael Specter, *Do Fingerprints Lie?*, THE NEW YORKER (May 27, 2002), <http://www.newyorker.com/magazine/2002/05/27/do-fingerprints-lie>.

<sup>13</sup> *Bell v. Cone*, 535 U.S. 685, 698 (2002) ("In *Strickland* we said that "[j]udicial scrutiny of a counsel's performance must be highly deferential.") (quoting *Strickland v. Washington*, 466 U.S. 668, 689 (1984)).

<sup>14</sup> *Maryland v. Kulbicki*, 577 U.S. 1 (2015) (per curium).

<sup>15</sup> *Id.*; *Kulbicki v. State*, 99 A.3d 730, 744 (Md. Ct. App. 2014).

<sup>16</sup> *Kulbicki*, 577 U.S. at 1.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*; see also *Kulbicki v. State*, 53 A.3d 361, 368 (Md. Ct. Spec. App. 2012).

<sup>19</sup> *Kulbicki*, 53 A.3d at 368.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

discredited in the decade after trial. The flaws in CBLA were substantial: there was no scientific foundation for claims that the crime scene evidence came from the same box as bullets found in a suspect's possession or could otherwise be related in time or geography.<sup>22</sup> “[I]t remained in many cases a distinct possibility that while bullets from the same “source” match each other, they also match bullets from any number of “sources.”<sup>23</sup>

Kulbicki attacked his conviction in the Maryland state courts.<sup>24</sup> Regarding the CBLA evidence, the claim was that of ineffective representation by his trial lawyer, a denial of the Sixth Amendment guarantee to counsel in a criminal case.<sup>25</sup> To prevail, he had to show both that counsel performed in a deficient manner, *i.e.* “whether, in light of all the circumstances, the identified acts or omissions were outside the wide range of professionally competent assistance”<sup>26</sup> and that there was “prejudice,” *i.e.* “a reasonable probability that, but for counsel's unprofessional errors, the result of the proceeding would have been different.”<sup>27</sup> The Court of Appeals of Maryland found both elements proved<sup>28</sup> and a new trial was ordered but the grant of *certiorari* led to a reexamination of that holding.

Viewed through the lens of *Strickland* ineffectiveness analysis applied by the United States Supreme Court, Kulbicki faced an uphill battle as he was attacking his conviction more than a decade after CBLA evidence was shown to be unreliable. He lost because the Court held that lawyers need not be prescient nor predict future developments in forensic science.<sup>29</sup> The Court held that his lawyer was to be judged by what reasonable lawyers would have done in 1995.<sup>30</sup>

And that is where the United States Supreme Court gave Kulbicki's lawyer—and all lawyers handling cases involving forensic science—an unwarranted pass. The Maryland Court of Appeals decided that a new trial

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<sup>22</sup> *Id.* at 377 (citing COMM. ON SCI. ASSESSMENT OF BULLET LEAD ELEMENTAL COMPOSITION COMPARISON, NAT'L RES. COUNCIL, FORENSIC ANALYSIS: WEIGHING BULLET LEAD EVIDENCE 106–07 (2004) [hereinafter COMM. ON SCI. ASSESSMENT OF BULLET LEAD ELEMENTAL COMPOSITION COMPARISON]).

<sup>23</sup> *Id.* (citing COMM. ON SCI. ASSESSMENT OF BULLET LEAD ELEMENTAL COMPOSITION COMPARISON, NAT'L RES. COUNCIL, *supra* note 22, at 106–07).

<sup>24</sup> *Kulbicki*, 53 A.3d at 361.

<sup>25</sup> A criminal defendant “shall enjoy the right . . . to have the Assistance of Counsel for his defence.” U.S. CONST. amend. VI.

<sup>26</sup> *Strickland v. Washington*, 466 U.S. 668, 690 (1984).

<sup>27</sup> *Id.* at 694.

<sup>28</sup> *Kulbicki v. State*, 99 A.3d 730, 743 (Md. Ct. App. 2014).

<sup>29</sup> *Maryland v. Kulbicki*, 577 U.S. 1, 4 (2015) (per curiam).

<sup>30</sup> *Id.* at 3 (citing *Strickland*, 466 U.S. at 690).

was appropriate because the lawyer never looked for, found, or read a 1991 report by Peele that contradicted, or at least called into question, Peele's fundamental claim at trial—that each batch of metal melted to create bullets is compositionally unique.<sup>31</sup> In his 1991 report, Peele found bullets manufactured fifteen months apart to have an identical composition.<sup>32</sup>

The Maryland high court granted relief based on a simple articulation of the duty of a lawyer—lawyers are effective only when they make decisions based upon “adequate investigation” and the “[f]ailure to investigate the forensic evidence is not what a competent lawyer would do.”<sup>33</sup>

The United States Supreme Court responded in a *per curiam* decision with no preceding oral argument. The Court misstated the Maryland Court's holding as constitutionally requiring Kulbicki's defense attorneys to “*predict the demise of CBLA*.”<sup>34</sup> The Maryland court had no such premise; rather, it focused on the duty of the lawyer to *investigate science* that comes into the courtroom.<sup>35</sup> In this mischaracterization, and in the remainder of the opinion, the Court ignored the duty of lawyers to ask questions and educate themselves.<sup>36</sup>

According to the Court, “[c]ounsel did not perform deficiently by dedicating their time and focus to elements of the defense that did not involve poking methodological holes in a then-uncontroversial mode of ballistics analysis.”<sup>37</sup> The Court concluded that because the trial predated the search engines of the worldwide web, the Peele report would not have been easily located.<sup>38</sup> Restated, this seems to say: “If it looks good, don't bother to read up on it. And don't ask for the expert's *curriculum vitae*, which would lead to the expert's own research.”

#### KULBICKI'S CONSEQUENCE

The message of “you don't have to ask questions if the science looks

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<sup>31</sup> *Kulbicki*, 99 A.3d at 735–36, 740.

<sup>32</sup> *Id.* at 740.

<sup>33</sup> *Id.* at 738 (quoting *Bowers v. State*, 578 A.2d. 734, 736 (Md. Ct. App. 1990)).

<sup>34</sup> *Kulbicki*, 577 U.S. at 3 (emphasis added).

<sup>35</sup> *Kulbicki*, 99 A.3d at 739 (“The failure, then, to appropriately investigate the State's forensic evidence and challenge the State's expert on cross-examination regarding a scientific method used to implicate the defendant may be a predicate upon which a claim for ineffective assistance of counsel may prevail.”).

<sup>36</sup> *See id.* at 739–44.

<sup>37</sup> *Kulbicki*, 577 U.S. at 4

<sup>38</sup> *Id.*

good at the time of trial” has already been echoed by one court.<sup>39</sup> The notion defies a basic precept of science, that “[w]e accumulate scientific knowledge like clockwork, with the result that facts are overturned at regular intervals in our quest to better understand the world.”<sup>40</sup> In a world where, over the past decade, we have seen the impact of flawed or erroneous forensic evidence testimony,<sup>41</sup> the lesson from the Court should be simple and clear—a lawyer’s first duty in a case with scientific evidence is to ask questions and learn its limitations.

Post-*Kulbicki*, how does a judge respond to new post-conviction challenges that look back and say “the lawyer didn’t investigate the science?” If the jurisdiction develops more stringent standards under its own Constitution or statute, then *Kulbicki* is of no moment. But where the jurisdiction applies federal law, a searching inquiry is still warranted. The Supreme Court in *Kulbicki* emphasized that this trial was pre-internet, describing the case as in “an era of card catalogues, not a worldwide web,” where research was not as easy.<sup>42</sup> And although unmentioned, in 1995, we did not have the documented history of forensic errors and the awareness of the limitations of many forensic disciplines that we have now.<sup>43</sup>

Additionally, grounds other than the Sixth Amendment right to effective counsel need to be explored in “bad” or questionable science cases. Albeit a difficult standard to satisfy, a claim under the Due Process guarantee may lie where the forensic evidence used at trial has been subsequently shown to be invalid. This was accepted by the Third Circuit in 2012 in a case involving fire causation where testimony from a 1990 arson-murder case was subsequently shown to be invalid: “[t]o succeed, [petitioner] must show that the admission of the fire expert testimony ‘undermined the fundamental fairness of the entire trial,’<sup>44</sup> because the

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<sup>39</sup> See *Pulido v. Grounds*, No. 2:13-cv-01814 TLN GGH, 2015 U.S. Dist. LEXIS 141313, at \*56–57 (E.D. Cal. Oct. 13, 2015).

<sup>40</sup> SAMUEL ARBESMAN, *THE HALF-LIFE OF FACTS: WHY EVERYTHING WE KNOW HAS AN EXPIRATION DATE* 7 (2012).

<sup>41</sup> See, e.g., Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 VA. L. REV. 1, 14 (2009). As acknowledged by the United States Supreme Court in another context, “[s]erious deficiencies have been found in the forensic evidence used in criminal trials. One commentator asserts that ‘[t]he legal community now concedes, with varying degrees of urgency, that our system produces erroneous convictions based on discredited forensics.’” *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 319 (2009) (quoting Pamela R. Metzger, *Cheating the Constitution*, 59 VAND. L. REV. 475, 491 (2006)).

<sup>42</sup> *Kulbicki*, 577 U.S. at 4.

<sup>43</sup> *Id.*

<sup>44</sup> *Lee v. Glunt*, 667 F.3d 397, 403 (3d Cir. 2012) (quoting *Keller v. Larkins*, 251 F.3d 408, 413 (3d Cir. 2001)).

probative value of [the fire expert] evidence, though relevant, is greatly outweighed by the prejudice to the accused from its admission.”<sup>45</sup>

The second ground, independent of a claim of ineffective counsel, may arise under a state statute or rule of procedure permitting claims of “bad” or erroneous science, regardless of timing limitations. Massachusetts law, for example, permits a claim to be filed “at any time . . . upon the ground that the confinement or restraint was imposed in violation of the Constitution or laws of the United States or of the Commonwealth of Massachusetts.”<sup>46</sup> That was extended to a “bad” science claim—hair comparison analysis—in 2016, on a case nearly a quarter of a century old.<sup>47</sup>

[T]he court determines that ‘justice may not have been done’ at Perrot’s 1992 trial because of the introduction of hair evidence that in numerous and material respects exceeded the foundational science. In making that judgment, the court determines that it was not until decades after Perrot’s 1992 trial that errors in testimony on hair evidence came to be authoritatively recognized and addressed.<sup>48</sup>

While the Massachusetts court applied a general post-conviction provision to a claim of “bad” science, in Texas, there is a procedure specific to such averments. Texas’ Code of Criminal Procedure includes a provision titled Procedure Related to Certain Scientific Evidence, which states in pertinent part that post-conviction relief may be granted where:

(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...finds that, had the scientific evidence been presented at trial, on the preponderance of the evidence the person would not have been convicted.<sup>49</sup>

California, too, has such a provision. A challenge may be made when a conviction is based on false evidence, where “false evidence shall include opinions of experts that have either been repudiated by the expert who originally provided the opinion at a hearing or trial or that have been undermined by later scientific research or technological advances.”<sup>50</sup>

<sup>45</sup> *Id.* at 403 (quoting *Bisaccia v. Attorney Gen.*, 623 F.2d 307, 313 (3d Cir. 1980)).

<sup>46</sup> MASS. R. CIV. P. 30(a).

<sup>47</sup> *Commonwealth v. Perrot*, 2016 Mass. Super. LEXIS 3, at \*1–3 (Mass. Super. Ct. Jan. 26, 2016).

<sup>48</sup> *Id.* at \*2.

<sup>49</sup> TEX. CODE CRIM. PROC. ANN. art. 11.073 (West 2015).

<sup>50</sup> CAL. PEN. CODE § 1473(1) (West 2015). This provision was recently applied to discredited “bitemark” evidence. *See In re Richards*, 63 Cal. 4th 291, 312–16 (Cal. 2016).

## CONCLUSION

*Kulbicki* could, but should not, be read as a barrier for correcting convictions based on science later proved false or incomplete. Read properly, it is a limited decision, one grounded in the particulars of Sixth Amendment ineffective assistance of counsel doctrine and in the specific context of CBLA ‘science’ as it was viewed at the time of *Kulbicki*’s trial, before the ubiquitousness of the internet and the recognition that forensic science claims of exactitude warrant scrutiny, if not skepticism.

After *Kulbicki*, a number of options must be explored beyond that of an ineffective assistance of counsel claim to address questionable science used to support a criminal conviction. And even under the Sixth Amendment ineffectiveness rubric, as time and knowledge evolve, it may be that even when we apply what that Court called the “rule of contemporary assessment of counsel’s conduct,”<sup>51</sup> *i.e.* judging reasonableness as of the time of counsel’s conduct, there may be good grounds to apply the standard the Maryland Court did—that “failure to investigate the forensic evidence is not what a competent lawyer would do.”<sup>52</sup>

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<sup>51</sup> *Maryland v. Kulbicki*, 577 U.S. 1, 3 (2015) (per curiam) (quoting *Lockhart v. Fretwell*, 506 U. S. 364, 372 (1993)).

<sup>52</sup> *Kulbicki v. State*, 99 A.3d 730, 738 (Md. Ct. App. 2014) (quoting *Bowers v. State*, 578 A.2d. 734, 743 (Md. Ct. App. 1990)).

