COMMONWEALTH OF MASSACHUSETTS

HAMPDEN, ss.

SUPERIOR COURT
DEPARTMENT OF THE TRIAL COURT

COMMONWEALTH	)	
v.	)	Docket Nos. 85-5415, 16, 18, 20, and 25
GEORGE PERROT	)	

BRIEF OF AMICUS CURIAE THE INNOCENCE NETWORK
IN SUPPORT OF DEFENDANT

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DATED: August 25, 2014

*Not admitted in this Court

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INTEREST OF AMICUS CURIAE

The Innocence Network (the "Network") is an association of more than sixty organizations dedicated to providing pro bono legal and investigative services to convicted individuals seeking to prove their innocence. The sixty-six current members of the Network represent hundreds of prisoners with innocence claims in all 50 states and the District of Columbia, as well as Canada, the United Kingdom, Ireland, Australia, New Zealand, and the Netherlands. Based on its experience exonerating innocent individuals and examining the causes of wrongful convictions, the Network has become keenly aware of the role that unreliable or improper scientific evidence has played in producing miscarriages of justice, particularly in cases such as the instant case where the prosecution is entirely dependent on expert opinions. The "science" underlying such convictions has been exposed as flawed, disputed, or outright false.

In approximately half of the 316 convictions later overturned through DNA evidence in the United States, flawed or inaccurate forensic evidence and disciplines – such as blood-type testing, hair analysis, fingerprint analysis, and more – played a role in the wrongful conviction. Therefore, especially in science-dependent cases such as the present one, the Network is committed to ensuring, as an essential component of a fair and just determination of the facts, that convictions are premised upon accurate forensic work – an interest directly implicated by George Perrot's case.

STATEMENT OF THE FACTS

In the interest of brevity, the Network adopts by reference the statement of facts as set forth in Mr. Perrot's Memorandum in Support of Defendant's Motion for a New Trial, filed on July 8, 2014.

SUMMARY OF ARGUMENT

Twenty-nine years into his life sentence, it is now apparent that the basis for George Perrot's conviction – forensic hair comparison evidence introduced through FBI Agent Wayne Oakes – was plainly false and scientifically invalid. Indeed, in 2013, the FBI announced that testimony provided by its agents, like that which Agent Oakes offered against Mr. Perrot, has been discredited and is now understood to be scientifically unsupportable. Put simply, the most significant evidence presented by the Commonwealth against Mr. Perrot would today be inadmissible, given what is now known about the forensic discipline of hair microscopy.

Of the 316 wrongful convictions overturned through the use of DNA analysis in the United States, approximately half (49%) have involved faulty and misleading forensic evidence precisely like the hair comparison evidence used by the Commonwealth to convict Mr. Perrot. In fact, nearly a quarter of nationwide wrongful convictions thus far overturned have involved the use of so-called microscopic hair analysis. While forensic hair microscopy may still be used to determine whether it is possible that a hair found at a crime scene could have come from a particular suspect, or to determine whether a crime scene hair *excludes* a suspect, testimony like that offered by Agent Oakes, which purports to definitively "match" one hair to another, is now understood to be false and invalid and has been banned by the FBI.

Given the dearth of other evidence inculpating Mr. Perrot, the now-recognized failings of microscopic hair evidence erode the foundation of Mr. Perrot's conviction. First, the FBI's recent concession and identification of three specific testimonial errors relating to hair comparison evidence – all of which were pervasive at Mr. Perrot's trial – easily meet the requirements for new evidence and entitle Mr. Perrot to a new trial

pursuant to Rule 30(b) of the Massachusetts Rules of Criminal Procedure. In addition, the Commonwealth's flagrant use of false hair comparison evidence violated Mr. Perrot's right to due process and further mandates that he be granted a new trial.

By its own admission, the Commonwealth based its case largely on the forensic hair comparison evidence introduced through Agent Oakes. This evidence has now been fatally discredited by the very agency that offered it against Mr. Perrot. Without the hair comparison evidence purporting to definitively link him to the crime scene, Mr. Perrot would almost certainly not have been convicted of a crime, a crime that he did not commit. Accordingly, Mr. Perrot's pending motion for a new trial must be granted.

ARGUMENT

I. Flawed Forensic Evidence Results In Wrongful Convictions

A. Faulty Forensic Evidence And False Testimony About Such Forensic Evidence Have Contributed To The Convictions Of Innocent People

Despite their serious failings, unvalidated forensic sciences have played a major role in criminal investigations and trials. In the United States alone, DNA evidence has thus far been used to exonerate 316 people who were wrongfully convicted. Faulty and misleading forensic evidence – like the hair comparison evidence on which Mr. Perrot's conviction was based – contributed to the underlying conviction in approximately half of these cases. *See* Innocence Project, *Forensic Oversight*, available at http://www.innocenceproject.org/fix/Crime-Lab-Oversight.php. Indeed, in 2009, a study analyzing the trial transcripts of 137 individuals who had been exonerated and whose trials included the introduction of forensic evidence found that 60% involved invalid forensic testimony. Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 Va. L. Rev. 1 (2009). The study also found that the

scientifically invalid testimony "was not the product of just a few analysts in a few states, but of 72 forensic analysts employed by 52 laboratories or medical practices in 25 states." *Id.*

Similarly, flawed forensic evidence formed the foundation for conviction at each of Mr. Perrot's trials. Disguised as an expert in an ironclad scientific field, Federal Bureau of Investigation ("FBI") Agent Wayne Oakes told the jury that a single hair found at the scene of the crime could *only* have been left by Mr. Perrot. Twenty-nine years into Mr. Perrot's life sentence, the FBI has admitted that the type of testimony offered and repeated throughout Mr. Perrot's trials is scientifically invalid, and it has banned its agents from offering such testimony. *See* Section II, *infra* at pp. 8-16.

Nationwide DNA exonerations prove that flawed forensic science and misleading testimony based on faulty forensic techniques are devastating to the truth-seeking function of the criminal justice system and, more fundamentally, that what appears to be conclusive evidence of guilt is not always reliable. But the tremendous number of wrongful convictions only paints a portion of the picture because, despite the publicity surrounding DNA exonerations, experts estimate that genetic material that can be subjected to DNA analysis exists in no more than ten percent of all criminal cases. *See* Daniel S. Medwed, California Dreaming: The Golden State's Approach to Newly Discovered Evidence of Innocence, 40 U.C. Davis. L. Rev. 1437, 1440 (2007).[1] As a result, crime labs oftentimes

[1] *See also* The National Registry of Exonerations, University of Michigan Law School & Center on Wrongful Convictions at Northwestern University School of Law, available at https://www.law.umich.edu/special/exoneration/Pages/about.aspx (documenting over 1,400 exonerations nationwide, including non-DNA cases).

rely upon other forensic individualization disciplines.[2] *See* Innocence Project, *Unreliable or Improper Forensic Science*, available at http://www.innocenceproject.org/understand/Unreliable-Limited-Science.php. In cases where genetic evidence has not been available for post-conviction analysis, defendants have still been exonerated when discredited forensic disciplines on which the convictions were based were fatally undermined by the advance of scientific understanding and the concomitant recognition that conclusions offered by experts in these disciplines were false and/or misleading.[3]

The number and publicity of DNA exonerations have helped highlight the dangers of flawed forensic evidence, leading courts to widely acknowledge both the fallibility of faulty forensic evidence and the perilous effects of grossly misleading testimony relating to such evidence. *See Hinton v. Alabama*, 571 U.S. ___, 131 S. Ct. 1081, 1090 (2014) ("[W]e have recognized the threat to fair criminal trials posed by the potential for incompetent or fraudulent prosecution forensics experts . . . .") (internal citations omitted). Accordingly, Congress tasked the National Academy of Sciences ("NAS") with evaluating

[2] "Individualization disciplines" refers to those forensic assays used to attempt to associate a particular suspect to trace evidence left at a crime scene, e.g., hair, tire treads, bitemarks, and latent fingerprints.

[3] Such forensic disciplines, which like hair comparison analysis lack the scientific and statistical underpinnings to provide conclusions to any degree of scientific certainty, include comparative bullet lead analysis, shaken baby syndrome, and arson. *See* Michael J. Saks & David Faigman, *Failed Forensics: How Forensic Science Lost Its Way and How It Might Yet Find It*, Ann. Rev. L. & Soc. Sci. 149, 150-53 (2008); *State v. Edmunds*, 308 Wis. 2d 374, 391-92 (2008). In one recent case out of Middlesex County, a trial court judge overturned Victor Rosario's conviction for arson and murder in part on the basis of newly discovered advancements in the field of fire science and investigation, which revealed that the basis for the original investigators' conclusion that the fire was intentionally set at multiple locations was no longer scientifically valid. Mr. Rosario, who confessed to setting the fire in a manner that was inconsistent with the physical evidence, spent three decades in prison for a crime he almost certainly did not commit. *See Commonwealth v. Rosario*, No. 82-2399-2407 (now on appeal by the Commonwealth).

the scientific validity and reliability of various forensic techniques (including hair microscopy) and examining ways to improve the quality of those forensic techniques in criminal investigations and trials. The work by the NAS culminated in the publication of a report that reveals fundamental flaws with many common forensic disciplines and related testimony. Comm. on Identifying the Needs of the Forensic Sci. Cmty., Nat'l Research Council of the Nat'l Acads., *Strengthening Forensic Science in the United States: A Path Forward* (2009) (hereinafter, the "NAS Report"). The report acknowledges that "[n]ew doubts about the accuracy of some forensic science practices have intensified with the growing numbers of exonerations resulting from DNA analysis (and the concomitant realization that guilty parties sometimes walk free)." *Id.* at 7. The NAS was particularly critical of hair comparison evidence, noting that "[n]o scientifically accepted statistics exist about the frequency with which particular characteristics of hair are distributed in the population." *Id.* at 160. Moreover, "[t]here appear to be no uniform standards on the number of features on which hairs must agree before an examiner may declare a 'match.'" *Id*.

B. Forensic Evidence Plays A Key Role In Wrongful Convictions Because Such Evidence Is Generally Perceived As Infallible

Despite the FBI's recent admission that testimony provided by its agents regarding hair comparison evidence has been scientifically invalid, juries have relied upon such false testimony in convicting defendants like Mr. Perrot because they have been unable to distinguish between valid and reliable scientific evidence and false evidence masquerading as science. The NAS found that juries will give "undue weight to evidence and testimony derived from imperfect testing and analysis," and social science research has further

demonstrated the difficulty lay jurors have detecting flaws in putative scientific evidence. NAS Report at 4.[4]

Although many forensic disciplines, particularly hair microscopy, are "based on observation, experience, and reasoning without an underlying scientific theory," NAS Report at 128, lay jurors typically presume forensic evidence is neutral and objective, since it is presented with the trappings of actual science and proffered by a well-credentialed "expert" using esoteric scientific jargon. *Id.* at 48, 222. Research has further demonstrated that introducing evidence through an expert witness tends to make jurors less critical of the evidence and more likely to be persuaded by it than they otherwise would be. *See* N.J. Schweitzer & Michael J. Saks, *The Gatekeeper Effect: The Impact of Judges' Admissibility Decisions on the Persuasiveness of Expert Testimony*, 15 Psychol., Pub. Pol'y & L. 1 (2009) (detailing experiments showing that a finding of admissibility by a court increases the persuasiveness of expert evidence in the minds of jurors). This concept, sometimes called the "gatekeeper effect," suggests that jurors assume that judges review all expert evidence before it gets to the courtroom. *Id.* As a result, jurors treat expert testimony as having an added air of legitimacy. *Id.* The Supreme Court has likewise recognized that "[e]xpert evidence can be both powerful and quite misleading." *Daubert v. Merrell Dow Pharm., Inc.* 509 U.S. 579, 595 (1993); *see also United States v. Frazier*, 387 F.3d 1244,

[4] *See* Bradley D. McAuliff, et al., *Can Jurors Recognize Missing Control Groups, Confounds, and Experimenter Bias in Psychological Science?*, 33 L. & Hum. Behav. 247, 248 (2009) ("Overall, [the] mixed findings regarding laypeople's ability to reason about scientific issues in everyday and legal settings suggest that jurors may have difficulty differentiating valid research from junk science in trials containing expert testimony."); *see also* N.J. Schweitzer & Michael J. Saks, *Jurors and Scientific Causation: What Don't They Know, and What Can Be Done About It?*, 52 Jurimetrics J. 433, 450 (2012); Bradley D. McAuliff & Tejah D. Duckworth, *I Spy with My Little Eye: Jurors' Detection of Internal Validity Threats in Expert Evidence*, 34 L. & Hum. Behav. 489, 496 (2010).

1263 (11th Cir. 2004) ("Simply put, expert testimony may be assigned talismanic significance in the eyes of lay jurors, and, therefore, district courts must take care to weigh the value of such evidence against its potential to mislead or confuse"); *United States v. Addison*, 498 F.2d 741, 744 (D.C. Cir. 1974) (expert scientific evidence may "assume a posture of mythic infallibility in the eyes of a jury of laymen").

The aura of infallibility associated with "science," the "gatekeeper effect" of expert-delivered testimony, and difficulties understanding expert testimony and detecting flaws in such "science" all contribute to this danger of juries overvaluing even invalid forensic evidence. *See* NAS Report at 4, 95. This may be particularly true, where, as here, a witness was identified as an "expert" from the FBI, which was for years known as the premier forensic laboratory in the country. Such identification would serve only to enhance that witness's credibility to the jury, making the false evidence introduced against Mr. Perrot all the more material to his conviction.

II. Hair Microscopy Evidence Like That Proffered Against Mr. Perrot Is False And Has Contributed To At Least 75 Wrongful Convictions

A. The FBI Has Admitted That The Type Of Hair Comparison Evidence Proffered Against Mr. Perrot Has Been Discredited And Is Scientifically Unsupportable

At its most basic level, hair comparison relies on two hypotheses: (1) that a properly trained hair examiner can make an association between a questioned sample hair and a sample hair from a suspect; and (2) that a properly trained hair examiner can provide a scientifically valid estimate of the rareness or frequency of that association. But on July 18, 2013, the most ardent propagator of the field of hair microscopy – the FBI – publicly acknowledged that much of the testimony offered by its hair examiners has for decades been exaggerated and scientifically invalid with respect to the significance of the link

between a suspect's hair and a crime-scene hair, i.e., the second hypothesis. *FBI Statement on Microscopic Hair Comparison Analysis* (annexed hereto as Exhibit A) (the "FBI Agreement" or the "Agreement"). More specifically, the FBI has now identified three types of testimonial errors that its examiners typically made:

- Type 1 Error: The examiner stated or implied that the evidentiary hair could be associated with a specific individual to the exclusion of all others;

- Type 2 Error: The examiner assigned to the positive association a statistical weight or probability or provided a likelihood that the questioned hair originated from a particular source, or an opinion as to the likelihood or rareness of the positive association that could lead the jury to believe that valid statistical weight can be assigned to a microscopic hair association;

- Type 3 Error: The examiner cited the number of cases or hair analyses worked in the lab and the number of samples from different individuals that could not be distinguished from one another as a predictive value to bolster the conclusion that a hair belongs to a specific individual.

See FBI Agreement at 1.

According to the FBI, these testimonial conclusions – all three of which are pervasive in the testimony proffered to Mr. Perrot's jury – are scientifically invalid. The FBI has admitted that "[a]n examiner report or testimony that applies probabilities to a particular inclusion of someone as a source of a hair of unknown origin cannot be scientifically supported." FBI Agreement at 1. The FBI now concedes that the only probative value of hair microscopy is that it may indicate, at the broad class level, that a contributor of a known sample could be included in a pool of people of unknown size, as a *possible source* of the hair evidence. *Id.* Testimony that exceeds this narrow range of conclusions is false as a matter of science. *Id.*

The use of false hair comparison evidence to associate a defendant with hair found at a crime scene has played a role in at least 75 wrongful convictions.[5] Indeed, just since Mr. Perrot filed his motion to vacate his conviction, yet another man wrongfully convicted on the basis of hair comparison testimony from an FBI analyst from the same "elite" FBI Hair and Fiber Unit as the examiner in Mr. Perrot's case has been exonerated. Alexander & Hsu - *Man Exonerated in 1982 D.C. Killing; DNA Reveals FBI Error in Conviction*, The Washington Post, July 21, 2014.[6] Before these miscarriages of justice began to be revealed, FBI analysts from this unit routinely exaggerated the significance of their analyses – especially when claiming a defendant's hair "matched" a hair found at the scene of a crime.[7]

To take two examples, both of which involve innocent defendants, agents and analysts used Type 3 errors to falsely inflate the alleged probative value of their testimony:

- In the trial of Jimmy Bromgard in Montana, the analyst testified that hair microscopy was not like fingerprints, but quickly added that "I have

[5] *See* Innocence Project, *Forensic Science Breakdown by Discipline*, available at: http://www.innocenceproject.org/docs/FSBreakdownDiscipline.pdf (last viewed on August 22, 2014).

[6] Available at: http://www.washingtonpost.com/local/crime/dc-man-exonerated-in-1982-rape-and-murder-dna-reveals-fbi-error-in-conviction/2014/07/21/ee7cc490-0ec8-11e4-8341-b8072b1e7348_story.html (last viewed on August 22, 2014).

[7] The word "match" imputes an unsupportable level of certainty and ostensibly implies that a crime-scene hair could only have been left by the suspect with whom the hair is associated. However, "no data that could permit forensic scientists to offer an identification 'to the exclusion of all others in the world' exist, and they are unlikely to come into being in the foreseeable future." M. Saks & J. Koehler, *The Individualization Fallacy in Forensic Science Evidence*, 61 Vand. L. Rev. 199, 199 (2008). For example, "[n]o scientifically accepted statistics exist about the frequency with which particular characteristics of hair are distributed in the population." NAS Report at 160. And there are no consistently accepted standards on the number of hair characteristics required to constitute a so-called "match." *Id.*

done over 700 cases involving head hair and have only five or six cases where I could not distinguish between the head hairs of two individuals." (Tr. 245). Mr. Bromgard spent 14.5 years in prison for a crime he did not commit before he was exonerated on October 1, 2012.[8]

- In the trial of Calvin Lee Scott in Oklahoma, the analyst testified that "hairs are not in any way like fingerprints except for identifying features. The criminologists that I have known and talked to … have never found a hair of two people the same. They are not saying that there never would be but there have not been any found that are." (Tr. 46). Mr. Scott spent 20 years in prison before he was exonerated in 2003.[9]

These cases underscore the power of false hair microscopy evidence to convict innocent people and corrupt the truth-seeking function of the criminal justice system.[10]

B. Agent Oakes's False Testimony Included All Three Error Types Identified By The FBI, Which Were Capitalized And Relied Upon By The Commonwealth

The testimony of Agent Wayne Oakes is replete with examples of the three testimonial error types identified by the FBI and like that used to wrongfully convict in the cases described above. It provides a devastating example of the impact that the submission

[8] Innocence Project, *Know the Cases*, http://www.innocenceproject.org/Content/Jimmy_ Ray_ Bromgard.php (last visited August 22, 2014).

[9] Innocence Project, *Know the Cases*, http://www.innocenceproject.org/Content/Calvin_ Lee_Scott.php (last visited August 22, 2014).

[10] The testimony cited and other supporting information is available at the website of Professor Brandon L. Garrett, http://www.law.virginia.edu/html/librarysite/garrett_ exoneree.htm (last visited August 22, 2014).

of this disavowed and discredited testimony can have, particularly in a case that is as otherwise weak as that against Mr. Perrot. Indeed, the illusory strength of this testimony has supported the incarceration of an innocent man for the last 29 years.

Much of Oakes's testimony fell squarely within the three error types since identified by the FBI as beyond the bounds of science. *First,* Oakes testified about his ability to associate the hair sample from the crime scene with a specific individual – Mr. Perrot – to the exclusion of all others. The seeds of this error were planted with a facial recognition analogy, through which Oakes attempted to impress upon the jurors that he could match two hairs just as they were themselves able to match two faces.[11] Oakes further claimed that, "I don't think if you showed that question hair to any qualified experts they would disagree that it matched the hairs of the defendant." (Tr. 376).[12] As the FBI has since conceded, this is empirically false. And such testimony is particularly damaging when, as here, witnesses who are cloaked with scientific expertise testify that forensic evidence can be "matched in the laboratory to the defendant . . . to the exclusion of all other persons in the world, [because] that testimony is likely to be accepted as

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[11] Oakes explained to the jury that he considered his method akin to a layperson's attempt to recognize a familiar face:

> I testified previously that when you look at a person's face you look at their eyes, their ears and mouth. Most people have those characteristics, but when you walk into a room that's crowded you can spot and recognize someone you know even though everyone has two eyes, two ears and a nose and mouth because you know that person. You can detect subtle differences. You can pick out – oh, yeah, that's that person that I'm pointing out.

(Tr. 341-42).

[12] Unless otherwise indicated, citations to "Tr." are to the record in *Commonwealth v. Perrot*, Criminal Action No. 85-5415-18 and 85-5420-25, held starting on January 6, 1992.

conclusive." Keith A. Findley, *Innocents At Risk: Adversary Imbalance, Forensic Science, and the Search for Truth*, 38 Seton Hall L. Rev. 893, 943 (2008); *see also* Mark A. Godsey & Marie Alao, *She Blinded Me with Science: Wrongful Convictions and the "Reverse CSI Effect"*, 17 Tex. Wesleyan L. Rev. 481, 483-84 (2011); Allan Raitz et al., *Determining Damages: The Influence of Expert Testimony on Juror Decision Making*, 14 L. & Hum. Behav. 385 (1990).[13]

Though Oakes acknowledged that he could not say "with one hundred percent certainty" that he could match a hair unless he pulled that hair from someone's head himself (Tr. 349), he also testified that, based on his experience "in 10 years it's extremely rare I will have known hair samples from two different people I can't tell apart." (Tr. 349). Such false testimony – a Type 3 error – has led to numerous wrongful convictions, including those of Jimmy Bromgard and Calvin Lee Scott. *See supra* at pp. 10-11.

Thus, both in the abstract and in relation to Mr. Perrot, Oakes gave repeated false testimony regarding his ability to match a hair to a specific individual. This directly contravenes the FBI's instruction that an error has been made when "[t]he examiner stated or implied that the evidentiary hair could be associated with a specific individual to the exclusion of all others." Ex. A at 1.

Second, Oakes repeatedly and improperly gave his opinion as to the likelihood or rareness of the positive association that he made. To do this, Oakes falsely claimed that there was such great microscopic variability between the hairs of individuals that

[13] Even terms such as "analytically indistinguishable" and "similar in microscopic characteristics" generally lead jurors to believe that an exact match has been found. *See* Dawn McQuiston-Surrett & Michael J. Saks, *Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact*, 59 Hastings L.J. 1159, 1170 (2008).

comparison evidence was "the basis of strong association." (Tr. 349-50). Over and over again, Oakes drove this point home, claiming, for example, that "[o]ne person's head hairs tend to differ greatly from [an]other person's" (Tr. 338-39), that he could find "microscopic characteristics that go to make [a] hair somewhat unique" (Tr. 339); that "internal microscopic characteristic[s] … can vary greatly from one person to another" (Tr. 339-46); that "pigment distribution and size granules" can vary greatly amongst persons, which further allows him "to compare question hairs with known hair sample[s]" (Tr. 346); and, that "ovoid bodies … can vary greatly in one person to another." (Tr. 347).[14]

There is simply no basis in science to make these claims. Rather, they exemplify precisely the type of testimony that has been expressly discredited by the FBI, which has admitted it is error for an expert to have "assigned to the positive association a statistical weight or probability or provided a likelihood that the questioned hair originated from a particular source, or an opinion as to the likelihood or rareness of the positive association that could lead the jury to believe that valid statistical weight can be assigned to a microscopic hair association." Ex. A at 1.

Oakes also categorically denied what the FBI Agreement now concedes to be true: at most, his analysis could only show that Mr. Perrot could not be eliminated from the group of people of an *unknown size* who were a *possible* source of the hair. *Id.* Indeed, on

[14] Testimony like this may be particularly problematic for jurors' ability to evaluate credibility. Research suggests that "the esoteric nature of an expert's opinions, together with the jargon and the expert's scholarly credentials, may cast an aura of infallibility over his or her testimony." Peter J. Neufeld & Neville Colman, *When Science Takes the Witness Stand*, 262 Sci. Am. 46, 48 (May 1990); *see also* Jessica D. Gabel, *Forensiphilia: Is Public Fascination with Forensic Science a Love Affair or Fatal Attraction?*, 36 New Eng. J. on Crim. & Civ. Confinement 233 (2010); Godsey & Alao, 17 Tex. Wesleyan L. Rev. at 481; William A. Tobin & Peter J. Blau, *Hypothesis Testing of the Critical Underlying Premise of Discernible Uniqueness in Firearms-Toolmarks Forensic Practice*, 53 Jurimetrics J. 121, 123 (2013); *see also* Section I.B, *supra* p 6.

cross-examination, defense counsel explicitly asked Oakes if it was true that "[Oakes's] questioned sample was sufficiently similar to one or some of the hairs [Oakes] received from Mr. Perrot so that [Oakes] could not excuse Mr. Perrot as having been the source of the hair," and Oakes falsely denied that this was an accurate statement (Tr. 371).[15] Thus, Oakes both over-reached and under-delivered; he came to conclusions that have since been scientifically discredited and refused to accept those that are within the bounds of what is appropriate.

Third, Oakes improperly bolstered his conclusions by reference to the number of cases or hair analyses previously worked and by citing the number of samples from different individuals that could not be distinguished from one another as having a predictive value. Again, his testimony is replete with such references:

- In describing his background and experience, Oakes told the jury that he worked "anywhere from three to four hundred, possibly five hundred a year times 10. Somewhere in the vicinity of three thousand to five thousand cases" (Tr. 335) and that he had "conducted thousands of examinations in thousands of cases." (Tr. 354);

[15] Even had Agent Oakes answered more truthfully, research has shown that cross-examination is generally inadequate and ineffective at correcting jurors' misperceptions of the value of expert testimony. *See* Jonathan Koehler, *If the Shoe Fits They Might Acquit: The Value of Forensic Science Testimony* 8(S1) J. of Empirical Legal Studies 21 (2011). Indeed, one experiment testing the reaction of potential jurors to flaws in microscopic hair examination found that alerting jurors to the limitations of a particular discipline had little impact on their decision-making. Dawn McQuiston-Surrett and Michael J. Saks, *Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact*, 59 Hastings L.J. 1159, 1167-69 ("Whether or not jurors were informed about the limitations of microscopic hair examination on cross-examination or by the judge had little measurable or meaningful impact on their judgments about the likelihood that the defendant was the source of the crime-scene hair or their perceived understanding of the expert's testimony.").

- Oakes testified that he had been qualified as "an expert in this area in courts in this country" over 150 times (Tr. 354) and had testified, on average, between 30 and 40 times a year (Tr. 383-84);
- When asked if forensic experts could come to different conclusions on two hairs, Oakes stated that it would only be possible "[i]f one had a lesser amount of training" than he himself had received (Tr. 374-75); and
- Oakes rejected the possibility that he could be wrong and, in essence, claimed to never be wrong based in part on his own training and experience – "[s]ir, I have been doing this for 10 years. I have been trained over a year to do this. I have done thousands and thousands of cases. I would not ask someone in the jury or some other lay person that I am skilled and trained with doing. No. I would not expect a lay person to make that comparison to come up with the conclusion I do. That's my job." (Tr. 376-77).

As with virtually all of his testimony, this contravenes the FBI's admission regarding the limits of this "science," as the FBI has definitively stated that there is no valid basis for a witness to "cite[] the number of cases or hair analyses worked in the lab and the number of samples from different individuals that could not be distinguished from one another as a predictive value to bolster the conclusion that a hair belongs to a specific individual." Ex. A at 1.

All of the primary conclusions reached by Agent Oakes – the primary bases for Mr. Perrot's conviction – were scientifically invalid and unsupportable.

III. Mr. Perrot Is Entitled To A New Trial Based On The Commonwealth's Use Of Discredited Hair Microscopy Evidence And The FBI Agreement Concerning The Invalidity Of This Evidence

Even in isolation, the false and misleading evidence was plainly critical to the prosecution's case,[16] to say nothing of its heightened significance in light of the near-complete lack of direct evidence linking Mr. Perrot to the offenses charged. The prosecution repeatedly emphasized to the jury that the hair microscopy evidence was vital to its case and a reason for conviction. For example, in its opening statement, the prosecution argued that "when George Perrot was there … he left something behind. He left some of his hair…" (Tr. 107). This thread was picked up in summation, where the prosecution, exploiting the flagrant Type 3 error, continued to contend that Agent Oakes "found a single hair for comparison and it was consistent with George Perrot . . . And he told you it was in his experience, over 10 years doing thousands of these tests, it was very rare, very rare to ever find two hairs from different people that he couldn't tell apart."[17] (Tr. 619-20). Indeed, the prosecutor continued, Oakes had testified that "[i]f somebody had the amount of training and experience not one of them would disagree with my opinion in this case." (Tr. 620). Again, the message to the jury was clear: FBI Special

[16] Indeed, it was the primary basis relied upon by the Court of Appeals in reversing the earlier order granting a new trial. *See Commonwealth v. Perrot*, 58 Mass. App. Ct. 1102, at *5 (2003).

[17] The Commonwealth was similarly reliant on this false testimony at Mr. Perrot's first trial. In its opening statement, it argued to the jury that this "is probably the most important part of this case" (First Tr. I 190) (all references to "First Tr." are to the Record from *Commonwealth v. Perrot*, Case Nos. 85-415 thru 5418, 5420, 5422, 5423, 5425, held starting on December 8, 1987) and in summation contended that the hair found in the victim's bedroom has "got to be the perpetrator's hair" and is thus "so important." (*Id.* VI 64).

Agent Oakes's testimony that Perrot left his hair at the crime scene was incontrovertible scientific proof of Mr. Perrot's guilt.[18]

Agent Oakes's testimony also placed Mr. Perrot directly at the scene of the crime – indeed, in the victim's own bed, which was particularly significant because the bed was where the serological evidence the Commonwealth speculated was also attributable to Mr. Perrot was found. And as noted, the import of the hair microscopy evidence was particularly heightened because it was the only direct evidence against Mr. Perrot. As described in greater detail in Mr. Perrot's motion for a new trial, the circumstantial evidence against Mr. Perrot was paltry at best. The victim described a perpetrator looking nothing like Mr. Perrot, and, indeed, she repeatedly declined to identify him. (Tr. 146-47, 154-56, 158, 160). Not surprisingly, victim witnesses in several wrongful conviction cases did not identify the (innocent) defendants, including Frederic Saecker in Wisconsin, who, like Mr. Perrot, was wrongfully convicted based on hair comparison evidence.[19] Mr. Perrot's "confession," moreover, suffers serious flaws, as identified by Mr. Perrot's motion for a new trial and as detailed more broadly in the amicus brief submitted by the Center for Wrongful Convictions.[20]

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[18] Later, in constructing the counterfactual which it argued was necessary to believe Mr. Perrot was innocent, the prosecutor stated that it would have to be "a world where two FBI agents get together and risk their reputations and careers to create evidence to reach conclusions not supported." (Tr. 626). Thus, the prosecutor was imploring the jury to uncritically accept the conclusions reached by Oakes based on his (false) scientific credentials; these are conclusions that are now known to have been false and misleading.

[19] *See* http://www.innocenceproject.org/Content/Fredric_Saecker.php. Another example is Keith Brown, who, like Mr. Perrot, made false incriminating statements (http://www.innocenceproject.org/Content/Keith_Brown.php); and Eddie Lowery, who falsely confessed. (http://www.innocenceproject.org/Content/Eddie_James_Lowery.php).

[20] While in the interest of brevity, the Innocence Network adopts these arguments by reference and so does not repeat them, it bears noting that within the last five years, the

Where, as here, false yet purportedly "scientific" evidence is not only introduced but serves as almost the entirety of the evidence against a defendant, the conviction cannot stand. Pursuant to Massachusetts Rule of Criminal Procedure 30(b), the Court "may grant a new trial at any time if it appears that justice may not have been done." This is precisely the type of case in which this Court should exercise its discretion and right the tragic wrong of the last 29 years. Because of the Commonwealth's reliance on hair microscopy evidence at his trials and the release of the FBI Agreement concerning its failings, Mr. Perrot is entitled to a new trial, both because the FBI Agreement constitutes newly discovered evidence that would have been material to his trial and because the use of the hair microscopy evidence at his trial violated his right to due process.

Supreme Court has recognized that there exists "mounting evidence" that custodial police interrogation "can induce a frighteningly high percentage of people to confess to crimes they never committed." *Corley v. United States*, 556 U.S. 303, 321 (2009) (citation omitted); *see also Commonwealth v. Hoose*, 467 Mass. 395, 419 (2014) ("We do acknowledge, however, that the phenomenon of false confessions is a growing area of psychological and social science research, and we are mindful that false confessions have been demonstrated to occur even in the context of serious crimes, including murder.").

Likewise, the fact that many of the indicia of unreliability that recur frequently in cases of false confession, including the length of interrogation, the small size and constricting nature of the room in which the interrogation takes place, and the age of the suspect at the time of the interrogation, were present in this case should give the Court pause when evaluating the significance of Mr. Perrot's confession. *See, e.g.*, Saul M. Kassin, et al., *Police-Induced Confessions: Risk Factors and Recommendations*, 44 J. L. & Hum. Behav. 34 (2010) (noting that the first step investigators take is "to isolate the suspect in a small private room, which increases his or her anxiety and incentive to escape"); Christine Scott-Hayword, *Explaining Juvenile False Confessions: Adolescent Development and Police Interrogation*, 31 L. & Psychol. Rev. 53 (2007) (examining "the connections between adolescent psychological development, police interrogation, and the false confession phenomenon" in order to try to understand the "vulnerability of young people to suggestive and deceptive interrogation techniques."); B. Feld, *Behind Closed Doors: What Really Happens When Cops Question Kids*, 23 Cornell J.L. & Pub. Pol'y 395, 457-58 (2013) ("The Court has recognized that lengthy interrogations produce involuntary confessions and that prolonged questioning of juveniles can coerce a statement.").

The newly discovered evidence in the case – the FBI's admission concerning hair comparison evidence – would have precluded the introduction of the most significant piece of evidence against Mr. Perrot and exposes the supposedly expert, scientific, testimony used to convict him as false, misleading, and without any basis in science. Mr. Perrot is therefore entitled to a new trial. More specifically, pursuant to Mass. R. Crim. P. 30(b), a new trial is required for two distinct but related reasons: (1) the availability of "newly discovered evidence" which would have impacted his trial, and (2) the violations of due process which inhered in his prosecution. As detailed above, the evidence employed by the Commonwealth against Mr. Perrot was fatally flawed. The most powerful evidence of his "guilt" is the most discredited; indeed, it is hard to envision a circumstance where evidence has been more clearly undermined than one in which the very agency which first presented it now recognizes that it is false. Though Mr. Perrot has established that, but for the false evidence proffered by Oakes, there was insufficient evidence to convict him, he need not do so in order to be entitled to a new trial. Rather, he must simply establish there is a *substantial risk* that the jury would have reached a different conclusion had the evidence been available and admitted at the original trial. This he has plainly done.

A. Mr. Perrot Is Entitled To A New Trial Based On The FBI's Concession And The Release Of The FBI Agreement

To obtain a new trial on the basis of newly discovered evidence, a petitioner must establish that the evidence (1) is actually newly discovered, and (2) "casts real doubt on the justice of the conviction." *Commonwealth v. DiBenedetto*, 458 Mass. 657, 664 (2011), quoting *Commonwealth v. Grace*, 397 Mass. 303, 305-06 (1986). Evidence is "newly discovered" if it was unknown to the defendant and counsel at the time of trial and was not reasonably discoverable via pretrial diligence. *Commonwealth v. Caillot*, 449 Mass. 712,

725 (2007); *Grace*, 397 Mass. at 306. The newly discovered evidence must also be both "material and credible" while carrying a "measure of strength" in support of the defendant's position. *DiBenedetto*, 458 Mass. at 664, quoting *Grace*, 397 Mass. at 305. Such evidence will be deemed stronger if it is "different in kind" from old evidence, rather than just cumulative. *DiBenedetto*, 458 Mass. at 664, quoting *Grace*, 397 Mass. at 306. Finally, a court does not have to decide whether the verdict in the original case would have necessarily been different, but instead whether there is a *substantial risk* that the jury would have reached a different conclusion had the evidence been available and admitted at the original trial. *DiBenedetto* at 664; *Grace* at 306.

i. The FBI's Concession That Its Agents Provided Scientifically False Evidence And The FBI's Identification Of Specific Error Types That Were Made Repeatedly At Mr. Perrot's Trial Constitute Newly Discovered Evidence

The FBI's admission that its agents provided false and misleading testimony and the FBI's identification of the specific types of errors in testimony made at Mr. Perrot's trial satisfy the requirements for new evidence pursuant to Rule 30(b) of the Massachusetts Rules of Criminal Procedure. Courts have held that revelations about and new understandings of flaws in traditionally accepted forensic sciences may constitute newly discovered evidence. *See State v. Edmunds*, 308 Wis. 2d 374, 391-92 (Ct. App. 2008) (holding that new scientific developments undermining the reliability of critical scientific evidence presented at trial can constitute newly discovered evidence requiring a new trial); *see also In re Henderson*, 384 S.W.3d 833 (Tex. Crim. App. 2012) (same). Here, the FBI did not discover and/or did not admit the flaws in the testimony provided at Mr. Perrot's trial until 2013, and the state of scientific knowledge prior to the release of the FBI letter clearly did not suffice to put Mr. Perrot on notice of the issues raised in the Agreement.

ii. This Newly Discovered Evidence Casts Real Doubt On The Justice Of Mr. Perrot's Conviction

The FBI Agreement completely and unequivocally discredits the testimony given by Agent Oakes and the evidence he put before the jury. Most pointedly, the Agreement explicitly finds that "microscopy hair analysis is limited . . . in that the size of the pool of people who could be included as a possible source of a specific hair is unknown." Ex. A. Thus, an examiner no longer may apply "probabilities to a particular inclusion of someone as a source of a hair of unknown origin." *Id.* Instead, if supported by the analysis, the strongest conclusion that an analyst is allowed to reach is that a suspect hair could be included within a class of people, of unknown size, all of whom could have been the source of the hair in question. *Id.* As detailed above, Oakes testified directly to the contrary.

Had the Agreement been available when Mr. Perrot was on trial, Oakes would not have been able to testify as to his most pointed conclusions without perjuring himself (and, more likely, would not have survived a *voir dire* or challenge to his status as an expert). More to the point, if the FBI Agreement or its findings were available at the time of Mr. Perrot's trial, the prosecution would have been left without its single most powerful piece of evidence that it placed before the jury. Thus, this newly discovered evidence casts serious doubt on the justice of the conviction of Mr. Perrot. *Commonwealth v. Chiappini*, 72 Mass. App. Ct. 188, 197-98 (2008) (holding that newly discovered evidence entitles a petitioner to a new trial if it "would probably have been a real factor in the jury's deliberations") (citing *Grace* at 306).

As discussed above, scientific evidence like the hair microscopy evidence at issue here is given more weight by jurors than most other evidence and thus is material to the

conviction. *See* Section I(B), *supra* at pp. 6-8. It is undisputed that Agent Oakes passed off his analysis as scientific, and that this characterization by Oakes was capitalized upon by the Commonwealth in its arguments to the jury. Further, for all the reasons described above, the Agreement has completely discredited the most powerful conclusions reached by Agent Oakes. Thus, the Agreement is a textbook example of evidence that would have been a factor in the deliberations of the jury – it directly contradicts the most powerful evidence that the Commonwealth placed before the jurors. Additionally, the new evidence carries the imprimatur of the FBI, a "measure of strength" on its own, *see Grace*, 397 Mass. at 305-06, and carries even more strength in this circumstance – where the challenged (old) evidence was actually proffered by the same organization. Taken in sum and in the most basic terms, the FBI Agreement is new evidence, negates the most powerful evidence presented at Mr. Perrot's trial, and does so in a context in which the balance of the evidence offered against him was incurably flawed.

B. Mr. Perrot's Right To Due Process Has Been Violated As A Result Of The Use Of False And/Or Misleading Evidence[21]

"A conviction obtained through the use of false evidence, known to be such by representatives of the states, must fall under the Fourteenth Amendment." *Napue v. Illinois*, 360 U.S. 264, 269 (1959) (citations omitted). "The same result obtains when the

[21] The interplay between the "newly discovered evidence" and due process arguments for Mr. Perrot is also telling. Evidence is not "newly discovered" if it is either known or should have been known at the time of trial. *See, e.g.*, *Caillot*, 449 Mass. at 725. Thus, if the FBI Agreement and its revelations about the limits of appropriate hair microscopy testimony are not newly discovered, the false and misleading nature of the testimony must then, by definition, either have been known, or should have been known, at the time it was introduced. As such, if the Commonwealth disputes that this evidence is "newly discovered," the Court should deem the Commonwealth to have conceded that it knew or should have known about the false evidence at the time they proffered it to Mr. Perrot's jury.

State, although not soliciting false evidence, allows it to go uncorrected when it appears." *Id.*; *see also DeChristoforo v. Donnelly*, 473 F.2d 1236, 1240 (1st Cir. 1973) ("For a prosecutor to convey, or even to permit, a false impression, invades the area of due process.") (citations omitted). If there is "any reasonable likelihood that the false testimony could have affected the judgment of the jury," then a new trial is necessary. *United States v. Agurs*, 427 U.S. 97, 103 (1976). And, if a prosecutor *should have* known that evidence was false, the same standard applies. *Id.*; *United States v. Sheehan*, 442 F. Supp. 1003, 1007 (D. Mass. 1977) ("The first standard is applicable where the prosecution's case includes perjured testimony and the prosecution knew, or should have known, of the perjury."); *Commonwealth v. Tucceri*, 412 Mass. 401, 405 n.3 (1992) ("A third aspect involves situations in which the prosecution knew or should have known that perjurious testimony was offered and did not disclose that fact."). The use of the hair microscopy evidence at Mr. Perrot's trial violated his right to due process, and provides an independent reason for his conviction to be vacated and for him to be awarded a new trial.

i. The Hair Microscopy Evidence Was Indisputably False And The Prosecution Knew Or Should Have Known It Was False

The prosecution's knowledge is not limited to the prosecutors presenting the case on behalf of the state; instead, the knowledge of persons "acting on the government's behalf in the case" is imputed to the Commonwealth. *See Kyles v. Whitley*, 514 U.S. 419, 437 (1995). The Supreme Judicial Court has held that the knowledge possessed by FBI agents is imputed to prosecutors employed by the Commonwealth where a prosecution was the product of a joint investigation between it and the FBI. *Commonwealth v. Lykus*, 451 Mass. 310, 327-28 (2008). In *Lykus*, the defendant was convicted of murder in the first degree, kidnapping, and extortion. *Id.* at 310. At trial, the defendant did not receive

certain FBI voiceprint reports that were admitted by the Commonwealth to be exculpatory. *Id.* at 326-328. The relevant reports were not in the possession of the Commonwealth, however, but in the hands of the FBI, and thus the Commonwealth argued that it could not "be held responsible for the failure of the FBI to disclose the report because the FBI was not under its control." *Id.* at 327. The court disagreed:

> Without defining the scope of the issue, the circumstances of this case fall well within the core of the principle under which the actions of one sovereign may be imputed to another. . . . *The degree of cooperation between State and Federal prosecutors in this case specifically was very high, and the FBI was aware that the defendant's motion for all laboratory reports had been allowed. The judge correctly determined that the burden for the failure to disclose the FBI voiceprint laboratory report should fall on the Commonwealth, not the defendant.*

Id. at 328 (emphasis supplied). Thus, there, as here, the FBI was intimately involved in the prosecution of the defendant, to the extent that the court held that its actions could be attributed to the Commonwealth (while the motion was about the disclosure of evidence, the same principle and conclusion follow).

Moreover, there is no doubt that the FBI knew, or should have known, that the evidence put before the jury was false. Though at the time of Mr. Perrot's trial, the issues regarding hair microscopy evidence were not widely known or widely discussed by the public, the FBI itself was clearly aware that the evidence was not the shield of infallibility that its "experts" portrayed. As noted in petitioner's brief, that the FBI had such knowledge was recently revealed in a deposition given by Michael Malone, a former Supervisory Special Agent in the FBI's Hair and Fiber Unit. Malone, who had trained state hair and fiber examiners all over the country during his 20-year tenure with the FBI

(Malone Dep. Tr. 33, 43)[22] gave a series of admissions regarding what he knew to be actually true during the course of his career. Most relevantly, when asked about testimony that the FBI has since categorized as "Type 3" error, Malone was asked the following question and gave the following answer:

> Q. Was there a discussion amongst any of the FBI agent examiners that, "Since we didn't have a database and we didn't have, you know, real probabilities, scientifically valid probabilities, let's try and use these numbers of the cases that we have looked at in lieu of real probabilities"?
>
> A. We've had discussions to that effect, yes.

(*Id.* at 330; *see also id.* at 199-200 ("[T]here's no way that you can do all those pairwise comparisons that would be needed to do in order to come up with a numerical probability on the frequency of a coincidental match.")). Put another way, Malone expressly admitted that he and other FBI agents were aware of the lack of evidence giving rise to "Type 3" error and still decided to intentionally put before juries such testimony. This type of testimony was indeed given by Agent Oakes, who, as detailed above, relied a great deal on his "experience" to falsely validate the conclusions he reached regarding Mr. Perrot; or, as Agent Malone testified, "use these numbers of the cases we have looked at in lieu of real probabilities." (*See, e.g.* Tr. 376-77) ("I have been trained over a year to do this. I have done thousands and thousands of cases. I would not ask someone in the jury or some other lay person that I am skilled and trained with doing. No. I would not expect a lay person to make that comparison to come up with the conclusion I do. That's my job.").

This was not the limit of the revelations that Malone's testimony has shed on the FBI's past practices. He admitted that agents were "taught that [they were] not allowed to

[22] All references to Malone Dep. Tr. are to the deposition of Michael P. Malone, attached as exhibit CC to Mr. Perrot's Motion for a New Trial.

say on the witness stand that . . . the hair found at this crime scene comes from John Brown" or that "to a reasonable degree of scientific certainty that the hair came from John Brown." (Malone Dep. Tr. at 213). Further, Malone conceded that while he was employed by the FBI, he was taught several basic tenets that were later violated by Oakes (and others), including (1) that the answer to the question "what proportion of the population would have characteristics that are the same as the evidentiary hair" should be "we do not know"; (2) the answer to the question "what is the probability of a coincidental match between the questioned hair and the known sample" should be "we do not know"; and (3) the "[s]trongest conclusion that a microscoping hair examiner can ever make is that a hair 'is consistent with' or 'could have come from' the donor of the known sample." (*Id.* at 174-76).

As further proof that Agent Oakes knew that the evidence proffered was exaggerated and false, we now know that Oakes was a moderator at a 1985 International Symposium on Forensic Hair Comparisons (the "Symposium"), which took place at the FBI Academy in Quantico, Virginia.[23] At the end of the Symposium, a panel discussion took place, including two participants from the FBI Laboratory; the Chief Scientist for the Hair and Fibres Section for the Royal Canadian Mounted Police; the Chief Scientific Officer for the Metropolitan Police Forensic Science Laboratory in London; the Scientific Director for the General Biology Section in Germany; and Dr. Peter De Forest, a Professor of Criminalistics at John Jay College.

[23] The report is available at https://www.ncjrs.gov/pdffiles1/Digitization/116592NCJRS.pdf (last visited August 22, 2014) (hereinafter, "Symposium Report"). Oakes is listed as a moderator on page V.

At that panel discussion, Dr. De Forest explained the limits to the "evidential value of hair" and some of the "defense expert's perspectives on the hair question" that he had gleaned through his experience. (Symposium Report at 199). He emphasized that "hair examination" is non-absolute associative evidence, whose "power" is to "exclude hair." (*Id.*). Later on, during the "Q and A" portion of the presentation, Dr. De Forest explained how experts are prone to overstating the value of hair comparison through testimony now identified as Type 3 errors:

> I have a problem with the divergence from a laboratory report in which the conclusion is these hairs could have shared a common origin to the presentation of testimony in court when the expert says something to the effect that, 'Yes, these hairs were found to be similar and in my experience I have examined thousands of hairs and I have never found two hairs from different sources that were alike.' I think that is very misleading and it is not substantiated by any data.

(*Id.* at 204). Further, De Forest and other panelists emphasized that it was "clear more [had] to be done" concerning the training of hair microscopy "experts." (*Id*. at 209). Indeed, he explained that he was involved with the FBI sponsorship of the Committee of Forensic Hair Comparison, which he felt "should be an ongoing committee" because they had "not solved all the problems by any means." (*Id.*). His comments, and those of the rest of the panelists and contributors, evidence a skepticism and caution about the use and limitations of hair microscopy evidence that has since been vindicated. The presence of Agent Oakes at this symposium, witness to these comments by De Forest and other leading scholars on hair microscopy, clearly put him on notice to the limits of this science, which he ignored or forgot when he testified at the trial of Mr. Perrot.

Even if they had not explicitly been aware, Oakes, the FBI, and the Commonwealth clearly "should have" known that the hair microscopy evidence was false. Oakes

purported to be an expert, a well-trained scientist testifying with the imprimatur of the FBI and the Commonwealth. As a trained "scientist," given the imprimatur of an "expert" by the court, he should have known that there was no basis in science for him to have made the claims he did make; that is, he should have known what Dr. De Forest knew. As has now been established (and admitted by the FBI), Oakes's conclusions were clearly and pointedly beyond the limits of what was scientifically achievable. This, too, was recognized by several other "scientists," as exemplified by the cautionary language and approach outlined by Dr. De Forest at the Symposium, and thus the training and information demonstrating the limitations of this science was available to FBI analysts and purported experts, if not the general public. Thus, even if he did not know that his testimony was false when he gave it, he clearly should have, which in itself suffices to fulfill Mr. Perrot's burden regarding this prong of the due process violation. *See, e.g.*, *Agurs*, 427 U.S. at 103.

ii. The False Evidence Affected The Judgment Of The Jury

As detailed above, the false hair microscopy evidence was central to the Commonwealth's case against Mr. Perrot and the impact of this testimony undoubtedly impacted the judgment of the jury. Indeed, it was sufficient to overcome the victim's repeated insistence that the perpetrator looked nothing like Mr. Perrot. Without this evidence, the proverbial cupboard would have been all but bare – the prosecution would have been left with only two victims who could not identify Mr. Perrot; a partial false confession; exculpatory testimony from a victim of the offense; and a modicum of other evidence not nearly sufficient to convict. The hair microscopy evidence was, as argued by the Commonwealth itself, the sole direct evidence that Mr. Perrot was "there" at the crime scene, because Oakes's testimony proved that "[Mr. Perrot] left something behind. He left

some of his hair." (Tr. 107). In short, this false evidence was central to the Commonwealth's case, and Mr. Perrot is therefore entitled to a new trial. *Giglio v. United States*, 405 U.S. 150, 154 (1972) (a "new trial is required" if false evidence "could . . . in any reasonable likelihood have affected the judgment of the jury") (internal quotations and citations omitted).

C. Additionally, The Introduction Of This Evidence Was Fundamentally Unfair To Mr. Perrot And Thus Violated His Right To Due Process

Even if this court were to find some element lacking in Mr. Perrot's false and misleading evidence argument, due process is implicated more broadly where, as here, newly discovered evidence establishes that evidence that was proffered to a jury as conclusive, "scientific" evidence of guilt had in fact no basis in science whatsoever. In such rare circumstances as these, the adversarial process – the foundation upon which our criminal justice system is based – has not served its truth-seeking purpose, and the doctrine of "fundamental fairness" requires that such a conviction be vacated.[24]

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[24] *See Brecht v. Abrahamson*, 507 U.S. 619, 639 (1993) (Stevens, J., concurring) ("The Fourteenth Amendment prohibits the deprivation of liberty 'without due process of law'; that guarantee is the source of the federal right to challenge state criminal convictions that result from fundamentally unfair trial proceedings."); *Estelle v. McGuire*, 502 U.S. 62, 70 (1991) ("[T]he Due Process Clause guarantees fundamental elements of fairness in a criminal trial.") (internal citations omitted); *Chambers v. Mississippi*, 410 U.S. 284, 294 (1973) ("The right of an accused in a criminal trial to due process is, in essence, the right to a fair opportunity to defend against the State's accusations."); *Spencer v. Texas,* 385 U.S. 554, 563–564 (1967) ("Cases in this Court have long proceeded on the premise that the Due Process Clause guarantees the fundamental elements of fairness in a criminal trial."); s*ee also United States v. Cronic*, 466 U.S. 648, 656-57 (1984) ("The right to the effective assistance of counsel is thus the right of the accused to require the prosecution's case to survive the crucible of meaningful adversarial testing."); *Strickland v. Washington*, 466 U.S. 668, 696 (1984) ("[T]he ultimate focus of inquiry must be on the fundamental fairness of the proceeding whose result is being challenged. In every case the court should be concerned with whether, despite the strong presumption of reliability, the result of the particular proceeding is unreliable because of a breakdown in the adversarial process that our system counts on to produce just results.").

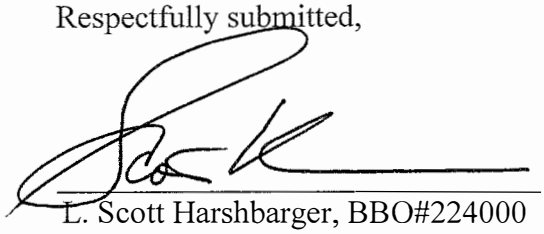
The adversarial process guaranteed to Mr. Perrot broke down, and his right to due process was violated as a result. Due to the lack of available information (to the public, if not the FBI) at the time of his trial regarding the lack of actual "science" underlying Oakes's testimony, his counsel was unequipped to adequately challenge this critical evidence. Indeed, Mr. Perrot's counsel at trial did not *voir dire* Oakes before he gave his damaging testimony and did not retain an expert of his own to testify in rebuttal to Oakes's claims. Further, as discussed above, defense counsel was unable to adequately question Oakes on cross-examination; indeed, he could not even get Oakes to agree with him concerning the only *actually supported* conclusion that the agent was scientifically able to reach, as now admitted by the FBI. (*See* Tr. 371). As a result, there was no meaningful adversarial testing of the critical piece of evidence used to convict Mr. Perrot, rendering his trial fundamentally unfair. *See, e.g.*, *Spencer v. Texas*, 385 U.S. 554, 563-64 (1967) ("Cases in this Court have long proceeded on the premise that the Due Process Clause guarantees the fundamental elements of fairness in a criminal trial."). Simply stated, a conviction premised on false and unreliable scientific evidence is fundamentally unfair and cannot stand.[25]

[25] *Han Tak Lee v. Glunt*, 667 F.3d 397 (3d Cir. 2012) (petitioner's claim that conviction was obtained using scientific evidence, which was subsequently exposed as false and unreliable, "if proven, set forth prima facie case for granting habeas relief by showing that admission of state's fire expert testimony undermined fundamental fairness of petitioner's entire trial, since testimony was premised on unreliable science and so was unreliable").

CONCLUSION

For the reasons discussed above, Mr. Perrot is entitled to a new trial pursuant to Massachusetts Rule of Criminal Procedure 30(b), free from the discredited hair microscopy evidence that has resulted in his incarceration for the last 29 years.

Respectfully submitted,



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DATED: August 25, 2014

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing Brief of *Amicus Curiae* The Innocence Project in Support of Defendant was served by hand delivery on August 25, 2014 on the District Attorney at the following address:

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MICROSCOPIC HAIR COMPARISON ANALYSIS

The following reflects an agreement between the FBI and the Innocence Project and the National Association of Criminal Defense Lawyers of what the science of microscopic hair examinations supports.

The scientific analysis of hair evidence permits a well-trained examiner to offer an opinion that a known individual can either be included or excluded as a possible source of a questioned hair collected at a crime scene. Microscopic hair analysis is limited, however, in that the size of the pool of people who could be included as a possible source of a specific hair is unknown. An examiner report or testimony that applies probabilities to a particular inclusion of someone as a source of a hair of unknown origin cannot be scientifically supported. This includes testimony that offers numbers or frequencies as explicit statements of probability, or opinions regarding frequency, likelihood, or rareness implicitly suggesting probability. Such testimony exceeds the limits of science and is therefore inappropriate.

Error Type 1: The examiner stated or implied that the evidentiary hair could be associated with a specific individual to the exclusion of all others. This type of testimony exceeds the limits of the science.

Error Type 2: The examiner assigned to the positive association a statistical weight or probability or provided a likelihood that the questioned hair originated from a particular source, or an opinion as to the likelihood or rareness of the positive association that could lead the jury to believe that valid statistical weight can be assigned to a microscopic hair association. This type of testimony exceeds the limits of the science.

Error Type 3: The examiner cites the number of cases or hair analyses worked in the lab and the number of samples from different individuals that could not be distinguished from one another as a predictive value to bolster the conclusion that a hair belongs to a specific individual. This type of testimony exceeds the limits of the science.

Appropriate: The examiner's testimony appropriately reflected the fact that hair comparison could not be used to make a positive identification, but that it could indicate, at the broad class level, that a contributor of a known sample could be included in a pool of people of unknown size, as a possible source of the hair evidence (without in any way giving probabilities, an opinion as to the likelihood or rareness of the positive association, or the size of the class) or that

the contributor of a known sample could be excluded as a possible source of the hair evidence based on the known sample provided. An opinion as to the likelihood or rareness of a positive association may be appropriate in certain cases in which the examined hair samples display unusual or distinct characteristics, *e.g.*, repeated artificial treatments resulting in color variations along the length of the hair, hairs that have been crushed, broken, burned or damaged in some distinctive manner, or hairs that display specific characteristics associated with certain diseases such as pili annulati, monilethrix, or trichorrhexis nodosa.