Expert Witnesses: Are Fingerprinting Experts Reliable in A Courtroom?

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I. Introduction

United States v. Llera Plaza cracked the door into the long-standing belief that experts could distinguish and identify fingerprints, and accurately testify in courts across the United States. ¹ Llera held that the ability of experts on fingerprinting to be able to identify a latent fingerprint, and deem it to come from a particular individual could not be demonstrated.² This ruling shocked Federal Prosecutors and the Federal Bureau of Investigation as this method of identifying individuals in crime scenes has been a staple in their investigations for decades. As a result, expert witnesses were no longer allowed to do more than inform the jury of fingerprint similarities.³ The ability to testify that a defendant was the source of a fingerprint in question was no longer permissible following this order.⁴

Less than four months passed when Judge Louis H. Pollak of the Pennsylvania District Court completely changed his mind in Llera II.⁵ “I completely disagree with myself” were the five words that brought smiles to the prosecution’s faces, but left heavy doubt on the abilities of experts on fingerprinting lingering.⁶ Could an expert witness in fingerprinting truly offer testimony that helps to identify a latent print with an individual on trial for a criminal matter, with certainty high enough to sentence that person to confinement for years or life? For 100 years, the answer to this, without much question was yes, however Judge Pollak may have

² Id.
³ Id.
⁴ Id.
created a hump in the road to make people think twice. Judge Pollak was correct in his initial decision.

II. What is an Expert Witness and How Does It Apply to Fingerprints?

It is important to understand the distinction between an expert witness and a regular, lay witness. A lay witness does not need to enter their opinions in advance to the court before trial. Under Rule 701, a lay witness may provide a lay witness may provide an opinion that is (1) rationally based on the witness’s perception; (2) helpful to clearly understanding the witness’s testimony or to determining a fact in issue; and (3) not based on scientific, technical, or other specialized knowledge within the scope of rule 702.7

Under United States Federal law, the Daubert standard is the rule of evidence that guides the admissibility of an expert witness testimony in courtrooms across the nation.8 Under Rule 702, the judge has the task of “gatekeeping” and assures that expert testimony comes from scientific knowledge.9 Rule 702 states, “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (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.” 10 Expert witnesses offer the court insight into knowledge that a lay witness would not be able to accurately verbalize and

7 https://www.law.cornell.edu/rules/fre/rule_701
9 Id.
10 Id.
understand in enough detail to help the factfinder with their decision as to whether it should have considerable importance in the proceeding.

Outside of the Daubert standard, non-scientists like fingerprinting experts should be deemed to testify on technical or other specialized knowledge in Kumho Tire. Daubert dealt only with scientific knowledge, therefore the court stated that judges should act as gatekeepers, and that there was no "convincing need" to distinguish the difference between scientific and technical knowledge, and instead to ensure that the expert’s testimony would be outside of the average juror’s grasp. This ruling is what solidified the ability for expert witness to testify in United States courts, even on topics that do not necessarily have scientific foundations, such as, blood splatter, and car mechanics. However, fingerprinting experts, as will be discussed in the cases in this paper, hold themselves out to be scientific for testimonial purposes, not "technical or other specialized knowledge."

The first major case in 1923 concerning admissibility of expert testimony under 702 was Frye v. United States. The case held that testimony of experts was admissible only if the technique involved to produce the evidence was "generally accepted" as reliable in the scientific community. This was only binding in the D.C. circuit, but numerous jurisdictions adopted the test and used it moving forward. This led to the quick acceptance of fingerprinting experts to have the ability to testify, simply because they were historically doing so, as will be discussed in the below section named, "History of Fingerprinting Usage."

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12 Id.
14 Id. at 1014.
Relating to Rule 702 United States v. Mitchell was a Daubert hearing to challenge the science of fingerprinting.\textsuperscript{16} The issue was whether small areas of latent prints were unique as well as full and complete prints.\textsuperscript{17} Obviously, when taking prints from a crime scene there will not be perfect, full prints available, so the question expanded to the ability to use experts in partial prints. However, the Court did not make a ruling on this specific question, due to the requirement of proof of conflicting evidence in order to explore the question, as well as the meaningless error in this specific case that the question posed.\textsuperscript{18} The opinion of the case also failed to address the major question of the Daubert hearing of whether fingerprinting was a science.\textsuperscript{19} The court’s opinion said that it did not establish, “a categorical rule that latent fingerprint evidence is admissible in the Circuit, but nothing in the opinion should be read to require extensive Daubert hearings in every case involving latent fingerprint evidence.”\textsuperscript{20} The Court doubled down by asserting, “a District court would not abuse its discretion by limiting, in a proper case, the scope of Daubert hearings to novel challenges to the admissibility of latent fingerprint identification evidence or even dispensing with the hearing altogether if no novel challenge was raised”.\textsuperscript{21} This further avoided a concrete answer on fingerprinting, and gave courts in the Third Circuit the blueprint to refuse Daubert hearings on fingerprinting unless the arguments differed from the 5 day hearing in Mitchell.

Then Llera-Plaza and Llera-Plaza II flip flopped between the ability of an expert to give an opinion of whether a latent print was a match to an individual. As earlier described, Judge Pollak

\textsuperscript{17} Id.
\textsuperscript{18} Id.
\textsuperscript{19} Id. at 255.
\textsuperscript{20} Id.
\textsuperscript{21} Id.
challenged the statistical validity of fingerprinting experts in both of his Llera-Plaza opinions. He concluded that the field has failed to test its assumptions and claims of expertise. Judge Pollak that the most common method of fingerprinting (which will be detailed below, called "ACE-V") did not meet the first three Daubert factors, simply only meeting the general acceptance factor in the technical community of fingerprinting experts. Once, the government moved for reconsideration of the order, his mind changed. Even in his second case however, Pollak still would not deny his doubt of the expertise in the area of identifying a fingerprint with statistical backing. This is an outlier from the court’s created image that fingerprinting experts are without fail, mainly due to their reliance on the practice for over 100 years. What is interesting, and not often addressed is that a factfinder would never challenge a fingerprinting expert’s identification. What is meant by this is that it is unlikely that a fact finder would even be informed enough on the error rates and lack of statistical testing which Pollak was concerned with, and therefore would never challenge or even assess the expert’s opinion. This is in addition to the a fact that will later be explained of which experts in the field blindly tend to agree with themselves. This creates a dangerous situation where the expert is speaking on an identification of a latent print to an individual with zero constructive assessment made by the factfinder. In fact, through my research, I was unable to find a single instance where a challenged expert witness testimony was excluded from the jury. Judge Pollak explained in Llera II, that the error rate portion of Daubert was met, because of the failure to show evidence of mistakes in prior instances.

“lt has been open to defense counsel to present examples of erroneous identifications attributable to FBI examiners, and no such examples have been forthcoming. I conclude,

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22 Llera-Plaza at 564.
23 Id. at 565.
24 Id.
therefore, on the basis of the limited information in the record as expanded, that there is no evidence that the error rate of certified FBI fingerprint examiners is unacceptably high.  

Therefore, since no such challenges are ever brought forth, expert witness’ do not work to prove this data and it was an easy way for Pollak to “change his mind” to satisfy the prosecution. If error rates were force to be furnished, and factfinders challenged expert witnesses to illustrate evidence that the latent print error rates exist, then potentially their opinions would not be so untouchable. This second opinion seemed more like a response to the prosecutorial up cry to the initial ruling rather than Pollak’s actual beliefs. Another 702 challenge to Daubert standards on fingerprinting shortly followed and resulted in an upholding of admissibility of fingerprint experts’ testimonies, with the Court deeming analysis, “the very archetype of reliable testimony” under the Daubert and Kumho Tire standards.  

In Havvard, the court said fingerprinting passes Daubert because the results were said to be of a low error rate, capable of testing, objective, and subjected to peer review for 100 years through the adversary system.  

Following Pollak’s second decision, United States v. Crisp shifted the burden of proof on the defendant. The Court elaborated that, “while the principles underlying fingerprint identification have not attained the status of scientific law, they nonetheless bear the imprimatur of a strong general acceptance, not only in the expert community, but in the courts as well.”  

However, in a dissenting opinion, Judge Michael questioned the lack of studies to establish how likely it is for partial prints originating from a crime scene to match only a single set of print in the whole world.  

25 Id. at 566.  
27 Id. at 599.  
29 Id. at 261.  
30 Id. at 273.
science rather than assumptions, and the fact that a generally acceptance within the fingerprint community did not meet Daubert standards.\textsuperscript{31}

Related to Judge Michael’s doubts on partial prints reliability, \textit{United States v. George} was a Seventh Circuit case where the court affirmed fingerprinting experts to be generally accepted due to a low error rate and objective testing, but responded to the defendant’s challenge to the identification of a partial print by stating that those questions are best left to the jury.\textsuperscript{32}

A terrorist bombing occurred in Madrid in 2011, leading to the FBI to “identify” Brandon Mayfield, a United States citizen as the source of the crime scene latent prints.\textsuperscript{33} Confirmation bias served a role in the FBI, and lead to the agreement that it had been Mr. Mayfield’s print.\textsuperscript{34} However, it turned out that they had the wrong guy, and their identification had been incorrect.\textsuperscript{35}

Upon arresting Mayfield, the FBI described the fingerprint match as “100% correct”.\textsuperscript{36} This is an interesting contrast to the claims of fingerprinting having a zero-error rate, as will be discussed below.

III. History of Fingerprinting Usage

Although fingerprints have been found dating back to prehistoric times, Professor Paul-Jean Coulier, of Val-de-Grace in Paris, first published his observation that latent fingerprints

\textsuperscript{31} \textit{Id.} at 276.
\textsuperscript{32} \textit{United States v. George}, 363 F.3d 666 (7th Cir. 2004).
\textsuperscript{34} \textit{Id.}
\textsuperscript{35} \textit{Id.}
could be developed on paper through iodine fuming. He went on to find how to preserve iodine prints and identify them through the use of magnification. Since then, fingerprinting has been used in identifying criminals for over 100 years. In billions of computer automated systems, no two humans have had identical fingerprints. It has remained a staple of criminal identification, and heavily used as forensic evidence. Worldwide, fingerprints have “lead to more suspects and generate more evidence in court than all other forensic laboratory techniques combined.” A critical characteristic about human fingerprints is that they do not change over time, unlike other parts of the body. For this reason, the United States Justice Department first began using fingerprints for criminal identification in 1905. In 1912, the State of Illinois hanged Thomas Jennings, for murder, by matching his fingerprint to the crime scene. Since then, fingerprints have been used through friction ridge analysis in crime scene prints matching, and became widely accepted. This Jennings print identification had been done by latent fingerprint examiner, and began the practice of using identifiable fingerprints for criminal convictions for the next 100 years. *State v. Kuhl* was a 1918 case that established admissibility of palmprints as a proof of identifying an individual where a bloody print was left on an envelope. Later, *Stacy v. State* ruled that

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38 Id.
40 Id.
41 Id.
42 Id. at 2.
43 *People v Jennings*, 252 Ill. 534, 96 N.E. 1077 (1911).
45 *State v Kuhl*, 42 Nev. 195, 175 P. 190 (1918).
fingerprint evidence alone was sufficient to support a conviction without necessary corroboration of additional facts.\textsuperscript{46}

Fingerprint identification is premised on three main claims; (1) that all individuals possess permanent and unique sets of prints; (2) fingerprint examiners can identify the source of a latent print at a crime, and exclude non-matches\textsuperscript{47}; and (3) that fingerprint identification has zero or close to zero error rate.\textsuperscript{48} Therefore, courts have long used these expert witnesses in order to gain hard evidence against criminals who were later matched based on their prints.

However, much to the same thought as Judge Pollak's questioning the fingerprinting experts' abilities, there have been questions into the validity of experts' ability to accurately identify latent prints. DNA exonerations have been ever-so prevalent, and the number of such occurrences are constantly rising.\textsuperscript{49} This rise gives question to the long held belief that evidence such as ballistics, bite marks, and blood splatter which used to be deemed as hard evidence, actually lack reliability.\textsuperscript{50} What is most convincing is the 2009 report from the National Academy of Sciences titled *Strengthening Forensic Science in the United States: A Path Forward* (NAS report). The report notably stated that, "with the exception of nuclear DNA analysis... no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence-

\textsuperscript{46} *Stacy v State*, 49 Okl. Crim. 154, 292 P. 885 (1930).
\textsuperscript{48} Id. at 274.
and a specific individual or source.”51 This report was even acknowledged by the United States Supreme Court, in which they stated that many forensic experts and claims had deficiencies.52 Overall though, with the exception of Pollak’s initial decision, courts have been weary to disallow fingerprinting experts. Instead, courts have relied on the adversarial process of the legal system to cross-examine and explain the reliability concerns of fingerprinting experts.53 This however raises further concerns, such as the pressure that then lands on defense counsel to contend and oppose evidence of fingerprint identification which the jury can easy add a false credit to. What is meant by this is that a jury member may see a blowup of fingerprints, think “hmm this looks pretty similar, plus it’s an expert! What does this defense attorney know about fingerprinting that this expert does not?” That then effectively puts defendants with sub-par defense teams at a significant disadvantage when the average juror is presented with the information.

IV. Criticism of Fingerprinting Experts and the NAS Report

It would be a foggy question to consider Daubert standards if Judge Pollak’s original order stood, or one day becomes the norm. Would this order that fingerprinting experts could not testify suggest there is a limit to Daubert itself, or fingerprints specifically? This is because experts’ techniques and abilities to truly identify latent prints have not been validated, however they have been able to testify for more than 100 years that they certainly can do that exact thing.54 They have testified that with certainty, fingerprints from a latent print belonged to an

52 Id.
54 Id.
individual in question, yet, there were never a statistical basis to validate the claims of these testimonies that put those people behind bars.

On the contrary, fingerprinting experts provide something concrete. They can extract a latent print from an object or a place, then compare it with a fingerprint of an individual. They can identify ridges, shapes, and patterns that match to the latent print and with a certainty say that the print belonged to that individual. Meanwhile, others argue that courts allow less reliable testimony with great regularity, such as eyewitness testimony, from lay witness. Therefore, although the lack of statistical backing to some of the fingerprinting matches should not outweigh the identifying features that fingerprint experts can provide to a criminal trial but not so far as to identify an individual from a latent print. However, the previously mentioned 2009 National Academy of Sciences report highly criticized the abilities of these fingerprinting experts.

The NAS report criticized fingerprint friction ridge practices. It explained how a person’s finger leaves an imprint, with ridges on whatever surface they touch, that stays visible if left unaltered. The friction ridge analysis is the practice of taking that latent print that is left behind at a crime scene and identifying it with a suspect’s prints. The standard method used by the FBI and fingerprint experts in America is the “Analysis-Comparison-Evaluation-Verification” method also known as “ACE-V”. Analysis using this method uses two steps to evaluate a print,

55 Id.
56 Id.
57 Id.
59 Id.
60 Id.
61 McMurtie note 3 at 270-71.
at three levels of detail: (1) The flow and direction of the ridges, (2) Examination of each individual’s ridges and characteristics specific to them, (3) and a deep look into the pores of the ridges. The latent print is first looked at, followed by the individual’s print to determine if they are deemed a match. The expert does this by taking a look at the ridges, similarity, relationship and sequence, but maintain that there is no specific formula or benchmark to qualify as a match. The expert then performs the evaluation and concludes that the prints are either a match or not a match, which is based on nothing more than experience and judgment. The final step of ACE-V involves a second examiner taking a look at the prints in order to verify the initial examiner’s determination. The extremely interesting factor of this final step, is that the confirming expert knows the initial expert’s determination before taking an intended view of the print. This can obviously lead to the second examiner having a confirmation bias, and a tendency to not want to oppose the initial expert’s opinion.

As a result, the NAS report criticized many areas of ACE-V, beginning with specificity concerns, reporting that a validated method does not exist because of the loose requirements for matches. They stated, “it does not guard against bias; is too broad to ensure repeatability and transparency; and does not guarantee that two analysts following it will obtain the same results.” The report also criticized the lack of documentation of analysis, and questioned the claims of a zero error rate. Lastly, it stated that much more research is required into the ridge

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63 Id.
64 Id.
65 Id.
66 Id.
67 Id.
68 NAS Report at 142.
69 Id.
70 Id. at 143.
patterns and varying qualities of latent prints. This report has certainly been helpful for defense counsel to use against the validity and reliability of fingerprinting experts, however the ACE-V analysis is still heavily used.

The analysis basically encourages fellow fingerprinting expert witnesses to agree with each other, rather than actually check the validity of print identifications. If an expert witness tried to come to a judge and oppose the fingerprinting expert for the FBI, they would be deemed as not an expert because of their inability to confirm something “so obvious.” It is easy to see how this quickly becomes a situation where experts confirm their colleague’s rulings, and none will challenge the determination of another because then they are deemed to not be an expert. It simply becomes standard, or final to take what the initial expert determines and stick with it. If someone were to oppose it they would be demoted in a sense, to have the same knowledge as a lay witness because they couldn’t see the determination that the “true” expert had made. An eye raising and somewhat comical testimony from a head of the FBI’s head fingerprint unit occurred in United States v. Baines. The expert told the court that the analysis used by the FBI had an error rate of one per 11 million cases, based on his knowledge of the agency performing that many searches and only having one error. This misleading estimate is what continues to lead to an acceptance of whatever an expert matches on a fingerprint analysis because you would have to be “obviously wrong” to think that something with a “zero error rate” is incorrect. What becomes super interesting about this commonplace acceptance is that none of the FBI

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71 Id. at 144.
72 Id.
73 Id.
74 United States v. Baines, 573 F.3d 979, 990–91 (10th Cir. 2009).
75 Id.
fingerprinting experts from the previously discussed Brandon Mayfield misidentification were
ever fired, or demoted as experts despite the extreme blunder.

V. Post NAS Report

In 2009, an individual challenged the admissibility of fingerprints that matched him to a
carjacking in Maryland. The Court ruled that the acceptance of the ACE-V method in the
fingerprint community as well as the lack of evidence to explain the near nonexistence of
misidentification met the Daubert standard.\textsuperscript{76} This of course, is due to the above discussed
expectancy to confirm an initial expert’s determination of whether or not prints were a match.
The Court instead backed the idea that the United States Supreme Court uses in Daubert which
emphasizes cross-examination, presenting contrary evidence, and burden of proof instruction as
the method to attack perceived flaws when admitting technical or scientific evidence.\textsuperscript{77}
The following year, a Massachusetts court acknowledged the reliability concerns outlined in the
NAS report and stated,

“While we normally leave the humbling of inflated opinions to cross-examination, there is a
danger that the mystique of fingerprint identification, which has had a captivating hold on the
criminal justice system and society at large for more than one hundred years, is such that
cross-examination may not be enough to rectify the effect of a fingerprint expert’s use of
such terms as “individualized,” “absolute,” and “match” when testifying, as opposed to
presenting the testimony as his or her “opinion” that the latent fingerprints are the
defendant’s.”\textsuperscript{78}

This is as earlier described, the problem with leaving it to the defense counsel and actually
places them at a disadvantage before even saying a word to the jury. It is difficult to convince a
lay member of a jury that the lawyer, who went to law school, and studied humanities or writing

\textsuperscript{76} United States v. Rose, 672 F. Supp. 2d 723, 725–26 (D. Md. 2009).
\textsuperscript{77} Id.
\textsuperscript{78} Commonwealth v. Gambora, 933 N.E.2d 50 (2010).
intensive subjects in undergraduate school, knows more than an “expert” on the topic of fingerprinting. Also since a match of “80%” is not allowed, and the words “absolute” are necessary for identification, once a match is deemed by the expert it is hard for a lay person to refute. In addition to this hurdle, a fellow expert on fingerprinting will not challenge a previously made identification because they will be characterized as “lay” on the topic because they couldn’t see this verified identification like the expert who presented it did. Experts are simply very influential on juries, and it later becomes tough to change their mind. Additionally, most jurors think that fingerprinting is scientific and that it is a fool proof method of identification. The Gambora court also provided a restriction to usage of identification evidence in stating, “based on the NAS Report, we can say this much at the present time: testimony to the effect that a latent print matches, or is “individualized” to, a known print, if it is to be offered, should be presented as an opinion, not a fact, and opinions expressing absolute certainty about, or the infallibility of, an “individualization” of a print should be avoided.” This is a huge step in the direction of deeming fingerprinting expert witnesses unable to identify an individual’s print and a latent one. However, although judicial decisions began commenting and even siding with the arguments of the NAS report, much like courts prior to its release with the exception of Judge Pollak, they continued to conclude that precedent and the adversary process are what keep fingerprinting experts testifying.

Another case which the Court commented on the NAS report was a fingerprint identification leading to an arson fire suspect. The court stated that the absence of known error

79 Id.
81 Gambora, 933 N.E.2d at 61
rates, judgment calls, and the lack of studies in general put serious question into the value of friction ridge analysis.\textsuperscript{83} They commented on the idea of fingerprinting experts maintaining a zero percent error rate and making definite matches with serious concern and that it was, “not scientifically plausible.”\textsuperscript{84} They did however, deny the defendant’s challenge and left it for cross-examination to handle.\textsuperscript{85} These judicial decisions continued to acknowledge the glaring problems with fingerprinting experts, however continued to allow such testimony and opinions into the courtrooms.

Moving forward, \textit{United States v. Stone}, furthered the avoidance by courts to take a similar stance as Judge Pollak did, and continued to defer the concerns of error rates and false positive identifications to defense counsel.\textsuperscript{86} The court agreed that, “when a principle is well-established, the questions are simply whether the expert properly applied the established scientific principle to the facts and whether the expert’s credibility is compromised for reasons such as bias. These are matters that a jury usually is competent to evaluate after cross-examination and presentation of competing expert testimony.”\textsuperscript{87} This further pushed the issue of expert testimonies out of the hand of the court, and placed the pressure on the defense counsel.

The problem with this continuous deferment by the courts is the earlier described challenge that attorneys on the defense face. Beyond the previously described doubt that jurors will have in the “expert vs. lawyer” bias, the lawyers truly to some degree cannot understand some of the intricacies of fingerprints. There is a gap between the expert’s training and the lawyer’s understanding of fingerprints. Much like the judges, who generally accept the

\textsuperscript{83} \textit{Id.} at 541.
\textsuperscript{84} \textit{Id.}
\textsuperscript{85} \textit{Id.}
\textsuperscript{87} \textit{Id.} at 719.
fingerprinting expert's identification as valid, lawyers lack the knowledge and training to understand what portions of the identification to attack. That is why the lack of comprehension leads to a general allowance of this information to proceed, especially when paired with the previously discussed fact that fellow fingerprinting experts agree with themselves. In addition, it is unlikely that a common juror can even weigh expert testimony fairly, because of the predisposition to believe that the expert is obviously correct or else they would not be there. There was a study conducted which showed that jurors also made decisions based on expert testimony using language such as “match” when making and identification.88 This is an interesting fact coupled with the discussed issue that fingerprinting experts state they are “absolute” in their decisions, rather than using language such as “likely a match.”89 “Research suggests that statements made by experts are given considerable deference by jurors and their impact is unlikely to be undone either through cross-examination or rebuttal witnesses;”90 which then creates a pointless cross-examination attempt by the defense. It is almost as if by the time the defense begins their adversarial process, the lay juror has already made up their mind.

November 2017 brought a state appellate case, North Carolina v. McPhaul to the forefront of the fingerprinting discussion.91 The prosecution introduced a standard expert testimony matching crime scene latent prints to a suspect.92 McPhaul was indicted on attempted first degree murder, robbery with a dangerous weapon and assault for robbing a Domino’s Pizza driver.93 The driver, who was knocked unconscious said all he remembered was two men with

89 Id.
90 Id.
92 Id.
93 Id.
dreadlocks attacking him.\textsuperscript{94} The police then tracked the I.P. address that ordered the pizza to a house and found pizza and chicken wing boxes with shipping labels that matched the spot of the attack.\textsuperscript{95} An expert was then brought in to explain how the prints are taken, and explained the standard practice leading her to the conclusion that the print left on the pizza delivery car definitely, without question matched that of the one on the pizza box.\textsuperscript{96} The court questioned how such a definite conclusion was obtained, and was given an explanation how the expert went “back and forth” until the two sets of prints satisfied the expert’s standard to match them.\textsuperscript{97} The expert also stated the standard practice of there not being an set point of similarity being necessary to match prints, and confirmed that the second examiner did not complete a blind review.\textsuperscript{98} This is exactly as described throughout this paper, the same standard that all fingerprinting experts use. Yet here, the Judge pressed what exactly was done to analyze and match the prints, and did not readily accept the unquestioned process that fingerprinting experts usually explain. The jury convicted McPhaul anyway and the defense appealed.\textsuperscript{99} They appealed on the fact of the expert not providing testimony prior to offering her opinions which would show that she used well established methods in her analysis of the latent print.\textsuperscript{100} The defense really pushed the fact that the expert had only testified that the prints are a match because they were found a match, without the reasons for them actually being a match.\textsuperscript{101} The appellate court ruled in favor of the defense and stated that the expert, “provided no detail in testifying how she

\textsuperscript{94} \textit{Id.}
\textsuperscript{95} \textit{Id.} at 7.
\textsuperscript{96} \textit{Id.}
\textsuperscript{97} \textit{Id.} at 9.
\textsuperscript{98} \textit{Id.}
\textsuperscript{99} \textit{Id.}
\textsuperscript{100} \textit{Id.}
\textsuperscript{101} \textit{Id.}
arrived at her actual conclusion in this specific case.” In the end, McPhaul was still found guilty because of the severity and amount of evidence against him, however the question into the reliability of fingerprinting experts was yet again brought into question.

VI. PCAST Report

In 2016 The President’s Council of Advisors on Science and Technology (PCAST) released a report on forensic science in criminal courts. PCAST is the leading advisory body to the executive branch. The purpose was to determine whether additional steps were available on the scientific spectrum, beyond those taken since the release of the NAS report, to help ensure the validity of forensic evidence used in the legal system. PCAST noted that there were two major portions of the process that needed to be addressed. The need to evaluate specific forensic methods to determine whether they have been scientifically established, reliable and valid, which included fingerprinting. Also, the report stated that there was a need for clarity about the scientific standards for reliability and validity within the specific forensic methods. Specifically relating to fingerprints, the report recommended that the FBI laboratory should undertake a vigorous research program to improve forensic science, building on its recent important work on latent-fingerprint analysis.

103 Id. at 306.
105 Celebrating the Contributions of the President’s Council of Advisors on Science and Technology, White House. (April 16, 2019).
106 PCAST Report Id. at 10.
107 Id.
108 Id.
109 Id.
The PCAST report additionally recommended the National Institutes of Standards and Technology should take a leadership role in transforming latent print analysis, "from currently subjective methods, with their heavy reliance on human judgment, into objective methods, in which standardized, quantifiable processes require little or no judgment." Since its release, the report has been considered and discussed amongst the community, but the same standards have continued to be adopted by courts. The National District Attorneys Association’s response to the PCAST report was not welcoming:

"The PCAST position regarding the use of forensic science is scientifically irresponsible. Adopting any of their recommendations would have a devastating effect on the ability of law enforcement, prosecutors and the defense bar, to fully investigate their cases, exclude innocent suspects, implicate the guilty, and achieve true justice at trial... Notwithstanding the lack of qualifications, PCAST has taken it upon itself to usurp the Constitutional role of the Courts and decades of legal precedent and insert itself as the final arbiter of the reliability and admissibility of the information generated through these forensic science disciplines."

The Attorney General, Loretta Lynch spoke on behalf of the United States Justice Department in stating, "we appreciate their contribution to the field of scientific inquiry, the department will not be adopting the recommendations related to the admissibility of forensic science evidence." This was the general response from most agencies, and no real movements were made following the PCAST report, which could have sparked some movement to force

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110 Id.
fingerprinting experts to document and heighten their identification standards. In reality, this is
the same type of response that Judge Pollak received in 2002 which sparked his quick
backpedaling from his initial decision.

VII. Conclusion

In the actual Daubert v. Merrell Dow Pharm. opinion where the standard originated, the
Supreme Court listed five factors on whether or not a judge should admit testimony based on
scientific evidence; (1) whether the evidence “can be tested” using the scientific method; (2)
whether it has “been subjected to peer review and publication;” (3) the “known or potential
rate of error” of the technique in question; (4) the “existence and maintenance of standards
controlling the technique’s operation;” and (5) the “general acceptance” of the technique
within the relevant scientific community.

The first factor of testing, as related to fingerprints is somewhat muddy because of the lack of
testing and rigorous research which is typically required to be deemed a scientific claim. In
reality, as there has been little testing done in the field of fingerprints. First, on the most basic
view, there are a lot of claims that no two fingerprints in the world are alike but it would be
impossible to fingerprint every person on the planet to confirm the notion. A possible way to
potentially remedy this impractical question would be to scientifically determine what the
chances of this happening would be. The FBI in the Mitchell case tried to make the argument and
show that this claim is true, but the methods were very flawed and overgeneralized. The

114 Id. at 593.
115 Id. at 594.
116 Id.
117 Id.
118 Mitchell, 365 F.3d 262 (3d Cir. 2004).
government tried to prove the ability to make actual identifications by conducting a test in the *Daubert* hearing. They sent two latent fingerprints to 53 law enforcement locations, and added all 10 of the suspect’s prints. They asked the examiners to see if any matches could be made without telling them that they should match the suspect’s thumb prints. Only 34 locations participated, and 9 of those were unable to match any of the 10 prints to the two latent prints. This is obviously a major gap, and yet the court was not swayed. This constant leaning on the 100 year reliance and “testing” of fingerprints is exactly what Judge Pollak questioned in his first *Llera* opinion.

“It makes sense to rely on scientific testing, rather than “adversarial” courtroom testing, because to rely on the latter would be to vitiate the gatekeeping role of federal trial judges, thereby undermining the essence of Rule 702 as interpreted by the Court in Daubert. If “adversarial” testing were the benchmark—that is if the validity of a technique were submitted to the jury in each instance then the preliminary role of the judge in determining the scientific validity of a technique would never come into play. Thus, even 100 years of “adversarial” testing in court cannot substitute for scientific testing when the proposed expert testimony is presented as scientific in nature.”

Backers of fingerprinting experts instead continue to argue that the adversarial system is what guides fingerprinting through the testing portion of *Daubert* is telling of whether they truly believe their tests. Otherwise they could have just pointed to some test instead of continually reverting back to the adversarial system argument.

The second factor from the *Daubert* opinion is whether judges should admit expert testimony based on scientific factors was publication and peer review. As read throughout the

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120 Id. at note 15.
121 Id.
122 Id.
124 Id.
125 Daubert, 509 U.S. at 593.
variety of cases, the first method that is often pointed to is the peer review done in the ACE-V method. However, this leads to severe potential for confirmation bias due to the reviewer’s knowledge of the original examiner’s identification. In addition, my opinion is that the fact that experts will no oppose each other, because then one of them is regarded in the field as not an expert for not making such an “obvious” match is concerning. That is like a group of students in a law school class not clarifying a mistake on an exam question because they know if no one brings it up beforehand the professor will make it a “freebee” for the whole class. Therefore, everyone remains silent even though they may realize there are some problems with the question in contention. It is very surprising that apparent “experts” act in this way, in a sort of self-centered attempt to ensure relevancy in the fingerprinting field, fearing becoming an outcast.

The third factor in the Daubert opinion was for the judges to question the known and potential error rate.126 This is the likelihood of an expert making a mistake when identifying a latent print to an individual, or failing to do so in a situation where the prints are actually truly matches. This is an error rate that falls on the fingerprinting expert specifically, which as discussed throughout, has not been concretely determined and those tests that have been conducted have yielded unreasonably high rates of error.127 The other type of error is the likelihood that fingerprints from different individuals could wrongly be declared a match, even without examiner error such as in the Brandon Mayfield case.128 Partial prints, placement of latent prints in crime scenes, and distorted prints could all potentially lead to this error due to an unclear examination. Not even print from a crime scene will be as clear as those taken when applying for a passport. Yet fingerprinting experts, as discussed, cling to the assertion that these

126 Id. at 594.
127 Mitchell, 365 F.3d 262 (3d Cir. 2004).
128 Sarah Kershaw, at 2.
type of error rates are zero, and mistakes like this do not occur. This is an irresponsible assertion and gives jurors, who fall quickly for “science,” a false narrative of the actual chance for error to occur in fingerprinting.129

The fourth and fifth factors for judges to look to as guided by the Daubert opinion are the existence of standards to guide the practice of fingerprinting, and general acceptance of the technique within the scientific community.130 Outside of ACE-V, there are not many other standard based guides in the fingerprinting community, and even that provides little in terms of firm standards that experts must follow.131 There is something called the “Galton Point requirement” which the rest of the world uses to verify fingerprints, but the United States has no set number of points that need to be met in order to deem two prints a match.132 Every expert and lab has their own standard for how many points can be met in order to deem a print a match.133 Meanwhile, in Europe the general standard is 16 points, while South America requires 30.134 This is only an example of the weak standards in the United States, because most fingerprinting experts have come together to object to the use of a point system entirely because of the need to look at latent prints with a holistic view.135 Additionally, there is virtually zero training requirements for fingerprinting experts, outside of on the job experience and training.136 Instead,

129 McQuiston-Surrett & Michael Saks, at 59.
130 Daubert, 509 U.S. at 594.
131 McMurtie note 3 at 270-71.
133 Id.
134 Id. at 273.
135 Id.
it is more of a “learn as you go” approach, which even further leads to major question marks into the standards of fingerprinting experts.\footnote{137 Id.}

General acceptance of fingerprinting experts, has been extensively discussed in detail as to the courts use to regularly admit testimony. \textit{Daubert} was supposed to eliminate the \textit{Frye} test of general acceptance, and yet still included it as a relevant factor.\footnote{138 \textit{Daubert}, 509 U.S. 579 (1993).} Courts continue to rely heavily on this factor, and the 100 years of usage as a general acceptance strong enough to continue its use despite the lack of testing, blind review tactics and known error rates.\footnote{139 Id.} It seems that the only people who truly believe that the practice of fingerprinting to identify individuals is fundamentally sound are the experts themselves.

As explained, the five factors in the \textit{Daubert} opinion to which judges should look to in order to admit testimony under rule 702 are flawed in the area of fingerprinting. In reality, the \textit{Kuhmo} standard should be applied, because fingerprinting experts are really not scientists, even though they continue to hold themselves out to be. Courts have continued to give them \textit{Daubert} hearings and treat their expert opinions as scientific, as the cases exemplified. The only real pushback on this is that courts have begun to ask fingerprinting experts to explain that they give opinions and are not actual scientists, possibly in an effort to eliminate the previously discussed jury bias. If properly utilized, fingerprints can continue to help \textit{fairly} help identify individuals involved in criminal proceedings in the United States. However, at the current state of practice, the ability to conduct this practice \textit{fairly} is impossible. There are too many variables, no standards, and too little guidance to continue to allow fingerprinting experts to testify on whether a latent print has been declared a match. Judge Pollak was correct in his initial \textit{Llera} decision,
and should not have subdued to the pressure put on him to change his stance. We should at most allow fingerprinting experts to give testimony on the similarities of print ridges and explain the points of fingerprints. Judge Pollak was correct, and to allow fingerprinting experts to go on the stand and "scientifically" testify that they have determined a match to exist between a latent, sometimes partial, print is irresponsible and goes beyond Daubert.