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2006

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### Repository Citation

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# Daubert Challenges to Fingerprints

Paul C. Giannelli\*

The first reported fingerprint case, *People v. Jennings*,<sup>1</sup> was decided in 1911,<sup>2</sup> and the technique soon became firmly established in legal precedent.<sup>3</sup> Like many other forensic sciences, fingerprint identification gained judicial acceptance decades before the U.S. Supreme Court decided *Merrell Dow Pharmaceutical, Inc. v. Daubert* in 1993.<sup>4</sup> *Daubert* revolutionized how courts decide the admissibility of scientific evidence under Federal Rule 702, the principal provision governing the admissibility of expert testimony. Over time, *Daubert* has evolved into a far more stringent standard than many thought at the time the decision was handed down.<sup>5</sup> In 1999, the Court extended the *Daubert* reliability test to non-scientific expert testimony in

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<sup>1</sup> *People v. Jennings*, 252 Ill. 534, 96 N.E. 1077 (1911). As Professor Mnookin has noted, “fingerprints were accepted as an evidentiary tool without a great deal of scrutiny or skepticism.” Jennifer L. Mnookin, *Fingerprint Evidence in an Age of DNA Profiling*, 67 BROOK. L. REV. 13, 17 (2001). She elaborated: “Even if no two people had identical *sets* of fingerprints, this did not establish that no two people could have a *single* identical print, much less an identical *part* of a print. These are necessarily matters of probability, but neither the court in *Jennings* nor subsequent judges ever required that fingerprint identification be placed on a secure statistical foundation.” *Id.* at 19.

<sup>2</sup> For a history of fingerprinting, see COLIN BEAVAN, *FINGERPRINTS: THE ORIGINS OF CRIME DETECTION AND THE MURDER CASE THAT LAUNCHED FORENSIC SCIENCE* (2001); SIMON A. COLE, *SUSPECT IDENTITIES: A HISTORY OF FINGERPRINTING AND CRIMINAL IDENTIFICATION* (2001).

<sup>3</sup> See 1 PAUL C. GIANNELLI & EDWARD J. IMWINKELRIED, *SCIENTIFIC EVIDENCE* ch. 16 (3d ed. 1999) (discussing the technical and legal aspects of fingerprint evidence).

<sup>4</sup> 509 U.S. 579 (1993). See also Margaret A. Berger, *Procedural Paradigms for Applying the Daubert Test*, 78 MINN. L. REV. 1345, 1354 (1994) (“Considerable forensic evidence [such as fingerprinting] made its way into the courtroom without empirical validation of the underlying theory and/or its particular application.”); Michael J. Saks, *Merlin and Solomon: Lessons from the Law’s Formative Encounters With Forensic Identification Science*, 49 HASTINGS L.J. 1069, 1106 (1998) (“Fingerprint evidence may present courts applying *Daubert* with their most extreme dilemma. By conventional scientific standards, any serious search for evidence of the validity of fingerprint identification is going to be disappointing.”).

<sup>5</sup> See *U.S. v. Horn*, 185 F. Supp. 2d 530, 553, 58 Fed. R. Evid. Serv. 357 (D. Md. 2002) (“Under *Daubert*, . . . it was expected that it would be easier to admit evidence that was the product of new science or technology. In practice, however, it often seems as though the opposite has occurred—application of *Daubert/Kumho Tire* analysis results in the exclusion of evidence that might otherwise have been

*Kumho Tire Co. v. Carmichael*,<sup>6</sup> and by 2000, the Court was describing *Daubert* as imposing “exacting standards of reliability.”<sup>7</sup> Rule 702 was amended in the same year to reflect these decisions.<sup>8</sup>

Lower courts soon began to read *Daubert* and *Kumho* as “plainly inviting a reexamination even of ‘generally accepted’ venerable, technical fields.”<sup>9</sup> Handwriting analysis was the first technique to be challenged. In 1995, a federal district court in *U.S. v. Starzeczyzel*<sup>10</sup> concluded that “forensic document examination, despite the existence of a certification program, professional journals and other trappings of science, cannot, after *Daubert*, be regarded as ‘scientific . . . knowledge.’” The court further stated that “while scientific principles may *relate* to aspects of handwriting analysis, they have little or nothing to do with the day-to-day tasks performed by [Forensic Document Examiners]. . . . [T]his attenuated relationship does not transform the FDE into a scientist.”<sup>11</sup>

It was only a matter of time before fingerprint evidence would also be challenged.<sup>12</sup> Numerous attacks, albeit unsuccessful, have since been launched against fingerprinting.<sup>13</sup> This article briefly discusses fingerprint

admitted under Frye.’). See generally Paul C. Giannelli, *Daubert Revisited*, 41 CRIM. L. BULL. 302 (2005) (describing the evolution of the *Daubert* test).

<sup>6</sup> *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 119 S. Ct. 1167, 143 L. Ed. 2d 238, 50 U.S.P.Q.2d 1177, Prod. Liab. Rep. (CCH) P 15470, 50 Fed. R. Evid. Serv. 1373, 29 Env'tl. L. Rep. 20638 (1999). The Court also decided a third case, *General Elec. Co. v. Joiner*, 522 U.S. 136, 118 S. Ct. 512, 139 L. Ed. 2d 508, 18 O.S.H. Cas. (BNA) 1097, Prod. Liab. Rep. (CCH) P 15120, 48 Fed. R. Evid. Serv. 1, 28 Env'tl. L. Rep. 20227, 177 A.L.R. Fed. 667 (1997) (standard for appellate review is abuse of discretion), to make up what is now known as the *Daubert* trilogy.

<sup>7</sup> *Weisgram v. Marley Co.*, 528 U.S. 440, 455, 120 S. Ct. 1011, 145 L. Ed. 2d 958, Prod. Liab. Rep. (CCH) P 15745, 53 Fed. R. Evid. Serv. 406, 45 Fed. R. Serv. 3d 735 (2000).

<sup>8</sup> The following was added to Rule 702 in December, 2000: “(1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.”

<sup>9</sup> *U.S. v. Hines*, 55 F. Supp. 2d 62, 67, 52 Fed. R. Evid. Serv. 257 (D. Mass. 1999). See also *U.S. v. Hidalgo*, 229 F. Supp. 2d 961, 966 (D. Ariz. 2002) (“Courts are now confronting challenges to testimony . . . whose admissibility had long been settled.”).

<sup>10</sup> *U.S. v. Starzeczyzel*, 880 F. Supp. 1027, 1038, 42 Fed. R. Evid. Serv. 247 (S.D. N.Y. 1995).

<sup>11</sup> 880 F. Supp. at 1041. See generally Paul C. Giannelli & Carin Cozza, *Forensic Science: Daubert Challenges to Handwriting Comparisons*, 42 CRIM. L. BULL. 347 (2006) (discussing admissibility issues relating to handwriting comparison).

<sup>12</sup> See Mnookin, *supra* note 1, at 43 (“[W]hat is striking, even astonishing, is that no serious effort to challenge either the weight or admissibility to fingerprint evidence ever emerged—until 1999.”).

<sup>13</sup> “In the last year alone, more than a dozen so-called *Daubert* challenges to the admissibility of fingerprint identification evidence have been filed in state and federal

procedure, examines several significant cases, and then considers some recent developments.<sup>14</sup>

## I. Fingerprint Analysis

Fingerprint evidence is based on three assumptions: (1) The uniqueness of each person's friction ridges;<sup>15</sup> (2) the permanence of those ridges throughout a person's life; and (3) the transferability of an impression of that uniqueness to another surface. It is the last point that raises the most significant issues of reliability because only a partial impression is typically transferred (often only a fifth of the record print) and distortion due to pressure inevitably affects the impression.<sup>16</sup> A recent FBI review put it this way:

[I]t is well accepted that wide variations in the amount of detail transferred during any given contact from the three-dimensional world of a finger to the two-dimensional realm of a fingerprint may not permit individualization. Thus, although the ridge pattern arrangement on friction ridge skin is unique, one may not be able to render an identification or an exclusion of a source from the limited amount of detail in certain latent prints.<sup>17</sup>

Thus, the "critical issue is the minimum number of objective features in a

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courts around the country. In the three cases that have been decided so far, the courts have all admitted the fingerprint evidence. But critics say the battle isn't over yet." Mark Hansen, *Dusting for Daubert: Several Defense Lawyers Argue Fingerprint Evidence Is Not Scientific. So far, the Courts Aren't Buying It*, 86 A.B.A.J. 20 (Dec. 2000).

<sup>14</sup> This article does not address the issues raised by fraud. For articles on fraud, see Boris Geller et al., *A Chronological Review of Fingerprint Forgery*, 44 J. FORENSIC SCI. 963 (1999) (discussing history of fingerprint forgeries); Mark Hansen, *Troopers' Wrongdoing Taints Cases*, 80 A.B.A.J. 22 (Mar. 1994) (discussing New York police officers' fabrication of fingerprint evidence in numerous cases).

<sup>15</sup> See Sandy L. Zabell, *Fingerprint Evidence*, 13 J.L. & Pol'y 143, 164 (2005) ("Although there is a substantial literature on the uniqueness of fingerprints, it is surprising how little true scientific support for the proposition exists.').

<sup>16</sup> See *U.S. v. Mitchell*, 365 F.3d 215, 220-21 (3d Cir. 2004), cert. denied, 543 U.S. 974, 125 S. Ct. 446, 160 L. Ed. 2d 348 (2004) ("Criminals generally do not leave behind full fingerprints on clean, flat surfaces. Rather, they leave fragments that are often distorted or marred by artifacts. . . . Testimony at the *Daubert* hearing suggested that the typical latent print is a fraction—perhaps 1/5th—of the size of a full fingerprint."). "In the jargon, artifacts are generally small amounts of dirt or grease that masquerade as parts of the ridge impressions seen in a fingerprint, while distortions are produced by smudging or too much pressure in making the print, which tends to flatten the ridges on the finger and obscure their detail." 365 F.3d at 221 n.1.

<sup>17</sup> Bruce Budowle et al., *Review of the Scientific Basis for Friction Ridge Comparisons as a Means of Identification: Committee Findings and Recommendations*, 8 FORENSIC SCI. COMMUNICATIONS (Jan. 2006) [hereinafter FBI Review].

latent print necessary to render an identification with confidence. . . .”<sup>18</sup> This is a crucial point because a fingerprint examination, although based on physical characteristics, is basically subjective.<sup>19</sup> There is no minimum number of points of similarity required before a conclusion of identity may be reached.<sup>20</sup> Moreover, because there are frequently “dissimilarities” between the crime scene and record prints, the examiner must decide whether there is a *true* dissimilarity, in which case there is an exclusion (“no match”), or whether the dissimilarity is due to distortion or an artifact.<sup>21</sup>

Examiners follow a procedure known as ACE-V (Analysis, Comparison, Evaluation, and Verification).<sup>22</sup> Although this is a useful procedure, it is not “scientific” in any meaningful sense of that word.<sup>23</sup> There are three levels of detail that may be scrutinized. Level 1 details are general ridge patterns—whorls, loops, and arches.<sup>24</sup> Level 2 features involve ridge characteristics,

<sup>18</sup> FBI Review, *supra* note 17.

<sup>19</sup> See *Com. v. Patterson*, 445 Mass. 626, 840 N.E.2d 12, 15, 16-17 (2005) (“These latent print impressions are almost always partial and may be distorted due to less than full, static contact with the object and to debris covering or altering the latent impression.”; “In the evaluation stage, . . . the examiner relies on his subjective judgment to determine whether the quality and quantity of those similarities are sufficient to make an identification, an exclusion, or neither.”); Zabell, *supra* note 15, at 158 (“In contrast to the scientifically-based statistical calculations performed by a forensic scientist in analyzing DNA profile frequencies, each fingerprint examiner renders an opinion as to the similarity of friction ridge detail based on his subjective judgment.”).

<sup>20</sup> Some countries apply a minimum point standard, but the FBI does not. See *European Fingerprint Standards*, 28 FINGERPRINT WHORL 19 (2002) (reporting standards ranging from eight to 16 points).

<sup>21</sup> *Patterson*, 840 N.E.2d at 17 (“There is a rule of examination, the ‘one-discrepancy’ rule, that provides that a nonidentification finding should be made if a single discrepancy exists. However, the examiner has the discretion to ignore a possible discrepancy if he concludes, based on his experience and the application of various factors, that the discrepancy might have been caused by distortions of the fingerprint at the time it was made or at the time it was collected.”). In the Mayfield case, the FBI examiners explained away dissimilarities, but an I.G. Report found that the explanation “required the examiners to accept an extraordinary set of coincidences. The OIG found that the support for this explanation was, at best, contradictory.” OFFICE OF THE INSPECTOR GENERAL, U.S. DEP’T OF JUSTICE, A REVIEW OF THE FBI’S HANDLING OF THE BRANDON MAYFIELD CASE, UNCLASSIFIED EXECUTIVE SUMMARY 9 (Jan. 2006) [hereinafter I.G. Report]. The Mayfield case is discussed below.

<sup>22</sup> Verification involves review by a second examiner.

<sup>23</sup> See Zabell, *supra* note 15, at 178 (“ACE-V is an acronym, not a methodology. It is merely the common sense description of what anyone would do if they were examining a latent and a candidate source print.”).

<sup>24</sup> See *Patterson*, 840 N.E.2d at 16 (“Level one detail involves the general ridge flow of a fingerprint, that is, the pattern of loops, arches, and whorls visible to the naked eye. The examiner compares this information to the exemplar print in an attempt to exclude a print that has very clear dissimilarities.”).

such as ridge endings, bifurcations, islands, and dots.<sup>25</sup> Level 3 details are “microscopic ridge attributes such as the width of a ridge, the shape of its edge, or the presence of a sweat pore near a particular ridge.”<sup>26</sup> There is disagreement in the fingerprint community about the usefulness and reliability of Level 3 details.<sup>27</sup>

## II. Fingerprint Decisions

### A. *U.S. v. Havvard*

*U.S. v. Havvard*<sup>28</sup> was the first reported case responding to a *Daubert* challenge of fingerprint evidence.<sup>29</sup> Not only did the district court uphold the admissibility of fingerprint testimony, it described the technique as “the very archetype of reliable expert testimony under [the *Daubert/Kumho*] standards.”<sup>30</sup> Nevertheless, the court’s application of *Daubert* evinced a surprising misunderstanding of the Supreme Court’s reliability test. In *Daubert*, the Supreme Court, in describing the trial judge’s screening or “gate-keeping function,” identified a number of nonexhaustive factors for judging reliability: (1) testability, (2) peer review and publication, (3) error rate, (4) maintenance of standards, and (5) general acceptance. The Court also affirmed that the burden of persuasion rests with the party offering the testimony.

First, the *Havvard* court found that latent print identification had been “tested” for nearly 100 years in adversarial proceedings with the highest possible stakes—liberty and sometimes life. Yet, *Daubert/Kumho* requires *empirical* (not judicial) testing.<sup>31</sup> The Court in *Daubert* held that testimony based on “scientific” knowledge must be scrutinized for its scientific validity: “[I]n order to qualify as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method. Proposed testimony must be sup-

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<sup>25</sup> See 840 N.E.2d at 16 (“Level two details include ridge characteristics (or Galton Points) like islands, dots, and forks, formed as the ridges begin, end, join or bifurcate.”).

<sup>26</sup> See 840 N.E.2d at 16.

<sup>27</sup> See I.G. REPORT, *supra* note 21, at 8 (“Because Level 3 details are so small, the appearance of such details in fingerprints is highly variable, even between different fingerprints made by the same finger. As a result, the reliability of Level 3 details is the subject of some controversy within the latent fingerprint community.”). As discussed below, Level 3 features were a problem in the Mayfield case.

<sup>28</sup> *U.S. v. Havvard*, 260 F.3d 597, 56 Fed. R. Evid. Serv. 900 (7th Cir. 2001).

<sup>29</sup> *Havvard* was the first reported case. The first case was *U.S. v. Mitchell*, 365 F.3d 215 (3d Cir. 2004), cert. denied, 543 U.S. 974, 125 S. Ct. 446, 160 L. Ed. 2d 348 (2004), which is discussed below. The trial court decision was not reported in that case.

<sup>30</sup> *Havvard*, 117 F. Supp. 2d at 855.

<sup>31</sup> Zabell, *supra* note 15, at 169 (“[I]t need hardly be said that mere courtroom use does not constitute validation.”).

ported by appropriate validation—*i.e.*, ‘good grounds,’ based on what is known.’<sup>32</sup> In DNA testing, for example, validation is required.<sup>33</sup> Moreover, the “argument that no latent print has ever been found to match the rolled print of a different person is . . . misleading because no systematic search for such pairs on the entire databank of millions of fingerprints has ever been performed.”<sup>34</sup>

Next, in citing “peer review,” *Havvard* noted that a second fingerprint examiner compares the prints: “In fact, peer review is the standard operating procedure among latent print examiners.”<sup>35</sup> This shows a fundamental misconception of “peer review” as used in *Daubert*. In that case, peer review refers to refereed scientific journals. It is a screening mechanism and only the first step, followed by publication and then replication by other scientists. In their amici brief in *Daubert*, the *New England Journal of Medicine* and other medical journals explained:

“Good science” is a commonly accepted term used to describe the scientific community’s system of quality control which protects the community and those who rely upon it from unsubstantiated scientific analysis. It mandates that each proposition undergo a rigorous trilogy of publication, replication and verification before it is relied upon.<sup>36</sup>

Peer review’s “role is to promote the publication of well-conceived articles so that the most important review, the consideration of the reported results by the scientific community, may occur after publication.”<sup>37</sup> The brief elaborated: “Good science requires that a proposition be supported by experimental data, be reduced to writing, and be published after undergoing peer-review *prior to* any reliance thereon.”<sup>38</sup> In contrast, review by a second expert is simply a quality control procedure, albeit an important one.<sup>39</sup>

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<sup>32</sup> *Daubert*, 509 U.S. at 590.

<sup>33</sup> See DNA ADVISORY BOARD, STANDARD 2 (ff) (1998) (“Validation is a process by which a procedure is evaluated to determine its efficacy and reliability for forensic casework analysis and includes: (1) Developmental validation is the acquisition of test data and determination of conditions and limitations of a new or novel DNA methodology for use on forensic samples; (2) Internal validation is an accumulation of test data within the laboratory to demonstrate that established methods and procedures perform as expected in the laboratory.”).

<sup>34</sup> Zabell, *supra* note 15, at 170.

<sup>35</sup> *Havvard*, 117 F. Supp. 2d at 854.

<sup>36</sup> Brief of the New England Journal of Medicine, Journal of the American Medical Association, and Annals of Internal Medicine as Amici Curiae in Support of Respondent at 2, *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469, 27 U.S.P.Q.2d 1200, Prod. Liab. Rep. (CCH) P 13494, 37 Fed. R. Evid. Serv. 1, 23 Env'tl. L. Rep. 20979 (1993) [hereinafter Brief].

<sup>37</sup> Brief, *supra* note 36, at 3.

<sup>38</sup> Brief, *supra* note 36, at 3.

<sup>39</sup> In the DNA context, it is referred to as “technical review.” See DNA ADVISORY BOARD, STANDARD 12 (1998) (administrative and technical review of all case files).

Furthermore, this review is often not “blind,” a fact that proved critical in the Mayfield case, as discussed below.

Next, the *Havvard* court accepted the prosecution expert’s statement that the “error rate for the method is zero,”<sup>40</sup> a remarkable claim. Not knowing an error rate, of course, is not the same as a zero error rate. Moreover, proficiency tests showing the fallibility of fingerprint examiners had been reported. For instance, in a 1995 proficiency test, produced by the International Association for Identification, only 68 of 156 participants (44%) were correct in classifying the seven latent prints used in the test. Forty-eight incorrect identifications were made.<sup>41</sup> Note, however, the word *method* in the above quotation. Proponents argue that, while individual examiners may make mistakes, the method itself is perfect. However, the dichotomy between “methodological” and “human” error rates in this context is “practically meaningless”<sup>42</sup> because the examiner is the method.<sup>43</sup>

Finally, the court turned *Daubert* on its head, requiring the opponent to prove the evidence was unreliable, a device that would be employed in later cases.<sup>44</sup>

## B. *U.S. v Llera Plaza*

The most electrifying fingerprint case was *U.S. v. Llera Plaza*,<sup>45</sup> which held that a fingerprint expert could not give an opinion that two sets of prints “matched”—that is, a positive identification to the exclusion of all other persons.<sup>46</sup> On rehearing, however, the court reversed itself.<sup>47</sup> These opinions,

<sup>40</sup> *Havvard*, 117 F. Supp. 2d at 854.

<sup>41</sup> See David Grieve, *Possession of Truth*, 46 J. FORENSIC IDENTIFICATION 521, 523 (1996). See also James E. Startt, *Forensic Science on the Ropes: An Upper Cut to Fingerprinting*, 20 SCI. SLEUTHING REV. 1 (Wint. 1996).

<sup>42</sup> See Mnookin, *supra* note 1, at 60. She goes on to provide this analogy: “The same argument could be made of eyewitness testimony, a notoriously unreliable form of evidence. People are all distinct from one another in observable ways; therefore the theoretical error rate of eyewitness identification is zero, though in practice observers may frequently make errors.” *Id.* See also Simon A. Cole, *More Than Zero: Accounting for Error in Latent Fingerprint Identification*, 95 J. CRIM. L. & CRIMINOLOGY 985, 1040 (2005) (explaining that “in fingerprint practice the concept is vacuous”).

<sup>43</sup> See Zabell, *supra* note 15, at 172 (“But, given its unavoidable subjective component, in latent print examination people *are* the process.”).

<sup>44</sup> See Michael J. Saks, *The Legal and Scientific Evaluation of Forensic Science (Especially Fingerprint Expert Testimony)*, 33 SETON HALL L. REV. 1167, 1173-76 (2003) (discussing the reversal of the burden of persuasion as one of several judicial responses employed to avoid confronting the lack of empirical testing).

<sup>45</sup> *U.S. v. Llera Plaza*, 179 F. Supp. 2d 492, 57 Fed. R. Evid. Serv. 983 (E.D. Pa. 2002), withdrawn from bound volume and opinion vacated and superseded on reconsideration, 188 F. Supp. 2d 549, 58 Fed. R. Evid. Serv. 1 (E.D. Pa. 2002).

<sup>46</sup> See D.H. Kaye, *The Nonscience of Fingerprinting: United States v. Llera-Plaza*, 21 QUINNIPIAC L. REV. 1073, 1073 (2003) (“The ruling sent shock waves



however, triggered a series of news reports<sup>48</sup> and legal articles,<sup>49</sup> with many commentators believing that *Llera Plaza I* was more faithful to *Daubert* than *Llera Plaza II*.<sup>50</sup> Consequently, fingerprinting would no longer get a free pass—at least in the legal literature.

Even *Llera Plaza II* was not a total victory for the prosecution. The rigor of proficiency testing was drawn into question because a fingerprint examiner from New Scotland Yard testified that the FBI proficiency tests were deficient: “It’s not testing their ability. It doesn’t test their expertise. I mean I’ve set these tests to trainees and advanced technicians. And if I gave my

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through the community of fingerprint analysts, the FBI, and the Department of Justice.”).

<sup>47</sup> Two factors led Judge Pollak to reconsider his ruling. One was expert testimony—some elicited from defense witnesses—indicating that, like the FBI, New Scotland Yard had moved to a non-numerical standard. A second factor was the judge’s review of other, recent federal cases upholding the admission of non-scientific expert opinions despite their subjectivity. In the end, on the record before him, Judge Pollak concluded that

there is no evidence that certified FBI fingerprint examiners present erroneous identification testimony, and . . . there is no evidence that the rate of error of certified FBI fingerprint examiners is unacceptably high. With those findings in mind, I am not persuaded that courts should defer admission of testimony with respect to fingerprinting . . . until academic investigators financed by the National Institute of Justice have made substantial headway on a “verification and validation” research agenda. For the National Institute of Justice, or other institutions both public and private, to sponsor such research would be all to the good. But to postpone present in-court utilization of this “bedrock forensic identifier” pending such research would be to make the best the enemy of the good.

*Llera Plaza*, 188 F. Supp.2d at 572.

<sup>48</sup> E.g., Michael Specter, *Do Fingerprints Lie? The Gold Standard of Forensic Science is Now Being Challenged*, NEW YORKER, May 27, 2002, at 96 (discussing case including interview with judge).

<sup>49</sup> See Simon A. Cole, *Grandfathering Evidence: Fingerprint Admissibility Rulings from Jennings to Llera Plaza and Back Again*, 41 AM. CRIM. L. REV. 1189 (2004); Kristin Romandetti, Note, *Recognizing and Responding to a Problem with the Admissibility of Fingerprint Evidence Under Daubert*, 45 JURIMETRICS J. 41 (2004); Tara Marie La Morte, Comment, *Sleeping Gatekeepers: United States v. Llera Plaza and the Unreliability of Forensic Fingerprinting Evidence Under Daubert*, 14 ALB. L.J. SCI. & TECH. 171 (2003); Jessica M. Sombat, Note, *Latent Justice: Daubert’s Impact on the Evaluation of Fingerprint Identification Testimony*, 70 FORDHAM L. REV. 2819 (2002); Nathan Benedict, Note, *Fingerprints and the Daubert Standard for Admission of Scientific Evidence: Why Fingerprints Fail and a Proposed Remedy*, 46 ARIZ. L. REV. 519 (2004).

<sup>50</sup> E.g., Jennifer L. Mnookin, *Fingerprints: Not a Gold Standard*, 20 ISSUES IN SCI. & TECH. 47 (2003) (“Judge Pollak’s first opinion [restricting latent fingerprint individualization testimony] was the better one.”); Sombat, *supra* note 49, at 2825 (“[T]he result Judge Pollak reached when he excluded expert testimony concerning fingerprints [in *Llera Plaza I*] was fair.”); Recent Case, 115 HARV. L. REV. 2349, 2352 (2002) (“Fingerprint expert testimony does not survive application of the Daubert factors. . . .”).

experts these tests, they'd fall about laughing."<sup>51</sup> The district court agreed, noting that "the FBI examiners got very high proficiency grades, but the tests they took did not. . . . [O]n the present record I conclude that the proficiency tests are less demanding than they should be."<sup>52</sup> A later FBI report on the Mayfield case would acknowledge this shortcoming,<sup>53</sup> as would others.<sup>54</sup>

### C. *U.S. v. Crisp*

In *United States v. Crisp*,<sup>55</sup> the majority opinion again upheld the admissibility of fingerprint evidence, but it did so by shifting the burden of proof to the defendant and by grandfathering the technique.<sup>56</sup>

In the dissenting opinion, Judge Michael took a different approach, stringently applying the *Daubert* factors. First, he noted that the "government did not offer any record of testing on the reliability of fingerprint identification. . . . [T]here have not been any studies to establish how likely it is that partial prints taken from a crime scene will be a match for only one set of fingerprints in the world."<sup>57</sup> Second, as for peer review, "[a]gain, the government offered no evidence on this factor at trial. Fingerprint examiners . . . have their own professional publications. . . . But unlike typical scientific journals, the fingerprint publications do not run articles that include or prompt critique or reanalysis by other scientists. Indeed, few of the articles

<sup>51</sup> *Llera Plaza*, 188 F. Supp. 2d at 558.

<sup>52</sup> 188 F. Supp. 2d at 565.

<sup>53</sup> See *infra* text accompanying note 83.

<sup>54</sup> See *U.S. v. Crisp*, 324 F.3d 261, 274, 60 Fed. R. Evid. Serv. 1486 (4th Cir. 2003) (Michael, J., dissenting) ("Proficiency testing is typically based on a study of prints that are far superior to those usually retrieved from a crime scene."); Jennifer L. Mnookin, Editorial, *A Blow to the Credibility of Fingerprint Evidence*, BOSTON GLOBE, Feb. 2, 2004 ("There are no systematic proficiency tests to evaluate examiners' skill. Those tests that exist are not routinely used and are substandard.").

<sup>55</sup> *U.S. v. Crisp*, 324 F.3d 261, 60 Fed. R. Evid. Serv. 1486 (4th Cir. 2003). Other cases admitting fingerprint evidence include: *U.S. v. Abreu*, 406 F.3d 1304, 1307, 67 Fed. R. Evid. Serv. 17 (11th Cir. 2005) ("We agree with the decisions of our sister circuits and hold that the fingerprint evidence admitted in this case satisfied *Daubert*."); *U.S. v. Janis*, 387 F.3d 682, 690, 65 Fed. R. Evid. Serv. 834 (8th Cir. 2004) (finding fingerprint evidence to be reliable); *U.S. v. Collins*, 340 F.3d 672, 682, 62 Fed. R. Evid. Serv. 223 (8th Cir. 2003) ("Fingerprint evidence and analysis is generally accepted."); *U.S. v. Hernandez*, 299 F.3d 984, 991 (8th Cir. 2002); *U.S. v. Martinez-Cintrón*, 136 F. Supp. 2d 17, 20, 56 Fed. R. Evid. Serv. 878 (D.P.R. 2001).

<sup>56</sup> *Crisp*, 324 F.3d at 269 ("Put simply, *Crisp* has provided us no reason today to believe that this general acceptance of the principles underlying fingerprint identification has, for decades, been misplaced. Accordingly, the district court was well within its discretion in accepting at face value the consensus of the expert and judicial communities that the fingerprint identification technique is reliable.").

<sup>57</sup> 324 F.3d at 273-74 (Michael, J., dissenting).

address the principles of fingerprint analysis and identification at all. . . .'<sup>58</sup> Third, "an error rate must be demonstrated by reliable scientific studies, not by assumption."<sup>59</sup> Fourth, "the government did not establish that there are objective standards in the fingerprint examination field to guide examiners in making their comparisons."<sup>60</sup> Fifth, while acknowledging general acceptance in the fingerprint community, the judge observed that this was not sufficient for *Daubert* purposes, remarking that "[n]othing in the record in this case shows that the fingerprint examination community has challenged itself sufficiently or has been challenged in any real sense by outside scientists."<sup>61</sup> While only a dissent, the opinion indicates that the reliability of fingerprint evidence was no longer being taken for granted.

#### D. *U.S. v. Mitchell*

*U.S. v. Mitchell*,<sup>62</sup> which involved the first post-*Daubert* attack on fingerprint evidence, also upheld admissibility. The court reached this conclusion by finding a "long history of implicit testing."<sup>63</sup> This seems to be the "adversarial testing" argument accepted in *Havvard*, only in different words, and it suffers from the same defect; it is not empirical testing.<sup>64</sup> The court also used a burden-shifting rationale to cast the onus on the defense to establish false positives.<sup>65</sup> Yet, *Daubert* placed the burden on the party offer-

<sup>58</sup> 324 F.3d at 274.

<sup>59</sup> 324 F.3d at 274. The judge added: "In a 1995 test conducted by a commercial testing service, less than half of the fingerprint examiners were able to identify correctly all of the matches and eliminate the non-matches. On a similar test in 1998, less than 60 percent of the examiners were able to make all identifications and eliminations. . . . An error rate that runs remarkably close to chance can hardly be viewed as acceptable under *Daubert*." 324 F.3d at 275.

<sup>60</sup> 324 F.3d at 276.

<sup>61</sup> 324 F.3d at 276.

<sup>62</sup> *U.S. v. Mitchell*, 365 F.3d 215 (3d Cir. 2004), cert. denied, 543 U.S. 974, 125 S. Ct. 446, 160 L. Ed. 2d 348 (2004). See also Simon A. Cole, *Does "Yes" Really Mean Yes? The Attempt to Close Debate on the Admissibility of Fingerprint Testimony*, 45 JURIMETRICS J. 449, 464 (2005) ("The [court's] reliance on the failure of AFIS searches to find false positives when, in fact, they could not do so and the assumption that the defendant was the source of the very prints at issue in the admissibility hearing at his own trial undermine the persuasiveness of the [*Mitchell*] opinion.").

<sup>63</sup> *Mitchell*, 365 F.3d at 238. The Court did, however, acknowledge: "[I]f directed, specific actual testing were the requirement of *Daubert*, we might be hesitant to find this factor weighing in favor of the government." 365 F.3d at 238.

<sup>64</sup> See Simon A. Cole, *"Implicit Testing": Can Casework Validate Forensic Techniques?*, 46 JURIMETRICS J. 117, 128 (2006) ("But whatever the courts' intuitive confidence in latent-print individualization, 'implicit testing' and 'casework validation' set poor precedents that defy science and logic.").

<sup>65</sup> *Mitchell*, 365 F.3d at 240 ("Particularly in a case like this, where what is sought to be proved is essentially a negative (i.e., the absence of false positives), it seems

ing the evidence, which is the typical evidentiary rule.<sup>66</sup> Moreover, as one British scholar has argued: “To put the point more bluntly: if the state does not test the scientific evidence with which it seeks to convict defendants, it should forfeit the right to use it.”<sup>67</sup> The court, however, did offer some caution:

[D]istrict courts will generally act within their discretion in excluding testimony of recalcitrant expert witnesses—those who will not discuss on cross-examination things like error rates or the relative subjectivity or objectivity of their methods. Testimony at the *Daubert* hearing indicated that some latent fingerprint examiners insist that there is no error rate associated with their activities or that the examination process is irreducibly subjective. This would be out-of-place under Rule 702.<sup>68</sup>

In addition, the case involved a very troubling episode. In March 2000, the National Institute of Justice (NIJ), the research arm of the Department of Justice, released a solicitation for fingerprint research. The “Introduction” to the solicitation stated that *Daubert* “require[d] scientists to address the reliability and validity of the methods used in their analysis. Therefore, the purpose of this solicitation is to . . . provide greater scientific foundation for forensic friction ridge (fingerprint) identification.”<sup>69</sup> After the *Mitchell* trial concluded, the defense attorney learned that the solicitation had been postponed, arguably so it could not be used in *Mitchell* to support the defense challenge.<sup>70</sup> The Third Circuit commented on these events: “We are deeply discomfited by *Mitchell*’s contention—supported by Dr. Rau’s account of events, though contradicted by other witnesses—that a conspiracy within the Department of Justice intentionally delayed the release of the solicitation until after *Mitchell*’s jury reached a verdict. Dr. Rau’s story, if true, would be a damning indictment of the ethics of those involved.”<sup>71</sup> Dr. Rau was the

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quite appropriate to us to use a burden-shifting framework. Such a framework was applied here: The government’s experts . . . testified to their being unaware of significant false positive identifications. At that point, it becomes quite reasonable to shift the burden to the opponent of the evidence (here, *Mitchell*) to counter this claim with affirmative examples.”)

<sup>66</sup> *Daubert*, 509 U.S. at 593 n.10 (“These matters should be established by a preponderance of proof.”) (*citing* *Bourjaily v. U.S.*, 483 U.S. 171, 175-76, 107 S. Ct. 2775, 97 L. Ed. 2d 144, 22 Fed. R. Evid. Serv. 1105 (1987)).

<sup>67</sup> MIKE REDMAYNE, EXPERT EVIDENCE AND CRIMINAL JUSTICE 139 (2001).

<sup>68</sup> *Mitchell*, 365 F.3d at 245-46.

<sup>69</sup> NATIONAL INSTITUTE OF JUSTICE, SOLICITATION: FORENSIC FRICTION RIDGE (FINGERPRINT) EXAMINATION VALIDATION STUDIES (Mar. 2000).

<sup>70</sup> See Robert Epstein, *Fingerprints Meet Daubert: The Myth of Fingerprint “Science” Is Revealed*, 75 SO. CAL. L. REV. 605, 628 n.122 (2002) (“Internal documents of the NIJ presently on file with the author . . . reveal that the Institute was ready to publish the Solicitation in September of 1999, but that at the FBI’s request, publication was delayed until after *Mitchell*’s trial.”). Epstein was the defense counsel in *Mitchell*.

<sup>71</sup> *Mitchell*, 365 F.3d at 255. In another passage, the Court wrote:

NIJ official who coordinated the drafting of the solicitation for the Department of Justice.<sup>72</sup>

Moreover, a subsequent attempt to establish an empirical basis for fingerprints was thwarted. An editorial in the prestigious scientific journal, *Science*, entitled “Forensic Science: Oxymoron?” and written by the editor-in-chief, discussed the cancellation of a National Academy of Sciences project designed to examine various forensic science techniques, including fingerprints, because the Departments of Justice and Defense insisted on a right of review that the Academy had refused to other grant sponsors.<sup>73</sup> In sum, not only is there a lack of empirical support for fingerprint evidence,<sup>74</sup> but the proponents of the technique are undercutting efforts to establish such a basis.

### III. The Mayfield Case

The terrorist train bombing in Madrid on March 11, 2004, which killed 191 and injured 2,000, exploded the myth of fingerprint infallibility more than any other event. The FBI misidentified Brandon Mayfield, a Portland lawyer, as the source of the crime scene prints.<sup>75</sup>

To its credit, the FBI began an investigation using outside experts. The

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[Mitchell’s] most damaging evidence came from Dr. Richard Rau of the NIJ, who coordinated the drafting of the solicitation. Rau testified to conversations at a September 1999 meeting among himself, Donald Kerr (the Assistant Director of the FBI in charge of the FBI crime laboratory), David Boyd (the Deputy Director of the NIJ), and others. Rau claimed that at that meeting Kerr and Boyd agreed to withhold release of the solicitation until the end of Mitchell’s trial. In response to Dr. Rau’s testimony, the government called Kerr, Boyd, and the other individuals at the meeting to testify that Dr. Rau’s account of the delay in releasing the solicitation was incorrect and that the delay was caused by budgetary issues.

365 F.3d at 232.

<sup>72</sup> The district court did not resolve the credibility issue because it found that this information was not “material” under the stringent standard required by *Brady v. Maryland*, 373 U.S. 83, 83 S. Ct. 1194, 10 L. Ed. 2d 215 (1963)—i.e., outcome determinative. The Third Circuit agreed. 365 F.3d at 219.

<sup>73</sup> Donald Kennedy, Editorial, *Forensic Science: Oxymoron?*, 302 Sci. 1625 (2003).

<sup>74</sup> See Donald Kennedy & Richard A. Merrill, *Assessing Forensic Science*, 20 ISSUES IN SCI. & TECH. 33 (Fall 2003) (“The increased use of DNA analysis, which has undergone extensive validation, has thrown into relief the less firmly credentialed status of other forensic science identification techniques (fingerprints, fiber analysis, hair analysis, ballistics, bite marks, and tool marks). These have not undergone the type of extensive testing and verification that is the hallmark of science elsewhere. These techniques rely on the skill of the examiner, but since the practitioners have not been subjected to rigorous proficiency testing reliable error rates are not known.”).

<sup>75</sup> See Sara Kershaw, *Spain and U.S. at Odds on Mistaken Terror Arrest*, N.Y. TIMES, June 5, 2004, at A1 (Spanish authorities cleared Brandon Mayfield and matched the fingerprints to an Algerian national); Flynn McRoberts & Maurice Pos-

resulting report raised a number of disquieting issues.<sup>76</sup> First, the “dis-similarities [between prints] . . . were easily observed when a detailed analysis of the latent print was conducted.”<sup>77</sup> In short, it was not a difficult fingerprint to interpret. Second, the mistake was attributed in part to “confirmation bias”<sup>78</sup>—a well-established phenomenon that is frequently ignored in forensic work.<sup>79</sup> In other words, once the examiner made up his mind, he saw what he expected to see during reexaminations. Third, a second review by another examiner was not conducted blind—i.e., the reviewer knew that a positive identification had already been made.<sup>80</sup> Again, confirmation bias.<sup>81</sup> Fourth, the culture at the laboratory was poorly suited to detect mistakes. As the report noted, “To disagree was not an expected response.”<sup>82</sup> Fifth, proficiency testing was apparently not sufficiently rigorous.<sup>83</sup> Surprisingly, the report repeatedly alluded to the need to be cautious due to the “inherent pressure of a high-profile case,”<sup>84</sup> leaving one to wonder about the routine case.

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sley, *Report Blasts FBI Lab: Peer Pressure Led to False ID of Madrid Fingerprint*, CHI. TRIB., Nov. 14, 2004, at 1. The FBI found 15 “matching” points, while the Spanish examiners found only seven.

<sup>76</sup> Robert B. Stacey, *A Report on the Erroneous Fingerprint Individualization in the Madrid Train Bombing Case*, 54 J. FORENSIC IDENTIFICATION 707 (2004) [hereinafter Mayfield Report]. This is not to say that the report is not without problems. The report continued to employ the dichotomy between “methodological” and “human” error. *Id.* at 712.

<sup>77</sup> Mayfield Report, *supra* note 76, at 714.

<sup>78</sup> Mayfield Report, *supra* note 76, at 713.

<sup>79</sup> See D. Michael Risinger et al., *The Daubert/Kumho Implications of Observer Effects in Forensic Science: Hidden Problems of Expectation and Suggestion*, 90 CAL. L. REV. 1, 39 (2002).

<sup>80</sup> Mayfield Report, *supra* note 76, at 711. Indeed, a third expert from outside the FBI, one appointed by the court, also confirmed the identification.

<sup>81</sup> Given this finding, the following statement in the report is puzzling: “Latent print examiners routinely conduct verifications in which they do know the previous examiner’s conclusions and yet those results do not influence the examiner’s conclusions.” Mayfield Report, *supra* note 76, at 713. No support is cited for this conclusion. The report goes on to recommend “blind verification” on “designated cases.” *Id.* at 715. Why not all cases? Finally, the report notes: “The quality assurance program should make examiners feel that they can disagree about any identification.” *Id.* This statement has been criticized. “The verifiers should not ‘feel that they can disagree’ because there should be nothing for them to either agree or disagree about.” Zabell, *supra* note 15, at 174. In short, the testing should be blind, in which case the reviewers would not be subject to confirmation bias.

<sup>82</sup> Mayfield Report, *supra* note 76, at 713.

<sup>83</sup> Mayfield Report, *supra* note 76, at 716 (“Verifiers should be given challenging exclusions during blind proficiency tests to ensure that they are independently applying ACE-V methodology correctly. . . .”).

<sup>84</sup> Mayfield Report, *supra* note 76, at 713 & 716. The I.G. Report, however, “found no evidence to support this conclusion.” See I.G. REPORT, *supra* note 21, at 11.

The Inspector General (I.G.) also reviewed the Mayfield case.<sup>85</sup> Among other things,<sup>86</sup> the I.G. Report concluded that “the examiners committed errors in the examination procedure, and that the misidentification could have been prevented through a more rigorous application of several principles of latent fingerprint identification.”<sup>87</sup> In addition, a significant cause of the misidentification was “reasoning ‘backward’ from features that were visible in the known prints of Mayfield.”<sup>88</sup> As the Report explained: “Having found as many as 10 points of unusual similarity, the FBI examiners began to ‘find’ additional features in LFP 17 that were not really there, but rather were suggested to the examiners by features in the Mayfield prints.”<sup>89</sup> After noting the controversy among examiners about Level 3 details, the report concluded that the examiners “apparently misinterpreted distortions in [the print] as real features corresponding to Level 3 details seen in Mayfield’s known fingerprints.”<sup>90</sup> Moreover, the FBI Lab ignored the possibility that it had erred: “FBI examiners did not attempt to determine the basis of the [Spanish National Police’s] doubts before reiterating that they were ‘absolutely confident’ in the identification on April 15, a full week before the FBI Laboratory met with the SNP.”<sup>91</sup> The I.G. made several recommendations that went beyond the Bureau’s internal report:

These include recommendations that the Laboratory [1] develop criteria for the use of Level 3 details to support identifications, [2] clarify the “one discrepancy rule” to assure that it is applied in a manner consistent with the level of certainty claimed for latent fingerprint identifications, [3] require documentation of features observed in the latent fingerprint before the comparison phase to help prevent circular reasoning, [4] adopt alternate procedures for blind verifications, [5] review prior cases in which the identification of a criminal suspect was made on the basis of only one latent fingerprint searched through IAFIS, and [6] require more meaningful and independent documentation of the causes of errors as part of the Laboratory’s corrective action procedures.<sup>92</sup>

#### IV. Other Misidentifications

Mayfield was not the only fingerprint mishap recently reported. Stephan

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<sup>85</sup> See I.G. REPORT, *supra* note 21.

<sup>86</sup> The I.G. Report also highlighted the lack of blind verification: “[U]nder procedures in place at the time of the Mayfield identification, the verifier was aware that an identification had already been made by a prior FBI examiner at the time he was requested to conduct the verification.” I.G. REPORT, *supra* note 21, at 10-11.

<sup>87</sup> I.G. REPORT, *supra* note 21, at 6.

<sup>88</sup> I.G. REPORT, *supra* note 21, at 7.

<sup>89</sup> I.G. REPORT, *supra* note 21, at 7.

<sup>90</sup> I.G. REPORT, *supra* note 21, at 8 (“Because Level 3 details are so small, the appearance of such details in fingerprints is highly variable, even between different fingerprints made by the same finger. As a result, the reliability of Level 3 details is the subject of some controversy within the latent fingerprint community.”).

<sup>91</sup> I.G. REPORT, *supra* note 21, at 10.

<sup>92</sup> I.G. REPORT, *supra* note 21, at 14.

Cowans was released after serving six years in a Massachusetts prison for the nonfatal shooting of a police officer.<sup>93</sup> His was the first conviction overturned on DNA evidence in which fingerprint evidence had been crucial in securing the wrongful conviction.<sup>94</sup> Commenting on the case, Professor Mnookin wrote: “[T]he fingerprint community has little motivation to investigate how often they make mistakes. Fingerprint examiners regularly assert in court that the technique is error-free and that fingerprint matches are a sure thing. . . . [F]ingerprints cannot possibly be as perfect a technique as the experts presently claim.”<sup>95</sup>

Riki Jackson’s prints were similarly misidentified.<sup>96</sup> He was convicted of murder in 1997 based on bloody fingerprints discovered on a window fan.<sup>97</sup> The police expert, Anthony Paparo, matched 11 friction points to Jackson. Another examiner concurred. At trial, Paparo and two other prosecution experts testified to a match. In contrast, two defense experts, both retired FBI examiners, said that there was no match. Nevertheless, Jackson was convicted and sentenced to life imprisonment. Frustrated, the defense experts filed a complaint with the International Association of Identification concerning the prosecution experts’ testimony. This triggered an FBI review, which concluded that the government experts had erred. Jackson was released from prison.<sup>98</sup>

Professor Cole has identified 22 misidentifications, which he argues “are most likely only the tip of the proverbial iceberg of actual cases of fingerprint misattribution.”<sup>99</sup> The misidentification cases include some that involved (1) verification by one or more other examiners, (2) examiners certified by the International Association of Identification, (3) procedures using a 16-point

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<sup>93</sup> See *Com. v. Cowans*, 52 Mass. App. Ct. 811, 756 N.E.2d 622 (2001) (upholding original conviction).

<sup>94</sup> See Elizabeth F. Loftus & Simon A. Cole, Letter, *Contaminated Evidence*, 304 Sci. 959 (May 7, 2004) (“[F]orensic scientists remain stubbornly unwilling to confront and control the problem of bias, insisting that it can be overcome through sheer force of will and good intentions.”).

<sup>95</sup> Jennifer L. Mnookin, Editorial, *A Blow to the Credibility of Fingerprint Evidence*, BOSTON GLOBE, Feb. 2, 2004.

<sup>96</sup> See *Reasonable Doubt: Can We Trust Crime Labs?*, CNN PRESENTS, Jan. 9, 2005 (documentary).

<sup>97</sup> Flynn McRoberts et al., *Forensics Under the Microscope: Unproven Techniques Sway Courts, Erode Justice*, CHI. TRIB., Oct. 17, 2004.

<sup>98</sup> Other problematic fingerprint cases include: *Imbler v. Craven*, 298 F. Supp. 795 (C.D. Cal. 1969), judgment aff’d, 424 F.2d 631 (9th Cir. 1970) (expert failed to observe an exculpatory fingerprint in a murder case in which the death penalty was imposed); *State v. Caldwell*, 322 N.W.2d 574, 586 (Minn. 1982) (holding modified by, *Ferguson v. State*, 645 N.W.2d 437 (Minn. 2002)) (“The fingerprint expert’s testimony was damning—and it was false.”). See also Specter, *supra* note 48, at 96; James E. Starrs, *A Miscue in Fingerprint Identification: Causes and Concerns*, 12 J. POLICE SCI. & ADMIN. 287 (1984).

<sup>99</sup> Cole, *supra* note 42, at 991. The Mayfield, Cowans, and Jackson cases are included in his survey.



standard, and (4) defense experts who corroborated misidentifications made by prosecution experts.

## V. The “Experiment”

As a result of the Mayfield case, several British researchers devised a plan to test whether external influences can affect the identification process.<sup>100</sup> In particular, they were concerned with confirmation bias as occurred in the Mayfield misidentification. Fingerprint examiners who were unfamiliar with the Mayfield prints were asked by colleagues to compare a crime scene and suspect print. “They were told that the pair of prints was the one that was erroneously matched by the FBI as the Madrid bomber, thus creating an extraneous context that the prints were a non-match.”<sup>101</sup> The participants were then instructed to ignore this information. The prints, in fact, were from cases that each of the participants had previously matched. Of the five examiners, only one still judged the print to be a match. The other four changed their opinions; three directly contradicted their prior identifications, and the fourth concluded that there was insufficient data to reach a definite conclusion. “This is striking given that all five experts had seen the identical fingerprints previously and all had decided that the prints were a sound and definite match.”<sup>102</sup> The authors of the study concluded:

Our study shows that it is possible to alter identification decisions on the same fingerprint, solely by presenting it in a different context. This does not imply that fingerprint and other forensic identifications are not a science, but it does highlight problems of subjectivity, interpretation, and other psychological and cognitive elements that interact and may distort any scientific inquiries.<sup>103</sup>

## VI. Simultaneous Impressions

In *Commonwealth v. Patterson*,<sup>104</sup> the Supreme Judicial Court of Massachusetts considered the reliability of applying the ACE-V methodology to simultaneous impressions. Simultaneous impressions “are two or more friction ridge impressions from the fingers and/or palm on one hand that are determined to have been deposited at the same time.”<sup>105</sup> The key, of course, is determining whether the impressions were left at the same time and thus

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<sup>100</sup> Itiel E. Dror et al., *Contextual Information Renders Experts Vulnerable to Making Erroneous Identifications*, 156 FORENSIC SCI. INT’L 74 (2006).

<sup>101</sup> Dror et al., *supra* note 100, at 76.

<sup>102</sup> Dror et al., *supra* note 100, at 76.

<sup>103</sup> Dror et al., *supra* note 100, at 77.

<sup>104</sup> *Com. v. Patterson*, 445 Mass. 626, 840 N.E.2d 12 (2005). See also *The Reliability of Latent Print Individualization: Brief of Amici Curiae Submitted on behalf of Scientists and Scholars by the New England Innocence Project, Commonwealth v. Patterson*, reprinted in 42 CRIM. L. BULL. 21 (2006).

<sup>105</sup> FBI Review, *supra* note 17.

came from the same person, rather than having been left by two different people at different times.<sup>106</sup> While the court found that the ACE-V method was generally accepted by the relevant scientific community, the same was not demonstrated in the record when that methodology is applied to simultaneous impressions. The court thus remanded the case to the trial court.<sup>107</sup>

A FBI review addressed this subject: “[I]f an item could only be held in a certain manner, then the only way of explaining the evidence is that the multiple prints are from a single person. In some cases, identifying simultaneous prints may infer, for example, the manner in which a knife was held.”<sup>108</sup> However, the review found that there wasn’t even agreement on what constitutes a “simultaneous impression,” and therefore, more explicit guidelines were needed.

## VII. FBI Review

In January 2006, the FBI created a three-person review committee to evaluate the “fundamental basis for the science of friction ridge skin impression pattern analysis.”<sup>109</sup> The Committee identified two possible approaches. One approach would be to “develop a quantifiable minimum threshold based

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<sup>106</sup> *Patterson*, 840 N.E.2d at 18 (“[T]he examiner apparently may take into account the distance separating the latent impressions, the orientation of the impressions, the pressure used to make the impression, and any other facts the examiner deems relevant. The record does not, however, indicate that there is any approved standardized method for making the determination that two or more print impressions have been made simultaneously.”).

<sup>107</sup> The court wrote:

Evidence of fingerprint individualization determined by application of the ACE-V method to single latent fingerprint impressions meets the *Lanigan-Daubert* reliability standard. The general acceptance of this application of ACE-V by the fingerprint examiner community leads us to this conclusion. However, the application of ACE-V to simultaneous impressions cannot rely on the more usual application of ACE-V for its admissibility, but must be independently tested against the *Lanigan-Daubert* standard. On the record before the motion judge, the Commonwealth has not yet established that the application of the ACE-V method to simultaneous impressions is generally accepted by the fingerprint examiner community or that a review of the other *Daubert* factors favors admission of evidence based on such an application. Consequently, we vacate the judge’s supplemental order and remand the case for further proceedings consistent with this opinion.

840 N.E.2d. at 32-33.

<sup>108</sup> FBI Review, *supra* note 17.

<sup>109</sup> FBI Review, *supra* note 17. One might quibble with the committee’s mission statement. Determining whether fingerprint identification is a “science” might have been stated as the “mission,” rather than simply assuming that it is. *But* see Cole, *supra* note 62, at 463 (“[D]ebating the scientific status of fingerprinting is not very productive. ‘Science’ is notoriously difficult to define. Moreover, showing that fingerprint evidence is not ‘science’ changes nothing since even nonscientific experts are permitted to testify.”). However, if jurors come to trial with a belief that fingerprint identification is a “science,” the debate becomes important.

on objective criteria”—if possible. “Any minimum threshold must consider both the clarity (quality) and the quantity of features and include all levels of detail, not simply points or minutiae.”<sup>110</sup> Apparently, FBI examiners use an unofficial seven-point cutoff, but this standard has never been tested.<sup>111</sup> As the review cautioned: “It is compelling to focus on a quantifiable threshold; however, quality/clarity, i.e., distortion and degradation of prints, is the fundamental issue that needs to be addressed.”<sup>112</sup>

The second approach would treat the examiner as a “black box,” a methodology that would be necessary if minimum criteria for rendering an identification could not be devised. In other words, there is simply too much subjectivity in the process to formulate meaningful guidelines. Under this approach, it becomes critical to determine just how good a “black box” each examiner is: “The examiner(s) can be tested with various inputs of a range of defined categories of prints. This approach would demonstrate whether or not it is possible to obtain a degree of accuracy (i.e., assess the performance of the black-box examiner for rendering an identification).”<sup>113</sup> This approach also calls for a blind technical review. According to the report, “[t]o be truly blind, the second examiner should have no knowledge of the interpretation by the first examiner (to include not seeing notes or reports).”<sup>114</sup>

Although this review concluded that reliable identifications can be made, it conceded that “there are scientific areas where improvements in the practice can be made particularly regarding validation, more objective criteria for certain aspects of the ACE-V process, and data collection.”<sup>115</sup>

## Conclusion

The basic problem with fingerprint identification is the lack of empirical testing, something that has been recognized by both courts<sup>116</sup> and

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<sup>110</sup> FBI Review, *supra* note 17.

<sup>111</sup> There is also a 12-point cutoff, under which a supervisor’s approval is required.

<sup>112</sup> FBI Review, *supra* note 17.

<sup>113</sup> FBI Review, *supra* note 17.

<sup>114</sup> FBI Review, *supra* note 17.

<sup>115</sup> FBI Review, *supra* note 17.

<sup>116</sup> See *U.S. v. Crisp*, 324 F.3d 261, 273-74, 60 Fed. R. Evid. Serv. 1486 (4th Cir. 2003) (Michael, J., dissenting) (“The government did not offer any record of testing on the reliability of fingerprint identification. . . . Indeed it appears that there has not been sufficient critical testing to determine the scientific validity of the technique. . . . The government did not introduce studies or testing that would show that fingerprint identification is based on reliable principles of methods.”); *U.S. v. Sullivan*, 246 F. Supp. 2d 700, 704 (E.D. Ky. 2003) (“The reliability of ACE-V is not demonstrated by its use in prior court cases. The court further finds that, while the ACE-V methodology appears to be amenable to testing, such testing has not yet been performed. The court disagrees that testing that establishes the validity of the principles underlying ACE-V—that fingerprints are unique and permanent—can

commentators.<sup>117</sup> One prominent scientist summed it up this way: “It’s not that fingerprint analysis is unreliable [but] . . . that its reliability is unverified by either statistical models of fingerprint variation or by consistent data on error rates.”<sup>118</sup> Courts have also failed to provide effective scrutiny: “Overall, what is most striking about the judicial response to the challenges of fingerprinting is a general reluctance to admit that assessing fingerprinting under *Daubert* raises tricky issues.”<sup>119</sup>

The most disappointing aspect of the controversy has been the reaction of fingerprint examiners. Instead of conducting the necessary empirical testing, they have generally “circled the wagons” and vigorously opposed testing (even by others)—at least until the Mayfield fiasco. Had the fingerprint community commenced the research a decade ago when *Daubert* challenges became inevitable, that research would be complete by now, and courts would have a principled basis for deciding the reliability issue.

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substitute for testing of the ACE-V methodology itself.”). *See also* State v. Quintana, 2004 UT App 418, 103 P.3d 168, 171 (Utah Ct. App. 2004), cert. denied, 123 P.3d 815 (Utah 2005) (Thorne, J., concurring) (“Specifically, we should instruct our juries that although there may be a scientific basis to believe that fingerprints are unique, there is no similar basis to believe that examiners are infallible. . . . Until there is a nationally adopted certification system—ensuring examiner proficiency—and a nationally adopted minimum standard for matching latent fingerprints to known samples—minimizing the risk of misidentification—courts should ensure that juries are instructed that examiner testimony is informed opinion, but not fact.”).

<sup>117</sup> *See* Benedict, *supra* note 49, at 538 (“[J]udges have generally relied on their instincts and the long history of judicial acceptance of fingerprint evidence to admit it without serious consideration of the science behind it.”); Cole, *supra* note 49, at 1215 (“It is clear that no studies exist that measure the accuracy of fingerprint examiners when they make conclusions of identification.”); Lyn Haber & Ralph Norman Haber, *Error Rates for Human Fingerprint Examiners*, in *AUTOMATIC FINGERPRINT RECOGNITION SYSTEMS* 339 (N.K. Ratha & Ruud Bolle eds., 2004) (After nearly a century of practice, no properly designed, controlled, and conducted study of the accuracy of latent print individualizations exists.).

<sup>118</sup> Kennedy, *supra* note 73, at 1625. *See also* Zabell, *supra* note 15, at 178 (“The problem is that we have no true idea of the underlying error rate.”).

<sup>119</sup> Mnookin, *supra* note 1, at 66.