Out of the Daubert Fire and into the Fryeing Pan? Self-Validation, Meta-Expertise and the Admissibility of Latent Print Evidence in Frye Jurisdictions

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Out of the Daubert Fire and into the Fryeing Pan?
Self-Validation, Meta-Expertise and the
Admissibility of Latent Print Evidence in Frye Jurisdictions

Simon A. Cole∗

Increasingly, in contemporary society, regulators, judges, and others charged with technical decision-making are compelled to wrestle with the problem of how to evaluate claims to expertise.1 Who should count as an expert, and whose voice should be heard when technical decisions must be made? Over the past several decades, it has become clear that there is no easy answer to this problem. We cannot simply adhere to crude credentialism —attributing expertise to those with advanced degrees in the appropriate areas—in part, because all sorts of lay persons—from AIDS patients to sheep farmers—have shown that they can acquire and deploy expert knowledge over even highly technical domains.2 Indeed, it has been


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2. Brian Wynne, Sheep Farming after Chernobyl: A Case Study in Communicating Scientific Information, 31 ENVTL MAGAZINE 33 (1989); STEVEN
shown that the attribution of expertise itself can be viewed as sort of strategic, adversarial “game.” At the same time, we surely cannot attribute equal expertise to everyone who claims to be an expert. At some point, technical decision makers must face the awkward task of adjudicating expertise—of legitimating some claims to expert knowledge and delegitimating others. But surely we want such adjudications to be more than arbitrary; surely, we need some sort of rational framework for making such determinations.

Among the technical decision-makers who must adjudicate claims to expertise are trial judges. In most American jurisdictions, trial judges are charged with the task of “gatekeeping,” of legitimating some claims to expertise—by allowing the expert to testify at a trial—and delegitimating others—by barring the expert from testifying. Most American jurisdictions adhere to one of two general approaches to determining the admissibility of expert evidence. The first, which Professor Allen has called “The Deference Model,” holds that trial courts should defer to an expert community to determine whether a proffered evidentiary claim is held in high esteem, or “generally accepted.” Professor Brewer has usefully called this process “practical epistemic deference.” This approach is embodied by the 1923 D.C. Circuit case Frye v. United States and by many state cases adopting, and in some cases elaborating on, Frye.

The second approach, which has most usefully been termed the “reliability-validity standard,” directs trial judges to undertake an independent assessment of the relevance and reliability of a proffered evidentiary claim. This approach is embodied by the 1993

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4. COLLINS & EVANS, supra note 1.
7. Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923); see also, e.g., People v. Kelly, 549 P.2d 1240, 1249 (Cal. 1976).
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United State Supreme Court decision Daubert v. Merrell Dow Pharmaceuticals and its progeny cases, General Electric v. Joiner and Kumho Tire v. Carmichael.9

Frye was heavily criticized in its time.10 Daubert has generated extensive commentary, too large and varied a literature to summarize here, and some scholars have even advocated a return to the deferential approach of Frye.11 This paper takes no position on the debate between Frye and Daubert. It does, however, seek to draw our attention back to the deferential approach by further exploring some of the problems in the application of Frye, problems that scholars have tended to neglect in the last decade and a half, as attention has shifted to the reliability-validity approach.

The great advantage of the deference approach has been its reliance of the collective wisdom of an institution that commands great epistemic prestige in contemporary society: what is described in Frye as the “scientific community.” The approach is broadly consistent with much of contemporary society’s approach to technical decision making: Want to know whether nuclear power plants are safe, whether tobacco causes cancer, whether human-induced climate change is occurring? Ask an expert. To the extent that most of us prefer to defer to experts about important, highly technical decisions, Frye models this process, rather than, as Daubert does, turning judges into “amateur scientists,” much as making one’s own medical decisions turns the layperson into an amateur physician. Essentially, Frye seeks to replicate the ideal of peer review in which the consensus judgment of the scientific community should be considered the best, if not the “true,” answer to scientific and technical questions. As one evidence scholar noted, “the ‘real’ issue is whether good

scientists consider the evidence reliable at this time."

But how should the deference model function when the expert community from which the proffered expert emanates is not part of what would commonly be recognized as the scientific community? Frye has famously been criticized for purportedly allowing astrologers to testify based on the “general acceptance” of their claims within the community of astrologers. In reality, courts have dealt with such problems by identifying what we might call an *appropriate reference community*, a community that *is* commonly recognized as “scientific” whom the contested experts must convince in order for their claims to be deemed “generally accepted.” For example, in the *Frye* case itself proponents of the systolic blood pressure test had to convince psychologists and physiologists that the test was valid. Acceptance within the community of operators of the test was insufficient.

But what is to be done when the choice of *appropriate reference community* is not seemingly self-evident, as the psychological community was for the lie detector? What, for example, is the appropriate reference community for astrologers? One might say astronomers, but, in fact, professional astronomers spend very little time evaluating the validity of astrologers’ knowledge claims. Instead, the claimed validity of astrology has been evaluated by an eclectic group of individuals from a variety of disciplinary perspectives—psychology, statistics, astronomy—who have undertaken to rigorously empirically evaluate the claims made by astrologers. In those cases in which courts must evaluate the validity of claims for which the appropriate reference community is not obvious, courts have little alternative but to similarly turn to those individuals who

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14. I say “seemingly self-evident” because, of course, the choice of psychologists and physiologists as the “relevant scientific communities” could have been contested. See TAL GOLAN, *LAWS OF MEN AND LAWS OF NATURE*, 252 (2004).

have endeavored to evaluate the validity of those claims from some rational, empirical standpoint. We might call these individuals, who evaluate the validity of claims made by other experts, “meta-experts.”

Latent print (or “fingerprint”) identification, this article will suggest, is one of those cases for which the only way to find an expert evaluation of the proffered experts’ claims is to turn to meta-experts. Since the first admissibility challenge to latent print testimony under Daubert in 1999, the admissibility of latent print evidence has generated several legal opinions and a fair amount of legal scholarship.16 Courts have nearly unanimously found latent print evidence admissible. Legal scholars have, with an equal degree of unanimity, found that latent print evidence fails to satisfy any reasonable application of Daubert and Kumho Tire.17 These discussions, however, have overwhelmingly been oriented around the Daubert reliability-validity approach. There have been almost no legal opinions, and no scholarship, assessing the admissibility of latent print evidence under the Frye deference approach. This appears to be because of the widespread assumption that, whereas latent print individualization evidence’s ability to satisfy Daubert’s “reliability” requirement may be in question, its ability to satisfy Frye’s “general acceptance” requirement is not. Scholars, litigators, and judges appear to have assumed that the Frye general acceptance standard is satisfied by the widespread acceptance of the technique by its numerous practitioners. Some litigators and judges may have also been assumed that latent print evidence would evade Frye analysis because it is not novel evidence or because it is not scientific evidence.

All of these assumptions are false. This article argues that, in fact, latent print individualization evidence satisfies neither Daubert nor Frye. Moreover, it suggests that, contrary to a common assumption among both lawyers and legal scholars, defendants have equally strong, if not stronger, arguments for exclusion of latent print evidence.

under Frye as under Daubert. Thus, latent print evidence may have escaped the Daubert fire, only to end up in the Fryeing pan.\textsuperscript{18}

This article has several purposes. First, it outlines a conceptual basis for challenging latent print evidence in jurisdictions adhering to Frye-like deference approaches to the admissibility of expert evidence. These include some of the largest jurisdictions in the United States.\textsuperscript{19} In so doing, the article will further explicate some of the conceptual difficulties that have long been associated with the deference approach, especially how to constitute the “relevant scientific community” and how to measure “general acceptance.”\textsuperscript{20} In addition, it addresses hitherto underexplored conceptual issues raised by the unusual situation posed by latent print evidence: a non-scientific expert community offering testimony about what purports to be scientific evidence without an obvious scientific community to which a fact-finder can refer for an assessment of the validity of this testimony. The article proposes the notion of the meta-expert to describe the \textit{ad hoc} reference community that must be constituted in such a case. In so doing, the article aims to enhance our understanding of the deference approach to admissibility, an approach that is currently understudied and overshadowed by the reliability-validity approach.\textsuperscript{21} More broadly, the issue of how to adjudicate competing claims to expertise—how to decide who properly counts as an expert—is currently an issue of great interest and great import in many areas outside of law, concerning technical decision-making of all kinds.\textsuperscript{22} It is hoped that this discussion—one peculiar legal problem of adjudicating expertise—can contribute to that broader discussion as well. Finally, the


\textsuperscript{19} See infra notes 37–38 and accompanying text.

\textsuperscript{20} Giannelli, \textit{supra}, note 10.

\textsuperscript{21} But see, Schwartz, \textit{supra} note 11.

\textsuperscript{22} See generally, Collins & Evans, \textit{supra} note 1.
article explores some of the larger implications of the failure of latent print evidence under a deference approach. The inability of latent print evidence to muster “general acceptance” in the “relevant scientific community” not only poses admissibility challenges in both deference and reliability-validity jurisdictions, but also points to a larger issue of a fundamental split between the scientific and legal communities over the necessity of validating expert evidence.

In Part I of this article, I discuss the background to latent print admissibility challenges under Frye. In Part II, I explore two important conceptual issues that have long troubled the application of Frye: how to constitute the “relevant scientific community” and how to measure “general acceptance.” In Part III, I undertake a Frye analysis of latent print individualization evidence, whereby I find that latent print individualization is not generally accepted in the relevant scientific community. In Part IV, I explore some of the broader implications of this finding beyond the narrow issue of legal admissibility in Frye jurisdictions.

I. BACKGROUND

A. LATENT PRINT EVIDENCE UNDER TWO ADMISSIBILITY STANDARDS

The admissibility of latent print individualization evidence has been extensively litigated over the past nine years. Most of this litigation has taken place in jurisdictions that adhere to what is colloquially known as “the Daubert standard” for determining the admissibility of expert evidence. This is the admissibility standard that prevails in federal court and is articulated by the Federal Rules of Evidence and the trilogy of Supreme Court cases: Daubert v. Merrell Dow Pharmaceuticals,23 General Electric v. Joiner,24 and Kumho Tire v. Carmichael.25 The Daubert trilogy holds that trial judges must ensure that all expert evidence is both relevant and reliable. It further lays out five discretionay26 criteria to assist judges in assessing

26. See infra notes 60-67 and accompanying text.
reliability: testing, peer review and publication, standards, error rate, and general acceptance in the relevant scientific community. In addition to the federal courts, at least twenty-five states have also adopted the Daubert standard. With some qualified exceptions, challenges to latent print evidence under the Daubert standard have been unsuccessful.

However, there is a second major standard governing the admissibility of expert evidence in American jurisdictions. This second standard, colloquially known as “the Frye rule,” is older and derives from the 1923 D.C. Circuit case Frye v. United States. Frye posits a single test of admissibility of scientific evidence, which is generally summarized by the term “general acceptance.” The relevant language from the Frye opinion is as follows:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

A crucial distinction is that Frye, unlike Daubert, posits a “deference model” for evaluating scientific evidence. Whereas Daubert asks the trial court itself to render a judgment as to whether the proffered evidence is reliable, Frye directs the court to defer to the judgment of the “relevant scientific community.” Frye, as Professor Schwartz has pointed out, assumes that scientists themselves are the best judges of scientific claims. As such, a judge operating under Frye is not being asked to form an independent judgment of the reliability of the technique. Instead, the judge is being asked to engage in a

28 Id. at 454; see also infra notes 37-38 and accompanying text.
29 See Part I. C. infra.
30 293 F. 1013 (D.C. Cir. 1923).
31 Id. at 1014.
32 Allen, supra note 5.
33 See
sort of scientometric exercise in which she attempts to measure the acceptance of the technique among scientists.

This article will endeavor to model the conceptual process of a Frye inquiry into the admissibility of expert evidence by latent print examiners. The reader will be put in the position of a trial judge undertaking such an inquiry. Consistent with the philosophy of the deference model, I will deliberately refrain from explaining the nature of fingerprint evidence and the scientific objections to it. Strictly speaking, such matters should be outside the purview of the trial court in a Frye jurisdiction. All the trial court really needs to know is whether the “relevant scientific community” accepts the proffered expert’s claim or not. Strictly speaking, the judge need not even understand why scientists hold the views they do, as long as the evidence concerning general acceptance is convincing. In this article, I attempt to compel the reader to adopt this mode of reasoning by deliberately withholding technical explanations or objections to fingerprint evidence. There are numerous sources through which the interested reader may learn why scientists and scholars do not accept the claims of latent print examiners.

34. “Scientometrics,” a variant of bibliometrics, is a field which, among other things, seeks to measure the influence of particular scientific publications by the amount of citations. See generally Helmut A. Abt, Do Important Papers Produce High Citation Counts?, 48 SCIENTOMETRICS 65 (2000).

Although Daubert is generally perceived as the wave of the future, reports of Frye’s demise\(^\text{36}\) may be exaggerated. There are still at least twelve states that adhere to some form of the Frye rule, and “Frye states” still include some of the nation’s largest jurisdictions (e.g., California, New York, Florida, Illinois, Pennsylvania).\(^\text{37}\) Six additional states have incorporated Daubert factors but continue to adhere to Frye.\(^\text{38}\) Moreover, while many legal scholars have criticized Daubert, some have gone so far as to praise the “philosophical insight” of the Frye rule and called for its reinstatement in all jurisdictions.\(^\text{39}\)

**B. THE ASSUMPTION OF ADMISSIBILITY UNDER FRYE**

When criminal defendants began litigating admissibility challenges to latent print evidence in 1999, it was widely assumed that such challenges were only possible under Daubert. Daubert, it was argued, had opened a door to reconsideration of the admissibility of latent print evidence, a door that had been closed under Frye.\(^\text{40}\) There were a number of reasons for this assumption, but in this article, I will argue that this assumption (an assumption I shared as well) may have been premature.

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\(^\text{37}\) In addition to the federal courts, the Daubert jurisdictions are: Alaska, Arkansas, Colorado, Connecticut, Delaware, Idaho, Indiana, Iowa, Kentucky, Louisiana, Maine, Montana, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, West Virginia, Wyoming. The Frye jurisdictions are: Arizona, California, the District of Columbia, Florida, Illinois, Kansas, Maryland, Minnesota, Missouri, New York, North Dakota, Pennsylvania, and Washington. States which combine Frye and Daubert approaches are: Alabama, Hawaii, Massachusetts, Nevada, New Hampshire, and New Jersey. States with their own admissibility rules are: Georgia, Utah, Virginia, and Wisconsin. States that have a split of authority supporting both Frye and Daubert approaches are: Michigan, Mississippi, and Nebraska. Id.

\(^\text{39}\) Paul C. Giannelli, *The Supreme Court’s “Criminal” Daubert Cases*, 33 *Seton Hall L. Rev.* 1071, 1098 (2003) (“such challenges would not have occurred under Frye.”).
First, Daubert demands that expert evidence demonstrate not only relevance but also reliability. The demand for a demonstration of reliability was thought to pose greater difficulties than the "general acceptance" requirement for latent print individualization evidence, especially when the criminal defense bar became aware that there were in fact no studies demonstrating the reliability of latent print individualization.\(^\text{41}\) By this time, legal scholars had begun to note the apparent irony that Daubert, which had explicitly stated that it was intended to loosen the restrictions on expert evidence, in fact, appeared to be a more stringent standard.\(^\text{42}\) Professor Saks argued that which standard was more exacting depended on the type of evidence.\(^\text{43}\) Some forms of evidence, such as very cutting edge scientific results, might have high reliability but low general acceptance. Such evidence was more likely to be admitted under Daubert than Frye. Others enjoyed high general acceptance, but had little or no evidence demonstrating reliability. Such evidence was more likely to be admitted under Frye than Daubert. Professor Saks included latent print evidence (along with much of the rest of the trace evidence forensic sciences)\(^\text{44}\) in this category, and his analysis no doubt did much to inform many legal actors’ assumptions (including mine) that challenges to latent print individualization evidence were unlikely to be successful in Frye jurisdictions.

Consistent with the Saksian view, most legal scholars believed that latent print individualization evidence had difficulties under four of the five Daubert reliability criteria. In most cases, however, an exception was made for general acceptance. Some legal scholars conceded that latent print evidence probably satisfied the general acceptance criterion.\(^\text{45}\) Some admissibility challenges to latent print evidence, in fact, conceded the general acceptance prong.

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\(^\text{41}\) E.g., \(^\text{42}\) Id.\(^\text{43}\) See generally \(^\text{44}\) Trace evidence forensic sciences would include such disciplines as fingerprinting, tool mark identification, bite mark identification, forensic DNA profiling, microscopic hair and fiber comparison, forensic document examination, and footwear analysis. \(^\text{45}\) Id. at 1094–1127.
Nevertheless, this concession was not thought to affect the overall admissibility of latent print evidence. First, proffered expert evidence that met only one of five criteria would seem to be a poor candidate for admissibility. Second, as the Supreme Court noted in *Kumho Tire*, general acceptance alone is usually insufficient to render evidence admissible “where the discipline itself lacks reliability, as, for example, do theories grounded in any so-called generally accepted principles of astrology or necromancy.”

This reasoning guided, for example, the initial ruling (later vacated) in *United States v. Llera Plaza*, restricting the admissibility of latent print evidence.

Most importantly, it has generally been assumed that an analysis of the state of general acceptance of latent print individualization evidence is something of a “no-brainer.” The “relevant scientific community” is latent print examiners. All latent print examiners “accept” latent print evidence. End of argument. Many courts have concluded that latent print evidence easily satisfies the general acceptance requirement, even when evincing skepticism about its ability to satisfy some of the other *Daubert* criteria.

I will argue, however, that this is an overly simplistic analysis within the meaning of *Frye*.

The final reason for assuming that *Frye* challenges to latent print evidence were not possible is a phrase in the *Frye* opinion that specifies that it applies to novel scientific evidence. This creates what some evidence scholars have called a non-novelty “loophole” in *Frye*. Forms of expert evidence which either: (1) pre-date *Frye* altogether (as in

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48. *United States v. Gary*, 85 F. App’x. 908 (4th Cir. 2004) (“[F]ingerprint analysis is one of those forms of evidence where the reliability of the science and its general acceptance is apparent without a full reexamination of the science.”).
50. See *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).
51. Giannelli, supra note 40, at 1099.
the case of latent print individualization evidence), or (2) post-date Frye, but are not challenged until after they have become familiar enough to the criminal justice system to no longer be regarded as “novel,” would not be challengeable under Frye. Such forms of expert evidence would not even reach the general acceptance issue. Because Daubert explicitly disavowed any novelty requirement, it was widely assumed that challenges were more possible under Daubert.

For these reasons, the criminal defense bar and legal scholars alike have assumed that challenging latent print individualization evidence under Frye is a hopeless cause, while admissibility challenges under Daubert are, at least in principle, plausible. Litigants wishing to challenge the admissibility of latent print individualization evidence in Frye jurisdictions have generally adopted the tactic of trying to backdoor Daubert by urging courts to consider the Daubert factors in making their Frye determinations. Such tactics have not met with success.

C. DAUBERT CHALLENGES TO LATENT PRINT EVIDENCE

Daubert challenges to latent print evidence have not met with success either. Numerous published opinions have ruled on admissibility challenges to latent print evidence in Daubert jurisdictions. With some qualified exceptions, these opinions have all ruled latent print individualization evidence admissible. Indeed, even the qualified exceptions generally rule latent print individualization evidence in general admissible, while excluding some specific application of it.

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52. Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 592 n.11 (1993) (“Although the Frye decision itself focused exclusively on ‘novel’ scientific techniques, we do not read the requirements of Rule 702 to apply specially or exclusively to unconventional evidence.”).
53. Giannelli, supra note 40, at 1098.
55. For a review, see One web site lists more than 40 Daubert challenges to latent print evidence, not all of which are published. See Legal Challenges to Fingerprints, http://www.onin.com/fp/daubert_links.html (last visited May 24, 2008).
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This lack of success has been at stark odds with the weight of opinion in legal scholarship, nearly all of which concludes that latent print individualization evidence, as currently constituted, does not satisfy the Daubert standard for admissibility.\[^{57}\] Although I believe that latent print individualization evidence must be inadmissible under any reasonable reading of Daubert,\[^{58}\] it now appears that a litigant may, contrary to conventional wisdom, have a better chance of success in a motion to exclude latent print evidence in a Frye jurisdiction.

There are several reasons for this. First, at some point the precedential weight of the admissibility rulings will preclude admissibility motions under Daubert. Already, in 2004, the Third Circuit Court of Appeals tried not so subtly to put this issue to rest in its opinion upholding the admissibility of latent print individualization evidence.\[^{59}\] Second, the Daubert standard is notoriously vague. Indeed, vagueness is one of the opinion’s principal flaws for its many critics.\[^{60}\] The vagueness of the Daubert standard principally lies, first, in the refusal to specify the five “Daubert factors” as a “definitive checklist or test.” Second, trial court decisions are subject to the abuse of discretion review.\[^{61}\] These factors combine to create a regime in which trial judges can follow their intuitions with very little risk of being overturned. It is very difficult for a trial court to err under Daubert because most decisions with which higher courts may disagree can be explained as either exercises of the trial judge’s discretion in framing the Daubert inquiry or exercises of the trial judge’s discretion in making the

\[^{57}\] Infra note 241.
\[^{59}\] United States v. Mitchell, 365 F.3d 215, 246 (3d Cir. 2004). (“[A] district court would not abuse its discretion by limiting, in a proper case, the scope of a Daubert hearing to novel challenges to the admissibility of latent fingerprint identification evidence—or even dispensing with the hearing altogether if no novel challenge was raised.”); Simon A. Cole, Does ‘Yes’ Really Mean Yes? The Attempt to Close Debate on the Admissibility of Fingerprint Testimony, 45 JURIMETRICS 449, 452 (2005) [hereinafter Cole, Yes].
ultimate admissibility determination. It has been suggested that Daubert challenges to latent print evidence have failed not because there has been any empirical demonstration of the technique’s accuracy or validity, but because latent print evidence benefits from a high degree of what comedian Stephen Colbert has called “truthiness,” an instinctual belief that something is true even if no factual basis for that belief exists.\(^62\) In other words, perhaps trial judges believe that latent print evidence is accurate, even if the proponents of the evidence cannot demonstrate it, and, therefore, they are inclined to look for ways to find that the evidence satisfies Daubert. If latent print admissibility rulings are indeed outcome oriented, then a vague admissibility standard with a wide range of judicial discretion gives judges more room to follow their instincts. Thus, a vague standard like Daubert is not conducive for unpopular litigants seeking a radical change like restricting the admissibility of latent print individualization evidence.\(^63\)

This point is supported by the recent Daubert jurisprudence on latent print evidence admissibility. The earliest opinions tended to adopt tortured readings of the Daubert factors in order to find that latent print evidence met all the factors with flying colors.\(^64\) More recent decisions, however, tend to find latent print evidence admissible despite what would appear to be shocking lapses in terms of the Daubert factors. For example, United States v. Llera Plaza (Llera Plaza II) finds latent print evidence

\(^62\) Mnookin, *Fingerprint Evidence*, supra note 35, at 66 (“It is easy to see why judges are reluctant to exclude fingerprinting: it is a long-used technique, an extremely valuable form of evidence to prosecutors, and one in which the public has enormous faith.”); Jacques Steinberg, *Truthiness*, *N.Y. TIMES*, Dec. 25, 2005.

\(^63\) The vagueness of Daubert has been exacerbated, I would argue, by the five-factor list. The list has drawn both judicial and scholarly attention away from the concept it was meant to elucidate: “reliability.” By focusing on the list, which is vague and which the Daubert Court had specified was not intended to be “definitive,” rather than on the Federal Rules of Evidence (FRE) relevance and reliability requirement, which is neither flexible nor vague, judges and scholars have overstated the flexibility and vagueness of Daubert. If Daubert rulings are outcome-oriented, the outcome is usually achieved by interpreting the five-factor list, not the FRE reliability requirement.

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evidence admissible despite satisfying only the
standards/error rate and general acceptance prongs.65
United States v. Sullivan found it admissible despite being
“testable, although untested.”66 Finally, United States v.
Mitchell found it admissible despite failing the standards
prong and meeting the testing prong not with true testing,
but only with “implicit testing.”67 None of these opinions
have won praise among evidence scholars, and one could
make a strong argument that they are erroneous
applications of Daubert. But, in the final analysis, it is
difficult to say that these opinions are absolute violations of
Daubert, rather than the “flexible” interpretations of it that
that Supreme Court seemed to call for.

The Frye general acceptance test, though it too
contains unresolved ambiguities,68 is at least less flexible
and vague than Daubert. Indeed, Frye has been criticized
for the supposed rigidity of its “nose counting” test.69
However, as I will argue below, properly conducted, a nose
counting test actually favors criminal defendants.
Unpopular litigants with unpopular causes like latent print
admissibility challenges should want a rigid admissibility
standard that leaves the court with less discretion.

D. “THE THING FROM WHICH THE DEDUCTION IS MADE”: WHAT MUST BE
“GENERALLY ACCEPTED”?

The first step in analyzing latent print individualization
under Frye is defining what it is that needs to be generally
accepted. A general acceptance analysis might yield quite
different results depending on how the claim is formulated.
To use the original Frye case as an example, a court that
asked whether the ability of a lie detector device to
accurately detect deception is generally accepted would

65  188 F. Supp. 2d 549, 576 (E.D. Pa. 2002) (concluding that
arrangements found sufficiently reliable in England should be found
reliable in the United States).
2003).
67  365 F.3d at 238; see also Simon A. Cole, ‘Implicit Testing’: Can
Casework Validate Forensic Techniques?, 46 JURIMETRICS 117, 126 (2006)
[hereinafter Cole, Implicit Testing].
68  See, e.g.,
69  Joseph D. Hatina, Shaken Baby Syndrome: Who Are the True
get quite a different result from a court that asked whether the lie detector’s utility in exacting confessions was generally accepted. Similarly, a court that asked whether the ability of a lie detector to detect deception some of the time was generally accepted would find quite a different result than a court that asked whether the ability of a lie detector to detect deception with a high degree of accuracy was generally accepted. In the case of latent print evidence, a court might find a very high rate of general acceptance if it asked whether the “relevant scientific community” accepts that latent print identification is a “good” or “useful” thing or that latent print identification is “sometimes” or “often” accurate or “can” be done accurately. Similarly, the proposition that latent print source attributions are to be made accurately from complete sets of ten rolled prints might enjoy an extremely high rate of general acceptance, whereas the proposition that latent print source attributions are made accurately from single partial “latent” prints might command a far lower rate of general acceptance.

How then should “the thing from which the deduction is made” be formulated in a Frye challenge to latent print evidence? Given that it is possible to “game” the state of general acceptance through the formulation of the proposition to be accepted, it would seem that the only fair way to proceed is to evaluate the formulation to which the proffered expert witness proposes to testify. In this regard, courts faced with Frye challenges to latent print evidence are fortunate because the professional community of latent print examiners is quite explicit about what it is that they claim to be able to do. According to professional guidelines, inculpatory latent print testimony can take only one form: a testimonial claim of “individualization,” which is defined as the conclusion that the source of the known print (the defendant) is the only possible source of a latent print, to the exclusion of all other possible sources in the universe.

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This is the strongest possible conclusion that any forensic analyst could offer in regard to the source of a trace, and latent print examiners offer it every time they testify to an inculpation. The ability of latent print analysis to individualize, then, is the “thing” from which the deduction that the defendant is the source of the latent print to exclusion of all other possible sources is made. Therefore, it is the ability of latent print analysis to individualize that, under Frye, needs to be generally accepted in the “relevant scientific community.”

It is often suggested, however, that it is the underlying “premises” of the technique, not the accuracy of the technique itself, which must be generally accepted. A common tactic in both admissibility hearings and in latent print examiners’ own literature has been to advance evidence supporting the “premises” of latent print individualization instead of evidence supporting the accuracy of the technique itself. Specifically, in admissibility hearings, the government has spent a great deal of time demonstrating the “uniqueness” and “permanence” of friction ridge skin (the anatomical structure of which finger, palm, and sole prints are impressions), rather than the accuracy of latent print individualization. Could it be that “the thing from which the deduction is made” is the uniqueness of all human friction ridge skin? It cannot. The conclusion that a single area of friction ridge skin is the only possible source of a particular latent print is not a logical deduction from the proposition that all friction ridge skin is unique. Just because the skin is unique, it does not follow that an analytic process is sufficiently diagnostic to always identify the true source of an impression of that unique skin.

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72 Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923). Some readers of this article have questioned why I have not formulated “the thing” more generously in a way that would command higher general acceptance. I must admit to being somewhat perplexed by this suggestion, given that the latent print community has the full capacity to formulate its claim, however it so chooses. It is certainly true that there would probably be a high rate of general acceptance if the claim were formulated as follows: “latent print analysis can correctly attribute source for complete sets of prints.” But this is not how the latent print community and those who proffer latent print examiners as expert witnesses have formulated the claim.

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Moreover, as a matter of common sense, legal scholars and at least one court\textsuperscript{74} have noted that it would defy common sense to allow acceptance of the underlying “premises” of the technique to be sufficient for admissibility; surely the issue in a Frye inquiry is not merely whether the premises of the technique are generally accepted but also whether or not it is generally accepted that the technique itself does what it claims to be able to do.\textsuperscript{75}

II. CONCEPTUAL DIFFICULTIES IN THE APPLICATIONS OF FRYE

The Frye rule has come under frequent criticism over the years. Scholars have argued that applying the Frye rule is not nearly as clear-cut as it might appear at first glance. Two difficulties applying Frye, in particular, have generated concern. One is how the “relevant scientific community” is defined. The second is how “general acceptance” is measured.\textsuperscript{76}

A. CONSTITUTING THE “RELEVANT SCIENTIFIC COMMUNITY”

Critics of Frye have pointed out that the “relevant scientific community” is not always obvious.\textsuperscript{77} For example, situations may arise in which one specialist community “accepts” a particular principle or technique, while another

\textsuperscript{74} State v. Velasco, 799 P.2d 821, 827 (Ariz. 1990) (en banc) (“The question is not whether the scientific community has concluded that the scientific principle or process is absolutely perfect, but whether the principle or process is generally accepted to be capable of doing what it purports to do.”).

\textsuperscript{75} On the distinction between the validity of a technique and the theory behind it, see See also (“For testimony to be sufficiently probative to warrant admission... the fundamental theory and the existence of a valid procedure for taking the necessary measurements and drawing the appropriate inferences needs to be established.”). The uniqueness of all human friction ridge skin may logically count as a “premise” of latent print individualization—it is a necessary but not sufficient condition of the claim of individualization—but I would question its status as a “theory.” The claim of uniqueness does not purport to explain how or why analyses by latent print examiners result in individualization, it merely proposes that the targets of their analyses are “unique.”


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specialist community is more skeptical. Such “cases of extra-disciplinary competition of credentialed experts” may take several forms. In some cases, acceptance may be greater in one discipline than in another. In other cases, the disagreement may pit a practitioner community against a community of scientists.

1. Practitioners Only

Can a technique satisfy the Frye rule if it is accepted by practitioners, but not by the broader scientific community? The Frye case itself, as well as subsequent cases concerning polygraph evidence, were practitioner-only cases. Practitioners of lie detector tests “accepted” them as valid, whereas the broader scientific community, defined variously as psychologists, physiologists, or neurologists, was more skeptical. This was also the case in voice spectrography cases, in which practitioners of the technique accepted it as valid, whereas the scientific community, consisting of audiologists, acousticians, speech scientists, acoustical engineers, anatomists, electrical engineers, linguists, phoneticists, physicists, physiologists, psychologists, and statisticians, was more skeptical. In such cases, if the “relevant scientific community” was defined as the practitioner community, the technique appeared to be generally accepted, but if the “relevant scientific community” was defined as the broader scientific community, it may not have been. Thus, as Professors Faigman, Kaye, Saks, and Sanders have pointed out, how the “relevant scientific community” is defined determined the outcome of the Frye inquiry in every voice spectrography case.

By and large, however, there is little disagreement on the issue of whether practitioners alone can constitute the “relevant scientific community.” Courts have generally

78 Brewer, supra note 6, at 1633.
81 Id. at 297.
82 Id.; Giannelli, supra note 10, at 1214 (noting that “general acceptance of the polygraph is almost assured if the opinions of [polygraph] examiners are considered”).
found that practitioner-only acceptance cannot satisfy the Frye rule. In Frye itself, the systolic blood pressure test failed because it was not generally accepted “among physiological and psychological authorities,” rather than, say, being admitted because it was accepted by William Moulton Marston, its developer, and his disciples.\textsuperscript{83}

Maryland’s case adopting the Frye rule, Reed v. State, chided the trial court for restricting the “relevant scientific community” to “the group actually engaged in the use of this technique and in the experimentation with this technique.”\textsuperscript{84} The court wrote:

[W]e find that the trial court’s formulation is inconsistent with the proper standard of acceptance necessary for admissibility. The circumstances of the instant case suggest no basis for “restricting the relevant field of experts” to those who have performed voiceprint experiments, and eliminating from consideration the opinions of those scientists in the fields of speech and hearing, as well as related fields, who, by training and education, are competent to make professional judgments concerning experiments undertaken by others. The purpose of the Frye test is defeated by an approach which allows a court to ignore the informed opinions of a substantial segment of the scientific community which stands in opposition to the process in question.\textsuperscript{85}

The Arizona Supreme Court agreed.\textsuperscript{86}

The Alaska courts have not only included non-practitioners in the “relevant scientific community,” but have even excluded practitioners. In Contreras v. State, regarding hypnosis, the Supreme Court of Alaska wrote:

We define the relevant scientific community as the academic, scientific, and medical or health-care professions which have studied and/or utilized hypnosis for clinical, therapeutic, research and investigative applications. It does not include those whose involvement with hypnosis is strictly limited to that of practitioner, technician or “operator” . . . . We exclude technicians from the group because Frye requires scientific, not merely technical, judgments to be made.\textsuperscript{87}

\textsuperscript{83} Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923).
\textsuperscript{84} Reed v. State, 391 A.2d 364, 377 (Md. 1978).
\textsuperscript{85} Id.
\textsuperscript{86} State ex rel. Collins v. Superior Court, 644 P.2d 1266, 1285 (Ariz. 1982) (“This requirement is not satisfied with testimony from a single expert or group of experts who personally believe the challenged procedure is accepted or is reliable.”).
The courts’ rationale for evincing skepticism concerning techniques that are accepted only by practitioners appears to have been motivated principally by two concerns. First, practitioners tend to be materially interested in the validity of the technique. That is, they tend to stand to benefit financially if the technique is legitimated by a favorable admissibility ruling in the courts. Therefore, such individuals’ “acceptance” of the technique should be taken with a grain of salt. For example, a Florida District Court of Appeal excluded polygraph evidence because “[t]he only testimony was from two people who earn a living by giving polygraph tests.” Similarly, the Supreme Court of Michigan stated:

While one would not want an expert witness without experience or background in the technical field, one would want, where the task was to demonstrate general scientific acceptability, an acknowledgment of the value of the device and the techniques by disinterested scientists whose livelihood was not intimately connected with it.

In a later case, the court stated:

To allow general scientific acceptance to be established on the testimony alone of witnesses whose livelihood is intimately connected with a new technique would eliminate the safeguard of scientific community approval implicit in the general scientific acceptance test. Scientific community approval is absent where those who have developed and whose reputation and livelihood
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depends on use of the new technique alone certify, in effect self-certify, the validity of the technique . . . . If this Court were to adopt the view that the testimony of persons who have developed
and whose reputation and livelihood depends on the use of a new
 technique alone supports admissibility, then the views of the
developer and his disciples would be substituted for the scrutiny
of the marketplace of general scientific opinion and the substance
of the Frye test would be eliminated.90

Courts have also recognized, however, that even beside
financial interest, practitioners are vulnerable to developing
a personal stake in the validity of a technique. Having spent
a great deal of their professional time on developing,
learning, disseminating, or advocating the technique,
practitioners may find it very difficult to simply concede
that the technique is not valid, no matter what the
empirical evidence. As the Florida court went on to say
about polygraph evidence, “Frye requires more than the
testimony of an expert who has a personal stake in the
theory or is prone to an institutional bias.”91 In People v.
Kelly, the Supreme Court of California viewed the testimony
of a leading practitioner of voice spectrography with
cautions because “he has virtually built his career on the
reliability of the technique.”92 A California appellate court in
an earlier case went further, arguing, as had the Alaska
Supreme Court, to exclude practitioners from the “relevant
scientific community,” stating that in deciding whether “a
technique or process is generally accepted in the scientific
community, self-serving opinions should not be
received . . . .”93

About the idea of allowing practitioners to constitute
the “relevant scientific community,” the Eighth Circuit Court
of Appeals said this: “[s]ome commentators have posited
the argument that the polygraph need only attain general
acceptance among the polygraph operators themselves to
satisfy the test for admissibility . . . . This position must be
rejected.”94 Instead, the court suggested that courts might
turn to the mainstream scientific community: “Experts in
neurology, psychiatry and physiology may offer needed

90. People v. Young, 391 N.W.2d 270, 276 n.24 (Mich. 1986)
   (emphasis added).
91. Thompkins, 891 So.2d at 1152.
94. United States v. Alexander, 526 F.2d 161, 164 n.6 (8th Cir. 1975).
The Third Circuit also noted disapprovingly “some courts, when they wish to admit evidence, are able to limit the impact of Frye by narrowing the “relevant scientific community” to those experts who customarily employ the technique at issue.” 96 Similarly, the Florida Supreme Court noted, “[i]n applying the Frye criteria, general scientific recognition requires the testimony of impartial experts or scientists. It is this independent and impartial proof of general scientific acceptability that provides the necessary Frye foundation.” 97

Significantly, although some courts have functionally narrowed the “relevant scientific community,” most commonly in cases upholding the admissibility of voice spectrography, in almost none of those cases have courts defended or even articulated limiting the “relevant scientific community” to practitioners as a principle. 98 One exception is the Minnesota Supreme Court, which disagreed with the Michigan Supreme Court’s insistence on relying on relatively disinterested experts. 99 There are also some cases in which evidence is deemed admissible when it “has obtained general acceptance in only one branch of science,” such as techniques that are accepted only in forensic chemistry, but not in chemistry generally. 100 Such situations are quite different from the situation for latent prints, in which the technique is only accepted, not by a “branch of science,” but by practitioners of the technique,
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the vast majority of whom do not have scientific training.\(^{101}\)

To be sure, courts have acknowledged that a balance must be struck between finding experts who are knowledgeable with the technique and those who are disinterested. A completely disinterested expert may lack knowledge.\(^{102}\) Therefore, courts have required only relative disinterest.\(^{103}\) The point here is merely that it is well established that courts have reason for skepticism when general acceptance emanates only from practitioners with a degree of both financial and emotional interest in the

\(^{101}\) Latent print examiners themselves do not appear to be scientists, at least in the conventional sense of being trained in, and acquiring advanced degrees in, science. Historically, latent print examiners have been drawn from the ranks of law enforcement officers and identification bureau clerks, and scientific training was not a credential required to analyze latent prints. David L. Grieve, *The Identification Process: Traditions in Training*, 40 J. FORENSIC IDENTIFICATION 195 passim (1990). Even today, after the profession instituted formal educational requirements—perhaps in response to criticisms of the lack of training standards exposed in early *Daubert* challenges—SWGFAST guidelines only recommend a bachelor’s degree in science. Work experience can still compensate for the lack of such a degree, according to SWGFAST. Since the SWGFAST guidelines are not binding on law enforcement agencies and are of recent origin, many practicing latent print examiners may fall short of even these modest scientific credentials.

Even if latent print examiners did all possess SWGFAST’s recommended credential, the B.S. degree, it is not clear that they would properly be considered scientists. Most working scientists would probably want to see an advanced degree in science before calling an individual a “scientist.” Although, I am aware of a handful of individual latent print examiners who possess such degree, it would seem that they are a small minority in the profession. One study found that only 3% of crime laboratory directors require a M.S. degree for a position as a firearms, document, or fingerprint examiner, and only 2% require a Ph.D. Kenneth G. Furton et al., *What Educational Background Do Crime Laboratory Directors Require from Applicants*, 44 J. FORENSIC SCI. 128, 131 (1999). Moreover, it appears likely that these credential requirements may reflect crime laboratory directors’ aspirations more than the true credentials available to them in the labor market. It is difficult to imagine a crime laboratory requiring a Ph.D. for a position in firearms, document, or fingerprint examination, and it is equally difficult to imagine them successfully filling the position with such an individual. I am not aware of any latent print examiner who has this credential, though I am aware of one individual who is seeking a doctoral degree in forensic science (Glenn Langenburg of the Minnesota Bureau of Criminal Apprehension. Trial Transcript, State v. Columbus, No. 04082599 (Minn. Hennepin County Dist. Ct. May 18, 2006)).

To be sure, it is possible to argue that latent print examiners are credential-less scientists. We would not necessarily want to take the position that an individual or group of individuals who are clearly doing
perpetuation of the technique.

Evidence scholars also agree that practitioner communities alone cannot satisfy the general acceptance requirement. Professor Black notes that such definitions of the relevant scientific community would “allow[] a group that advocates a technique or method to self-validate it simply by declaring acceptance.” 104 This would also allow self-validation by astrologers, cults, and what Professor Schwartz colorfully calls “mutual admiration societ[ies].” 105 Professor Schwartz notes that if the “relevant scientific community” consists solely of individuals whose “professional reputations and commercial interests . . . depend on validation of the technique, general acceptance may be a foregone conclusion . . . .” 106 Specifically with scientific work, but lack formal advanced degrees, could not be considered scientists. For example, there are talented amateur astronomers who make what are considered by professional astronomers to be genuine contributions to astronomical knowledge. For these exceptional individuals, their lack of a doctoral degree in astronomy does not negate their contribution to the corpus of scientific knowledge. Some latent print examiners have invoked this argument, claiming that a scientist is one who analyzes and compares. Simon A. Cole, What Counts for Identity? The Historical Origins of the Methodology of Latent Fingerprint Identification, 12 SCI. CONTEXT 139, 144 (1999). Whatever the merits of this argument for latent print examiners, it does not help the court performing a Frye inquiry. The inquiry would still be hampered by the absence of a relevant scientific community, which would legitimate latent print examiners' scientific claims in the way that professional astronomers legitimate the claims of talented amateur astronomers.

It might perhaps be argued that latent print examiners constitute a credential-less scientific community that lacks affirmation from a conventionally credentialed scientific community. The trouble is, it is not clear how a court would distinguish such a community from, say, a community of like-minded practitioners united by financial interest in the perpetuation of their technique and the deluded belief that the technique “works.” I am not suggesting here that latent print examiners are one type of community or the other; merely that a proper Frye inquiry requires a heuristic for distinguishing one from the other.

102 This is an old problem in the sociology of knowledge. See generally, Jürgen Habermas, KNOWLEDGE AND HUMAN INTERESTS (1971).

103 People v. Young, 391 N.W.2d 270, 275 (Mich. 1986) ("A certain degree of 'interest' must be tolerated if scientists familiar with the theory and practice of a new technique are to testify at all.").


105 Id. at 207; see also Jay P. Kes, A Critical Examination of the Post-Daubert Scientific Evidence Landscape, 52 FOOD & DRUG L.J. 225, 240
regard to latent print individualization, Professor Mnookin notes, “[w]hen there is challenge to the fundamental reliability of a technique through which the practitioners make their living, there is good reason to be especially dubious about ‘general acceptance’ in that community.”

As three evidence scholars note in a prominent treatise:

[A] practitioner-only rule could leave an entire field largely immune from appropriate criticism. The practice of handwriting analysis, for example, is conducted by those who believe in it. The only plausible experts who can testify critically on the reliability of handwriting analysis are analysts who have developed second thoughts, the few academics who have conducted experimental studies of handwriting analysis, or the potentially greater number of academics who have studied the literature on the validity of handwriting analysis.

Instead, they suggest, “[a] requirement of acceptance among ‘disinterested scientists’ helps ensure that the community in which acceptance is determined consists of more than a handful of devotees of the theory or technique in question.” Elsewhere, they note:

Constricting the scientific community to forensic scientists is not an adequate solution. As a formal matter, it resolves the problem of applying the general acceptance test to “forensic-only” evidence, but this limited acceptance does not necessarily demonstrate that the scientific theories or techniques can be relied on in court. . . . [I]f crime laboratories adopt a method before it has been adequately validated, this version of “general acceptance” will not detect the gap in the scientific foundation for the expert testimony.

2. Breadth

“Cases of extra-disciplinary competition of credentialed experts” may also arise when a specialist community “accepts” a principle or technique, but the broader

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108. Everything in this passage applies equally well to latent print evidence, with the exception that the number of academics who have conducted experimental studies may be even smaller.
109. Id. at 180. I would suggest that there is no good reason to think that the principle would not still apply even if, as in the case of latent print evidence, the devotees number more than a “handful.”
110. Id. at 443.
Sociologists of science have shown that it is not uncommon for a small community close to a particular problem to have a different consensus view than the broader disciplinary community more conceptually distant from a problem. For example, the state of “general acceptance” of certain scientific knowledge claims would be quite different among physicists who work with gravity-wave detectors than among physicists in general. Both groups are undoubtedly “scientific communities,” and they may be equally well credentialed. But the state of general acceptance would be quite different depending on how narrowly or broadly the “relevant scientific community” is defined.

We might call this “the problem of breadth.” How broadly should the “relevant scientific community” be defined? In the above example, is the “relevant scientific community” for claims about gravity waves, gravity-wave physicists, experimental physicists, all physicists, or even all scientists? Conceptually, the problem of breadth is a difficult problem. Narrow definitions of community have the virtue of capturing a community in which most members will have a high degree of familiarity with and knowledge about the claim in question. But such communities will also have the vice of consisting of members who are more likely to have an entrenched or vested interest, whether financial or emotional, in the claims in question. Likewise, a broad community will have the virtue of a community of individuals with little vested interest in the problem. But such a community may not have the depth of familiarity as the narrower community.

The courts, however, have not found the problem of breadth all that conceptually difficult. Instead, virtually all courts have articulated a preference construing the “relevant scientific community” broadly, rather than narrowly. The courts’ rationale appears to be implicitly based on the idea, commonly espoused by sociologists and philosophers of science, that unfettered criticism is necessary to produce robust knowledge.

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111 Brewer, supra note 6, at 1633.
113 ROBERT K. MERTON, SOCIAL THEORY AND SOCIAL STRUCTURE: TOWARD THE
2008] LATENT PRINT EVIDENCE ADMISSIBILITY 481 appear to recognize that breadth is necessary to generate what the Florida Supreme Court described as “the kind of searching, critical review that is the sine qua non of scientific acceptance.”114 For example, California’s case adopting the Frye rule, People v. Kelly, noted, “[i]deally, resolution of the general acceptance issue would require consideration of the views of a typical cross-section of the scientific community, including representatives, if there are such, of those who oppose or question the new technique.”115

The Supreme Judicial Court of Massachusetts, in a similar fashion, asserted that the “relevant scientific community must be defined broadly enough to include a sufficiently broad sample of scientists so that the possibility of disagreement exists.”116 The court cautioned trial judges not to “define the ‘relevant scientific community’ so narrowly that the expert’s opinion will inevitably be considered generally accepted.”117 In People v. Watson, the Appellate Court of Illinois agreed with the trial court opinion “that too narrow a definition of the pertinent scientific community would render the Frye standard meaningless and ineffective.”118 The Appellate Court added, “[w]e have found overwhelming support for this view in the decisions of other courts which have confronted this issue.”119 In

Codification of Theory and Research (1949); Karl Popper, Conjectures and Refutations 29 (1965).

114. Ramirez v. State, 810 So. 2d 836, 850 (Fla. 2001).
116. Canavan’s Case, 733 N.E.2d 1042, 1050 n.6 (Mass. 2000); see also Bernardoni v. Industrial Com’n, 840 N.E.2d 300, 311 (Ill. App. Ct. 2005) (“A court must not define the relevant field of experts so narrowly that the expert’s opinion inevitably will be considered generally accepted. If the community is defined to include only those experts who subscribe to the same beliefs as the testifying expert, the opinion always will be admissible. The community of experts must include a sufficiently broad sample of experts so that the possibility of disagreement exists.”).
117. Canavan’s Case, 733 N.E.2d at 1050 n.6.
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United States v. Porter, the District of Columbia Court of Appeals deemed “somewhat astonishing” the government’s proposal that the trial judge “severely restrict the categories of scientists whose views he should consider in assessing general acceptance.”120 The court voiced agreement with the trial judge’s conclusion that “[i]t simply is not creditable to argue . . . that general acceptance may be premised simply on the opinion of forensic scientists.”121

Perhaps most significant is the absence of any opinions in which courts take the opposite view—that the “relevant scientific community” should be narrowly defined. There are two major categories of exceptions to the trend toward broad construal of the Frye test: voice spectrography and deoxyribonucleic acid (DNA).122 In both categories, there are numerous cases in which courts have upheld the admissibility of evidence by narrowly construing the “relevant scientific community.” In the DNA cases, the government typically urged courts to define the “relevant scientific community” as those who practice the technique in a forensic context; whereas defendants typically argued that the “relevant scientific community” should include scientists who used DNA profiling techniques in academic research. The government generally would argue that the “relevant scientific community” consisted of those individuals who performed actual forensic work, whereas defendants would argue that researchers who used DNA profiling techniques in their line of work were well equipped to evaluate the use of the same techniques in forensics. Both expert communities were scientists, but one derived its authority from its experience in the trenches doing forensic work, whereas the other derived its authority from more traditional markers of academic prestige. In addition, issues arose in forensic applications, for which academic research provided no relevant experience. For example, the

121 Id.
122 An oft-cited “exception” to the principle of breadth, People v. Williams, 164 Cal. App. 2d Supp. 858 (Cal. App. Dep’t Super. Ct. 1958), is not really an exception. In Williams, the broader community was simply ignorant of the test under consideration. That differs from the case of latent print individualization, in which members of the broader community are aware of, and do not accept, the claim of the validity of latent print individualization.
issue of calculating the probative value of a DNA “match” was one that arose in the forensic context, but not in the academic research context; academic experts would first need to educate themselves in order to comment on forensic applications of the technique. The crucial issue was whether the court circumscribed the “relevant scientific community” narrowly, as those who practice forensic DNA profiling, or more broadly, as those who generally practice DNA profiling techniques. This decision ultimately determined the outcome of the *Frye* inquiry.123

In voice spectrography cases, Professors Faigman et al. have shown that the scope of the “relevant scientific community” determined the outcome of *Frye* rulings; all courts that construed *Frye* broadly and used no other test excluded the evidence, while all courts that construed it narrowly admitted it.124 However, although the courts construed the “relevant scientific community” narrowly in some cases, in none of them did the court defend narrowness as a principle.125 This stands in marked contrast to the voice spectrography cases in which the “relevant scientific community” was construed broadly. In these cases, the courts were able to eloquently articulate the virtues of breadth.126 The conclusion perhaps is that narrowness conveys virtues of outcome, but not of principle.

Legal scholars also support the principle of breadth. One legal commentator has recommended, “[w]here only proponents of a technique appear, the court should sua

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123. See generally Saul Halfon, *Collecting, Testing and Convincing: Forensic DNA Experts in the Courts*, 28 Soc. Stud. Sci. 801 (1998); Schwartz, supra note 33. Interestingly, in the earliest cases, it was the government that construed the relevant scientific community broadly, bringing in high-powered academic scientists like Kenneth Kidd of Yale University and Richard Roberts. Only when criminal defendants began recruiting equally high-powered scientists from the academic community, like Richard Lewontin of Harvard University and Eric Lander of MIT, did the government seek to narrow the definition of the community. See JAY D. ARONSON, *GENETIC WITNESS: SCIENCE, LAW, AND CONTROVERSY IN THE MAKING OF DNA PROFILING* (2007).


sponte take the responsibility of inquiring not just whether the experts believe the scientific community is generally in agreement, but whether they are in fact aware of any opposing sentiment in the relevant scientific community.”

B. MEASURING “GENERAL ACCEPTANCE”

Even if the “relevant scientific community” is defined, a second major ambiguity in the Frye rule remains. How should “general acceptance” be measured within that community? Must there be unanimous acceptance within the “relevant scientific community”? Will a simple majority do, or should some sort of supermajority be required? Should all voices be weighted equally, or should some sort of differential weighting be applied? If the latter, how should weight be accorded? By academic prestige? By familiarity with the specific question at hand? Or, should the opposite principle hold? Perhaps the greater the individual’s professional distance from the question at hand, the greater weight their opinion should be afforded, on the reasoning that they have the least interest in the outcome of the Frye analysis.

Although these are thorny questions, courts have not had that much difficulty working out some general practical parameters. For example, numerous courts have taken the trouble to refute the red herring that general acceptance is understood as unanimous acceptance in the “relevant scientific community.” But how much general acceptance is required and how it should be measured remain open questions. Some courts criticize what they call “nose counting” or “head counting,” a sort of crude counting of implicitly expressed “votes” in the “relevant scientific

127 Comment, The Voiceprint Dilemma: Should Voices be Seen and not Heard?, 35 Mo. L. Rev. 267, 293 (1975); see also James P. Flannery, Kara Howe, & Blanca Dominguez, Frye, Daubert, Donaldson, and Junk Science: The Admissibility of Novel Scientific Evidence in Illinois, CBA Rec., May 2004, at 30, 37 (stating that “narrowing the pertinent field too much would render the Frye test meaningless and ineffective”).

For some courts, nose counting is problematic because it entails weighing all opinions equally, rather than affording greater weight to the more qualified. Others argue that waiting for a sufficient “nose count” will delay acceptance of cutting edge science. Some courts have criticized “nose counting” in the process of arguing that a forgiving relevancy test is preferable to the Frye test. Others have criticized it in the process of arguing for their own idiosyncratic admissibility standards. Still other have criticized “nose counting” in the process of calling for a Daubert-like reliability inquiry to replace the Frye test.

Still, some courts and scholars have defended “nose counting.” Of all the arguments against “nose counting” surveyed above, only the first does not entail the rejection of Frye itself. Therefore, to a court that does subscribe to Frye, the only relevant criticism is the first: the Leahy court’s caution that not all votes should necessarily be counted equally. This would require some sort of weighting solution. The Leahy court argues that weighing should be operationalized by insisting that the court “must consider the quality, as well as quantity, of the evidence supporting or opposing a new scientific technique.”

This notion of “quality” appears to be something akin to scientific credentials or even prestige. In Leahy it was used to require...
more than the testimony of police practitioners to deem the test at issue to be valid. This is not really a criticism of nose counting, but merely a honing of it. Indeed, it is hard to escape the conclusion that Frye necessarily requires some sort of polling of the scientific community if any sort of general acceptance is to be ascertained. In any case, none of these concerns will pose any difficulty for a general acceptance analysis of latent print individualization since both crude nose counting and weighted prestige counts will yield the same result.

III. ANALYSIS OF LATENT PRINT EVIDENCE UNDER FRYE

It is established that for most Frye-subscribing courts, the “relevant scientific community” should be construed broadly and should not consist solely of practitioners, if at all. It is also established that Frye necessarily entails some sort of polling of the views of that “relevant scientific community”—call it nose counting if you wish. How do these principles apply to latent print evidence? The first question is: Who constitutes the “relevant scientific community” for the claim of latent print individualization?

A. CONSTITUTING THE “RELEVANT SCIENTIFIC COMMUNITY”

Historically, it has been assumed that latent print examiners constitute the “relevant scientific community,” and latent print individualization enjoys high, perhaps even unanimous, “acceptance” in this community. However, as discussed above, for other forms of evidence, courts have generally held inadmissible types of evidence accepted only among practitioners of the technique. Admittedly, latent print practitioners are more numerous than polygraphers or voice spectrographers. However, as one court stated, “Mere numerical majority support or opposition by persons minimally qualified to state an authoritative opinion is of little value.”

137 Id.
138 Id.; see also People v. Marlow, 41 Cal. Rptr. 2d 5, 31 (Cal. Ct. App. 1995) (“[T]he trial court (and the appellate court on de novo review) must not simply count heads but must look to the quality as well as the quantity of evidence supporting or opposing a new scientific method.”).
1. Why Latent Print Practitioners Cannot Constitute the “Relevant Scientific Community”

How can latent print examiners be viewed as “minimally qualified to state an authoritative opinion” on the validity of latent print individualization? This statement may seem counterintuitive to some, but it can be easily understood by considering the difference between practicing a technique and assessing the validity of that technique. The question before the court in a Frye proceeding is whether the “proposition” has passed from the “experimental” to the “demonstrable stage.” In other words: has the correctness of the proposition been demonstrated? Knowing whether latent print examiners can in fact do what they claim to be able to do requires performing what is generally called a “validation study.” A validation study measures the rate at which latent print examiners achieve accurate results. Validation is a common process in the sciences by which the ability of a test or assay to achieve accurate results is measured. Scientists in a wide variety of disciplines are trained to assess whether instruments of various types are valid. It is important to note that practicing a technique does not constitute validating it. Indeed, one can practice a technique without even being aware of whether or not it is valid. Moreover, no amount of day-to-day practice can inform the practitioner of the validity of the technique. A practitioner cannot “experience” validity. Validity must be measured, usually through a study.

Latent print examiners, however, normally undergo no such training. Latent print examiners are trained to analyze latent prints. They are not trained to conduct validation studies, or to perform literature reviews in order to assess whether validation studies have been conducted. Most latent print examiners have little scientific education and cannot reasonably be expected to understand validation, conduct such a study, or to assess the quality of a

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139. Leahy, 882 P.2d at 337.
140. Id. at 340.
purported validation study. To be sure, this situation is changing with the entry of more young trainees with scientific training into the profession, and there are a few latent print examiners who are very familiar with validation studies. Nevertheless, even these exceptions do not make the community a good arbiter of whether latent print individualization has been validated. Because their business is analyzing prints and not conducting or assessing validation studies, the fact that thousands of latent print examiners accept latent print individualization is of little value. Evidence scholars suggest that individuals indifferent to validation cannot properly constitute the "relevant scientific community"—"The emphasis should be on scientists . . . If the general acceptance standard is to fulfill its objectives, the theory and technology that generate the evidence must be familiar to a community of experts who rarely embrace methods that have not been rigorously validated."

Professor Jonakait’s characterization of electrophoresis, a more technical form of forensic evidence, is equally, if not more applicable to latent print evidence:

A forensic procedure becomes widespread not because all the people using it have made independent evaluations about reliability. . . . If the new technique appears to work, then the methods are taught to others. Since few labs can afford to employ only highly trained scientists, often those learning the procedures are not scientists, but technicians. Thus, most of those who use the new tests have not verified the test’s reliability, and few would have the training to conduct such research in any event. The users of the procedure, then, trust that the procedure is reliable, not because they have verified that fact but because the developers of the procedure say that it is reliable. Widespread use of electrophoretic tests in forensic labs thus does not indicate anything more about reliability than that a handful of people have

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142 Such as Glenn Langenburg of the Minnesota Bureau of Criminal Apprehension, who has a degree in chemistry and experience in the chemical industry including validation studies. See Trial Transcript, State v. Columbus, No. 04082599 (Minn. Hennepin County Dist. Ct. May 18, 2006) (on file with the author).

143 See ([A] technician’s testimony should never suffice to establish the validity of a novel technique.). There is no logical reason that Professor Giannelli’s statement should be limited to “novel” techniques, and he may have only used it because of the Frye’s novelty requirement. On the novelty requirement, see infra text accompanying notes 255–268.

144
In fact, latent print practitioners would be the subjects of properly conducted validation studies of the latent print individualization. It is their accuracy that would be measured. Allowing latent print examiners to constitute the “relevant scientific community” would be to confuse the confidence of a practitioner in the validity of her own practice with validity as assessed by an outside observer. Latent print examiners’ confidence in the validity of their own practice is not meaningful because latent print examiners do not receive valid feedback in going about the course of their work. They are not regularly told whether they have reached correct results for the simple reason that in casework the correct results are not known to anyone. At best, a latent print examiner might sometimes receive feedback from a peer who disagrees with their conclusion. But if, for example, an error were corroborated rather than detected by the peer, neither individual would necessarily receive valid feedback about the error. Because of this lack of valid feedback, the examiners are in no position to assess the accuracy of their own practice. Indeed, if asked to assess accuracy, they are very likely to confuse their own confidence with actual validity. Much the same point has been made about polygraph examiners: “[P]olygraph examiners are perhaps the group whose opinions concerning the technique are, paradoxically, of the least value.”

It is clear then, that if the question is the validity of the

\[146\] For examples of actual cases in which errors were corroborated, rather than detected, see Simon A. Cole, More Than Zero: Accounting for Error in Latent Fingerprint Identification, 95 J. CRIM. L. & CRIMINOLOGY 985, 1023-1025 (2005).
technique, the proper scientific community is those equipped to assess validity, not those equipped to practice the technique. Indeed, as several courts have noted, the very purpose of the Frye rule is to “ensure[] that the persons most qualified to assess scientific validity of a technique have the determinative voice.”\textsuperscript{148} The Pennsylvania Supreme Court aptly described the virtue of Frye in the following manner: it “require[es] judges to pay deference to the conclusions of those who are in the best position to evaluate the merits of scientific theory and technique when ruling on the admissibility of scientific proof . . . .”\textsuperscript{149} This, the court argues, “is the better way of insuring that only reliable expert scientific evidence is admitted at trial.”\textsuperscript{150}

In addition, courts have expressed concern about practitioners’ interests, financial and institutional, and these concerns apply with force to latent print examiners. If latent print individualization evidence were not generally accepted, it would no longer be admissible in court. Most latent print examiners would probably be out of a job. But latent print examiners’ emotional investment is probably even greater than their pecuniary interest. The extraordinary claims of “infallibility”\textsuperscript{151} or “total reliability”\textsuperscript{152} that today still surrounds latent print individualization, as distinct from all other areas of forensic science, make the idea that the technique lacks validation particularly difficult for practitioners to accept. To accept scientists’ arguments that latent print individualization lacks validation may imply that latent print examiners had been perpetrating a fraud, or at least an exaggeration. It is not unreasonable to think that a latent print examiner who had devoted her career to this practice would have great difficulty taking such a step. This difficulty may be demonstrated by the rather visceral


\textsuperscript{149} Grady v. Frito-Lay, Inc., 839 A.2d at 1045.

\textsuperscript{150} Id.


reaction in the latent print community to scientists’ argument that the technique lacks validation.  

The California Supreme Court wrote that to establish reliability and general acceptance, “[t]he witness must have academic and professional credentials which equip him to understand both the scientific principles involved and any differences of view on their reliability. He must also be ‘impartial,’ that is, not so personally invested in establishing the technique’s acceptance that he might not be objective about disagreements within the relevant scientific community.” Latent print examiners violate both criteria; they fail to understand the scientific principles that have led to differences of view about the reliability of latent print individualization. This is evidenced by their consistent mustering of irrelevant arguments concerning the uniqueness of friction ridge skin, or the use of latent prints in casework in response to questions about the reliability of latent print individualization. And, as already noted, they are not impartial.

B. Measuring “General Acceptance”

How is a court to assess the views of the “relevant scientific community” once it determines who makes up that community? One tempting possibility would be to somehow survey that community. There is actually some precedent for such an approach. Several surveys have been conducted explicitly for the purpose of assessing the general acceptance of the polygraph and social framework testimony about eyewitness identification. Is there such a


155. See Cole, Fingerprint Identification, supra note 35.

156. Not surprisingly, proponents and opponents of polygraphy were able to archive diametrically opposed results in their surveys based on the way in which they constructed the relevant scientific community. ALDER, supra note 70, at 256; Saul M. Kassin et al., The “General Acceptance” of Psychological Research on Eyewitness Testimony, 44 AM. PSYCHOLOGIST 1089, 1096 (1989) (arguing that “for assessing the consensus of opinion on various eyewitness findings” the survey method “is the only plausible method and is far better than other means of establishing
survey assessing the state of general acceptance of latent print individualization?

1. Formal Surveys

As it turns out, one such survey has been conducted for latent print individualization. The survey was conducted by the Federal Bureau of Investigation (FBI) in preparation for the first Daubert challenge to latent print evidence in 1999. The cover letter makes clear that the survey was meant, at least in part, to address the general acceptance prong of Daubert. The survey did not directly ask whether the respondents generally accept latent print individualization, but it did ask, in Question #A7, “Does your agency accept the fundamental principles of uniqueness and permanence as scientific basis [sic] for using fingerprints as a means of individualization?” All respondents who completed this part of the survey (forty-nine respondents) responded “yes” to this survey item. The survey was presented as evidence of general acceptance in the Mitchell Daubert hearing. The survey question should be interpreted as acceptance of the premises that make latent print individualization plausible but instead has been confused with acceptance that latent print individualization actually works. However, even if we construe the question as asking about general acceptance of the validity of latent print individualization, rather than to its premises, should the fact that one hundred percent of respondents answered “yes” to that question indicate general acceptance in the “relevant scientific community”?

The answer is probably not. In addition to the problem of indirectly focusing on acceptance of premises rather than on the process itself, the survey suffers from methodological flaws. For example, the survey might be

160. See infra note 164 and accompanying text.
161. FBI LABORATORY, supra note 158.
162. Id.
biased because it included a cover letter that began as follows:

The FBI needs your immediate help! The FBI Laboratory is preparing for a Daubert Hearing [sic] on the scientific basis for fingerprints as a means of identification. The Laboratory’s Forensic Analysis Section, Latent Print Unit, is coordinating this matter and supporting the Assistant United States Attorney in collecting data needed to establish this scientific basis and its universal acceptance. The overall strategy must specifically address the two fundamental principles (uniqueness and permanence) for using fingerprints to individualize. The availability of the requested information will not only provide supportive documentation but will also fulfill one of the other Daubert elements, i.e., that the scientific basis is widely accepted.\[164\]

The letter went on:

The time sensitive nature of these requests cannot be expressed strongly enough, nor can the importance of your cooperation. The potential impact of the Federal court not being convinced of the scientific basis for fingerprints providing individuality has far-reaching and potentially negative ramifications to everyone in law enforcement. The FBI wishes to present the strongest data available in an effort to insure success in this legal matter and your cooperation is a key component in achieving this success.\[165\]

This stimulus does not appear to be consistent with the fundamental principles of survey research. The letter makes the purpose of the study clear, the desired response clear, and threatens dire social consequences (“potentially negative ramifications”) if the desired response is not provided. The letter purports that these consequences not only threaten the respondents, but innocent bystanders as well—“everyone in law enforcement”—should every respondent not give the desired response.\[166\]

A further biasing effect may have been exerted by the fact that, on the crucial Question #7, respondents were asked to provide “an explanation as an attachment” if they answered “no,” but not if they answered “yes.” This asymmetry creates a disincentive to answer “no.” These methodological

\[164\] FBI Laboratory, supra note 158.
\[165\] Id.
\[166\] Don A. Dillman, Mail and Internet Surveys: The Tailored Design Method 161 (2nd ed. 2007) (stating that it is inappropriate to give an “obviously biased” explanation of why the survey is being conducted that gives “the impression that the sponsor wants responses from people who have opinions that are highly supportive” of one particular position in a survey cover letter).
problems make the mutual accusations of methodological flaws in the polygraph surveys look like nitpicking.\textsuperscript{167}

But even these problems pale in comparison to the issue of the selection of respondents. The survey was sent to the fingerprint units of fifty-three law enforcement agencies (the fifty state police agencies, plus the police agencies of the District of Columbia, Canada, and the United Kingdom).\textsuperscript{168} As a method of polling the “relevant scientific community,” the selection of recipients clearly leaves something to be desired. The pool of recipients is limited to latent print examiners. As discussed supra, limiting the “relevant scientific community” to practitioners allows a practitioner group to “self-validate” and, as the Court noted in \textit{Kumho Tire}, would fail to bar even astrology or necromancy from meeting the general acceptance test.\textsuperscript{169} It is noteworthy that in the case of surveys designed to measure the state of general acceptance of the polygraph, even though various scientists waged a strenuous battle about how the respondent pool should be delineated, \textit{neither} side advocated that the respondent pool be limited to practitioners (that is, polygraph operators) and exclude scientists.\textsuperscript{170} The selection problem in the FBI survey makes the mutual accusations of selection bias in the polygraph debate look minimal. Similarly, the designers of the social framework testimony surveys worried about the breadth of their sample even though they did not limit their sample to “practitioners” (that is, those who give social framework expert testimony in court).\textsuperscript{171}

Limiting the recipient pool to practitioners would be bad enough, but the FBI further limited the pool to current employees of law enforcement agencies. Although most practicing latent print examiners, no matter where they are employed, probably “accept” latent print individualization, those who might have doubts are more likely to express those doubts when they are no longer employed in law enforcement.\textsuperscript{172} The cover letter’s insinuation that a

\begin{itemize}
  \item \textit{See supra} note 157.
  \item \textit{Mitchell}, 365 F.3d at 223.
  \item \textit{See sources cited} \textit{supra} note 157.
  \item \textit{Kassin, et al.}, \textit{supra} note 157, at 414.
  \item This point is anecdotally illustrated by the example of Mark Acree,
negative response to the “acceptance” question would have “far-reaching and potentially negative ramifications to everyone in law enforcement”—that is, all the survey respondents’ employers and colleagues—only further undermines the trustworthiness of a survey of current of law enforcement employees.

Not surprisingly, given these methodological flaws, the survey has never been published or submitted to formal peer review. Again, the contrast with the polygraph surveys is telling. The polygraph surveys (criticized for lack of scientific peer review\(^\text{173}\)) came closer to proper scientific publication than the FBI survey, because the polygraph surveys were, respectively, published in a non-refereed journal and submitted as a successful master’s thesis in psychology\(^\text{174}\).

One would think that courts would be concerned by so poor a survey that so clearly seeks to limit the relevant community to practitioners. But, to the contrary, courts have accepted this survey without any qualms. In Mitchell, the case in which the survey was first introduced, the Third Circuit ruled that latent print individualization clearly met the general acceptance prong of Daubert because of “the results of the FBI’s survey of state agencies.”\(^\text{175}\) In response to Mitchell’s argument that law enforcement latent print examiners did not constitute the “relevant scientific community,” the court drew on Kumho Tire to argue that “the scientific/nonscientific distinction is irrelevant.”\(^\text{176}\) But Kumho Tire renders the scientific/nonscientific distinction irrelevant for purposes of applying Daubert. That is, Kumho Tire applied Daubert to all expert evidence. There is nothing in Kumho Tire that justifies the exclusion of scientists from the general acceptance analysis. Moreover, even if Kumho renders the scientific/nonscientific distinction irrelevant, the problems with the FBI’s constitution of the “relevant scientific community” are greater than the mere fact that

who identified latent prints for the FBI. Upon leaving the FBI, he has now publicly expressed his doubts concerning the validity of latent print individualization. See infra notes 269–276 and accompanying text.

\(^{173}\) .

\(^{174}\) .


\(^{176}\) Id.
law enforcement latent print examiners are not scientists. There are also the problems that the FBI’s “community” is composed too narrowly and entirely of interested parties.

The FBI survey also carried great weight with the Supreme Judicial Court of Massachusetts in Commonwealth v. Patterson. The court found, “[t]his survey is a sufficient basis on which the judge could have concluded there to be general acceptance of the theory in the fingerprint examiner community.” Interestingly, the court made this finding in a decision that found inadmissible a special application of latent print individualization called simultaneous impressions. The court found that simultaneous impressions lacked general acceptance in part because of the absence of a survey like the FBI’s. Although an FBI Latent Print Unit Chief testified that simultaneous impressions were “generally accepted in the community of qualified fingerprint examiners,” the court noted that, “[u]nlike his testimony in the single impression context, however, Agent [sic] Meagher’s testimony is conclusory and unsupported by any evidence, let alone an extensive multi-jurisdictional survey.

Although the court was correct to find that simultaneous impressions lack general acceptance, the opinion, by describing the FBI’s fifty-three-respondent,
methodologically flawed, poorly worded survey of a highly biased sample in glowing terms (“an extensive multi-jurisdictional survey”), sets an extremely low bar for survey-based evidence of general acceptance. Essentially, the opinion invites the government to satisfy the admissibility threshold for simultaneous impressions by conducting a survey of fifty some-odd law enforcement agents. Such an interpretation of the Frye rule would allow the government to claim general acceptance of any testimonial claim simply by conducting a survey of state law enforcement laboratories. This is a far cry from the original Frye case in which the court insisted that Marston win acceptance from his psychologist colleagues as a requirement of admissibility.

2. What is the “Relevant Scientific Community” for Latent Print Individualization?

If the existing survey is not satisfactory, how can we measure the state of general acceptance of latent print individualization? The problem is unusually vexing because latent print examiners appear to be a non-scientist practitioner community. Therefore, the nature of the non-practitioner “relevant scientific community” is not obvious. If a court operating under a deference model wants to avoid allowing a practitioner community to self-validate, where can it turn in an inquiry into general acceptance? The case of latent print evidence would seem to pose a new sort of problem, one which has not been addressed existing discussions about expert evidence. Legal scholars are accustomed to thinking about cases in which the contested claim has a relatively obvious appropriate reference community. For example, in the Frye case itself, Marston was a Harvard-trained psychologist. His claims to be able to discern whether his device accurately detected deception were rooted in his training as a psychologist. It therefore seemed appropriate for the Frye court to treat

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180 See

181 I am grateful to Professor Risinger, coiner of neologisms extraordinaire, for his inspiration in coining this term.

psychologists and physiologists as the “relevant scientific community” whose “acceptance” was required for Marston’s technique to be admissible. This formulation of the problem has persisted with regard to the lie detector ever since. Although adversaries over the admissibility of lie detectors vigorously debate how the opinions of psychologists of various qualifications should be weighed—with opponents of the lie detector emphasizing academic credentials and proponents emphasizing operational familiarity with lie detection techniques—neither side has seriously disputed the identification of psychologists in general as the relevant (or at least the primary) scientific community.

Other Frye inquiries have similarly managed to identify relevant scientific communities without undue difficulty. For example, courts have looked to audiologists, acousticians, speech scientists, acoustical engineers, anatomists, electrical engineers, linguists, phoneticists, physicists, physiologists, psychologists, and statisticians to constitute the “relevant scientific community” for voice spectrography. Of course in such cases, the parties, not surprisingly, may differ as to which academic specialty is most relevant. But these are differences between scientific specialties, what Professor Brewer would call “extra-competition of credentialed experts.”

A Frye analysis of latent print individualization poses a different issue altogether. The court is faced, not with a choice among scientific communities, but with the absence of any obviously “relevant scientific community” at all. The logic of the deference model is that the “relevant scientific community” is the group of people of whom the claimant must convince in order for the court to find her claims credible. The court does not exercise its own judgment as to the plausibility of the claim, but rather, seeks to determine whether the claimant has managed to convince the right people. Since Marston was a psychologist, the right people in his case were primarily psychologists. To be sure, Marston might have sought to convince the court that some other group ought to be considered the “relevant scientific community” for his claim, but he would probably

183. Faigman, Forensic Science Issues, supra note 80, at 296 n.4.
184. Brewer, supra note 6, at 1633.
not have been successful. This is because, first, his training was in psychology—there is a logic to requiring the claimant to convince the members of the discipline in which he was trained—and second, because the detection of deception is a scientific problem that would seem to fall within the domain of psychology.

Adopting this reasoning, it is by no means clear whom latent print examiners needed to convince. As Professors Kaye, Bernstein, and Mnookin note, “[w]ith procedures that have no application outside the courtroom . . . defining the relevant scientific field is a major obstacle to an even-handed and predictable application of the general acceptance standard.” What the appropriate reference community should be for latent print examiners’ claim to be able to individualize latent prints is not a trivial problem. Unlike Marston and other early polygraphers, latent print examiners do not emanate from an academic discipline to which a court could refer to see whether the claim has been “generally accepted,” nor is it immediately apparent into which scientific discipline’s domain latent print examiners’ claim should fall. Plausible claims might be made for psychology, computer science, quality engineering, biology, and statistics. At this point in history, no discipline has won “jurisdiction” over the problem. What, then, is a court to do? I suggest that the court has little choice but to look to the scholarly community as a whole and constitute an ad hoc, interdisciplinary appropriate reference community composed of those individuals who have made a reasonably informed effort to assess the issue of the validity of latent print examiners’ claim to be able to individualize from latent prints. The court might call these scholars meta-experts, experts able to evaluate the expert knowledge claims of other experts. It would appear then that a court

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185. The term “meta-expert” is also used by Professor Brewer, supra note 6, at 1627. However, Professor Brewer posits a different sort of meta-expert to solve a less difficult problem. Professor Brewer’s meta-experts help a judge choose among competing experts “in a given area.” My meta-experts are deployed to solve a more difficult situation in which non-scientist expert practitioners (who give testimony that purports to be scientific) make claims that require evaluation by experts. My notion of the meta-expert is also inspired in part by Professors Collins and Evans’s
undertaking a Frye inquiry would need to look not to a specific scientific discipline, such as psychology, but to the scientific community at large. It will be noted, of course, that most members of the scientific community at large do not analyze latent prints, and some readers may wonder how non-practitioners can evaluate the knowledge claims of practitioners. It is crucial to recognized that meta-experts are not evaluating latent print examiners’ analyses of particular latent prints; they are evaluating the question of whether latent print individualization has been validated. This requires, not an evaluation of latent prints, but an evaluation of a study of the performance of latent print examiners on the task of attributing latent prints. Similarly, in the Frye case itself, the court called on the “relevant scientific community” to evaluate whether proponents of the lie detector has amassed sufficient evidence to convince them that the device correctly detected deception. This evaluation did not require that the members of the “relevant scientific community” be capable of operating the device themselves. Their perceived competence lay in their ability to design and interpret


Nonetheless, the notion of the meta-expert that I posit here does not require individuals with claims to “expertise about expertise,” such as sociologists or philosophers of science. Instead, I am suggesting that any scholar who makes a reasonably informed evaluation of the empirical issue at hand would qualify as a “meta-expert.”

In later work, Collins and Evans describe multiple “meta-expertises.” HARRY COLLINS & ROBERT EVANS, RETHINKING EXPERTISE 45 (2007). Most of the meta-expertises they describe have little to do with what I am describing here because they primarily involve using social knowledge to make judgments about claims to expertise. Their notion of “downward discrimination,” of which “peer review” is the best known variant, comes closest to what I am trying to capture here.

In the case of latent print individualization, the situation is further complicated by the fact that the government has never put forward any empirical study that it claims validates latent print individualization. Haber & Haber, supra note 35. Rather than critiquing some purported validation study, they are simply articulating the parameters of empirical evidence that would be necessary to support a particular knowledge and noting the absence of any such evidence. Since this amounts to proving a negative, meta-experts are not able to “prove” the absence of such a study. Instead, they can only assert that literature reviews have not revealed any such study.
3. Polling the “Relevant Scientific Community”

A court undertaking a Frye inquiry in 1990 would have found no clear evidence that latent print examiners had convinced any non-practitioner scientist of the accuracy of latent print individualization. Today however, the situation has changed. A number of scientists and legal scholars have evaluated the claims that latent print individualization is valid. Therefore, a court using a deference model can undertake to survey whether non-practitioner scientists and scholars accept the validity of latent print individualization. In what follows, this article examines three potential sources of information on the state of general acceptance of this claim in the broad scientific community: expert witness testimony, amicus curiae briefs, and published scholarly literature. All are well-recognized ways of assessing the state of general acceptance in a scientific community. In addition, all three involve acts in which an individual symbolically stakes his or her scientific or scholarly reputation on his or her opinion. In all three cases, this article examines compiled lists of “acceptors” and “non-acceptors.” In doing so, this article by no means suggests that courts undertaking Frye inquiries need always be bound by such crude head counts or that the rules for counting that it uses are the only ones that could be used. I am by no means suggesting that all matters of contested knowledge can be resolved by polling. I am, however, suggesting that such polling may be a necessary first step for a fact-finder undertaking a process of “practical epistemic deference.” Polling results that contradict the fact-finders intuitions ought not merely be dismissed, but would seem to at least necessitate further inquiry. Therefore, such head counts may be suggestive as to the state of general acceptance. Moreover, there is some precedent for such an approach. Litigants have in the past

\[^{189}\] Although numerous scientists have written about latent print identification, very few of them have said anything in writing about the accuracy of latent print identification. The few exceptions have merely asserted the accuracy of latent print identification, not supported the claim with any empirical evidence. See infra notes 235-238 and accompanying text.
submitted such lists to courts charged with performing Frye analyses.\textsuperscript{190}

a. Expert Testimony

Courts have suggested a variety of methods for measuring general acceptance. One is through the testimony of expert witnesses.\textsuperscript{191} The first modern admissibility challenge to latent print individualization was held in \textit{United States v. Mitchell}.\textsuperscript{192} Although the hearing in \textit{Mitchell} was governed by \textit{Daubert}, not by \textit{Frye}, the record can be used to assess the state of general acceptance of latent print individualization.

The government presented the testimony of seven expert witnesses. Three of the government experts were latent print examiners with no advanced scientific training, although some had engaged in a significant amount of scientific self-study.\textsuperscript{193} All three were questioned as to whether “individualization, that is a positive identification, can result from comparisons of friction ridge skin or impressions containing sufficient quality (clarity) and quantity of unique friction ridge detail.”\textsuperscript{194} All three

\begin{itemize}
  \item United States v. Williams, 583 F.2d 1194, 1198 (2d Cir. 1978).
  \item Harper v. State, 292 S.E.2d 389, 395 (Ga. 1982) (“An evaluation of whether the principle has gained acceptance will often be transmitted to the trial court by members of the appropriate scientific community testifying as expert witnesses at trial.”); see also
  \item United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004).
  \item In particular, see DAViD R. AShBAUGH, QTUATiTiVe-QUALIiTATiVe FRiCTiON RiDiGe ANALYSIS: AN iNTRODiCTiON TO BASiC AND ADVANCED RiDiGeOLOGY (1999). The other two witnesses were Ed German, of the U.S. Army, and Stephen Meagher, of the Federal Bureau of Investigation.
  \item Trial Transcript, July 8, 1999, at 37. United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004). The imprecise wording of this question is unfortunate. First, asking whether positive identification “can” result elides the fundamental issue of how often such conclusions of positive identifications are correct. Because of the word “can,” the witnesses presumably must answer “yes,” even if they believe the accuracy rate of latent print individualization to be very low. Indeed, even “non-acceptors” probably would have had to answer “yes” to this question. Second, the qualifier “containing sufficient quality (clarity) and quantity of unique friction ridge detail” presumably restricts the answer to a subset of “comparisons” in which “sufficient” quality and quantity are present. Since “sufficient” is not further specified, again, any witnesses would have to answer “yes” even if the subset of comparisons that meet this condition is extremely small.
\end{itemize}
answered in the affirmative.\(^{195}\) This would seem to show
general acceptance of latent print individualization within
the practitioner community. A fourth latent print examiner,
who was called in rebuttal, had a Bachelor of Science
degree, but he was not asked whether he accepted
individualization.\(^{196}\)

In addition, the government called three non-
practitioner witnesses with scientific credentials. William
Babler was a doctoral level anatomist.\(^{197}\) Babler appeared to
“accept” the premises given to him. However, Babler was
questioned about his acceptance of the “premises”
underlying latent print individualization, specifically the
uniqueness and permanence of friction ridge skin, rather
than about whether he accepted the validity of latent print
individualization itself.\(^{198}\) As noted above, the Frye inquiry
must be on the technique itself, not its premises. Donald
Ziesig, an engineer for Lockheed Martin, was questioned
about his role in conducting a study using the Lockheed
automated fingerprint matching system, not about the
validity of latent print individualization.\(^{199}\) Only one of the
scientists, Bruce Budowle, a doctoral level biologist, was
questioned about the validity of latent print
individualization. In response to essentially the same
question posed to the practitioners above, Budowle
answered in the affirmative.\(^{200}\) Thus, the government
showed that latent print individualization was “accepted”
by many non-scientist practitioners of the technique and by
one non-practitioner scientist.

The defendant presented the testimony of three expert
witnesses with scholarly credentials and varying degrees of
practitioner competence. David Stoney, a doctoral level
forensic scientist, was trained to analyze latent prints, but


\(^{199}\) \textit{Mitchell}, 365 F.3d at 223.

primarily made his living in other areas, particularly microscopy.\textsuperscript{201} James Starrs was a Professor of both Law and Forensic Science.\textsuperscript{202} The third defense expert was the author of this article, who holds a doctorate in a social science (Science & Technology Studies). Neither Starrs nor the author claimed to be able to analyze latent prints. All three defense experts testified that latent print individualization had not been validated. Thus, broadly stated, they did not “accept” latent print individualization.

<table>
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<tr>
<th>Acceptor</th>
<th>No.</th>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree</th>
<th>Institution</th>
<th>Discipline</th>
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<td>1.</td>
<td>Bruce Budowle</td>
<td>Federal Bureau of Investigation</td>
<td>PhD</td>
<td>Biology</td>
<td></td>
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<table>
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<tr>
<th>Non-Acceptor</th>
<th>No.</th>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree</th>
<th>Institution</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>James Starrs</td>
<td>Professor</td>
<td>The George Washington University School of Law and Forensic Science Program</td>
<td>BA</td>
<td>St. John’s University</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>David Stoney</td>
<td>Director</td>
<td>McCrone Institute</td>
<td>PhD</td>
<td>University of California, Berkeley</td>
<td>Forensic Science</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Simon Cole</td>
<td>Postdoctoral Fellow</td>
<td>Institute for Health Care Policy, Rutgers University</td>
<td>PhD</td>
<td>Cornell University</td>
<td>Science &amp; Technology Studies</td>
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The state of the scientific community at the time of the Mitchell hearing seems to be against admissibility under Frye (Table 1). Latent print individualization was self-certified by thousands of its own practitioners, but the government was able to identify only a single non-

\textsuperscript{201} Trial Transcript, July 12, 1999, at 37, Mitchell, 365 F.3d 215 (Dr. Stoney).

\textsuperscript{202} Mitchell, 365 F.3d at 228.
practitioner, credentialed scientist to say he “accepted” latent print individualization. Moreover, one might imagine that the fact that this single scientist happened to be an FBI employee would raise alarms for the court. In contrast, the defense was able to point to three non-practitioner scientists or scholars who did not accept the validity of latent print individualization. To be sure, the defense witnesses had weaknesses as well. The government could have pointed to Professor Starrs’s lack of a doctoral degree, or the fact that the author was a social, not a natural, scientist. However, it would seem that these objections would be overcome by Starrs’s position as a Professor of both Law and Forensic Science at a prestigious university and the fact that the author’s training was in a social science discipline whose precise aim was to seek to understand the nature of scientific knowledge claims. In any case, it would seem difficult to see how a court would construe this lineup as “acceptance” unless it was relying on acceptance among practitioners. Only by excluding non-practitioners from the “relevant scientific community” could a court find latent print individualization generally accepted.

b. Amicus Curiae Briefs

One possible objection to basing a general acceptance evaluation on expert testimony is that the numbers are necessarily small. Taking expert testimony is a slow and unwieldy method of gauging the views of “relevant scientific community.” A court might hesitate to rule a form of evidence, especially such a venerable form of evidence as latent print evidence, inadmissible based on the testimony of three individuals, even if they outnumbered their counterparts threefold.

One way of more efficiently getting the views of the “relevant scientific community” before the court is through amicus curiae briefs. By soliciting multiple signatories on a single brief, parties can convey the extent of support for a particular scientific proposition without overburdening the court with the testimony of each individual under oath. Amicus curiae briefs are relatively uncommon in the lower courts that have heard the majority of the admissibility challenges to latent print evidence. However, one appellate
court, the Supreme Judicial Court of Massachusetts, did solicit amicus briefs pursuant to an interlocutory appeal of a denial of a motion to exclude latent print evidence. Although three briefs were submitted, two were submitted on behalf of legal organizations. One brief, however, is pertinent to assessing the acceptance of latent print individualization in the “relevant scientific community.” This brief was submitted by the New England Innocence Project on behalf of fifteen scientists and scholars (including the author of this article). All fifteen scientists and scholars agreed that latent print individualization lacked validation.

The composition of the amici was varied. Fourteen of the fifteen held terminal degrees (Ph.D. or J.D., several of them held both), the remaining signatory held a master’s degree in Forensic Science. The amici came from a variety of disciplines: Biology, Mathematics, Statistics, Law, Political Science, Psychology, Linguistics, and Science & Technology Studies. These disciplinary backgrounds reflect the fact, discussed above, that there is no single discipline in whose domain the problem of latent print individualization obviously falls. Contrary to common stereotypes about “the academic brief” being signed by scholars with no professional publications or knowledge about the issue at hand, all but one of the signatories of this particular Brief have published articles or given conference presentations that deal, at least in part, with the issue of the validity of latent print individualization. In the Patterson case the government was not able to identify any additional non-practitioners who “accepted” the claim of the validity of latent print individualization.

204. Id.
The Patterson case changed the general acceptance outlook substantially (Table 2). Although the majority of meta-experts had not accepted the validity of latent print individualization even at the time of Mitchell, their raw numbers were relatively small. By the time of Patterson, however, the number was significantly larger, which should have helped assuage any concerns that the court may have had about being misled by a small number of fringe scientists. Most of the new meta-experts presumably had been drawn to examine the validity claims of latent print individualization by the publicity generated by earlier admissibility challenges to latent print individualization. Moreover, while there was no good reason to treat the Mitchell-era scientists and scholars as “fringe,” any such concerns should have been put to rest by the time of Patterson. While determined advocates could always impugn the motives or credentials of one or more of the Patterson-era scientists and scholars, there is quite simply no way to interpret the entire list as “fringe.” Finally, aside from raw numbers, the trend of opinions at the time of Patterson was quite clear. While more and more non-practitioner scientists and scholars were supporting the claim that latent print individualization was not yet validated, few were supporting the opposite position. Thus, even if the state of general acceptance was clear at the time of Mitchell, by the time of Patterson it was even clearer.

**Table 2.** General acceptance of the validity of latent print individualization among non-practitioners based on amicus curiae briefs, c. 2005.

<table>
<thead>
<tr>
<th>Acceptors</th>
<th>No.</th>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree</th>
<th>Institution</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Acceptors</th>
<th>No.</th>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree</th>
<th>Institution</th>
<th>Discipline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mark Acree</td>
<td>Principal</td>
<td>Apex Consulting</td>
<td>MSFS</td>
<td>University of Alabama, Birmingham</td>
<td>Forensic Science</td>
<td></td>
</tr>
</tbody>
</table>
c. Published Literature

Perhaps the most common method of evaluating general acceptance is by examining the published literature.\(^{207}\) It is where scientists and scholars take most

\(^{207}\) (“In general, the proponent of the evidence should prove general acceptance by surveying scientific publications. Studies demonstrating the validity of new (or old) methods, appearing without contradiction in...”)
seriously the notion of being held to the arguments to which they sign their names. Put simply, scientists and scholars expect to defend the arguments they make in published literature. Therefore, a court seeking to assess the state of general acceptance of a particular proposition might do well to survey the scientific literature speaking to that proposition. Courts have indicated approval of the notion of referring to the scientific and legal literature in making assessments of general acceptance.208 As Judge Altenbernd, put it, “[t]he Frye standard is not a direct measure of scientific trustworthiness. Instead, it is based on the assumption that the science will be trustworthy if scientists worthy of trust have published articles and made public statements in support of the scientific principle or procedure.”209

There is almost no discussion of latent print validation in the forensic science literature. The most prestigious forensic journals (Journal of Forensic Sciences and Forensic Science International) contain some material on the development and imaging of latent prints, on the variability of friction ridge skin,210 on fingerprint forgery,211 and one prominent scientific journals, reference works, or textbooks, are perhaps the best indicia of general acceptance."

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208. People v. Shirley, 723 P.2d 1354, 1376 (Cal. 1982) (“[S]cientists have long been permitted to speak to the courts through their published writings in scholarly treatises and journals.”); People v. Kelly, 549 P.2d 1240, 1247 (Cal. 1976) (“[A]mici have cited a number of scientific and legal articles containing differing forms of opposition to the admissibility of voiceprint evidence. Such writings may be considered by courts in evaluating the reliability of new scientific methodology.”).


211. Boris Geller et al., Fingerprint Forgery—A Survey, 46 J. FORENSIC SCI.
report on proficiency testing, but essentially no discussion of validation. There is a short discussion of latent print validation in a less well known forensic journal, but that article essentially conceded lack of validation and characterized latent print individualization as a “leap of faith.”

Beyond the general forensic science literature, there is also narrower literature on forensic identification, an area in which latent prints are an important component. Taken together, these sources provide substantial literature about latent print identification. But does this literature support the case for general acceptance?

One might first question whether this constitutes scientific literature. My argument here, however, need not rely on such unkind insinuations. Even if we grant journals such as JFI status as a full-fledged scientific journal, the fact of the matter is that almost nothing in it addresses the validity of latent print individualization, and nothing at


It is perhaps worth noting that a review in the Journal of Forensic Sciences of the author’s book, that makes the claim that latent print individualization has not been validated, makes no mention of the fact that the book makes this claim. One might imagine that such a claim would be of importance, or at least interest, to forensic scientists. James A. Bailey, A Review of Suspect Identities: A History of Fingerprinting and Criminal Identification 48 J. FORENSIC SCI. 476–77 (2003).


The “flagship journal” in this area is clearly the Journal of Forensic Identification (JFI). Other journals include Fingerprint World and The Print. In addition, a great deal of latent print practitioner literature is also “published” online. Important web sites that post original articles include www.clpex.com, www.forensic-evidence.com, Fingerprints.tk (www.xs4all.nl/~dacty/index.htm), Ridges and Furrows (www.ridgesandfurrows.homestead.com/index.html), and www.latentprints.com.

The online articles are neither peer reviewed nor subjected to a selective publication process; print journals are peer reviewed, though not all categories of articles are peer reviewed; and the editorial boards of a number of journals have members who are less than fully credentialled (the JFI, the leading publication, has just over half with advanced—master’s or above—degrees in science). Many contributors are not scientists.
all in it provides evidence in support of the validity of latent print individualization. It contains almost no articles dealing with the topic of the validity of latent print individualization. Those few articles that do address validity are unsatisfactory in terms of providing support for the claim. Some steer around the issue altogether.\footnote{A case in point is a recent article written by Wertheim and Maceo that mentions validity in its opening paragraph and never broaches the topic again. Kasey Wertheim & Alice Maceo, \textit{The Critical Stage of Friction Ridge Pattern Formation}, 52 J. FORENSIC IDENTIFICATION 35 (2002); see also Cole, \textit{Fingerprint Identification}, supra note 35. In an email, one of the authors argued that my critique was unfair because the article was not intended to address the validity of latent print individualization, just “biological uniqueness.” That’s fine, but it supports my argument that validity is simply unaddressed in the practitioner literature. Instead, the article is an extended effort to explicate the “biological uniqueness” of friction ridge skin, an issue that, as already stated here and elsewhere in the literature, is irrelevant to the validity of latent print individualization. See, e.g., Cole, \textit{Fingerprint Identification}, supra note 35.


A careful reading of these articles reveals that they contain no references to any studies, data, or other evidence supporting the validity of latent print individualization. In sum, though the practitioner literature is substantial and useful for arbitrating important questions like how best to image latent prints, none of it directly addresses the validity question,\footnote{This argument is made in greater detail in Cole, \textit{Fingerprint Identification}, supra note 35.} and therefore, is simply irrelevant to the question of whether the validity claims of latent print individualization are generally accepted. By contrast, the legal and scientific literature cited in note 241, does address the question of the validity of latent print individualization, and it is this literature that a court seeking to evaluate the general acceptance of latent print individualization should turn.

\textbf{Anatomical Literature}

One category of literature not represented in note 241 is anatomical literature. Some latent print proponents have argued that anatomy is the “science” in which latent print
individualization is rooted,\textsuperscript{219} and some courts have endorsed this argument.\textsuperscript{220} It is true that there is a substantial body of literature concerning the formation and variability of friction ridge skin. Should this literature be considered evidence of general acceptance of latent print individualization in the relevant scientific community? Can anatomists constitute the relevant scientific community for the issue of latent print individualization, and, if so, do they generally accept it?

Generally speaking, those anatomists who do research on friction ridge skin do not concern themselves with the accuracy of latent print individualization. Their research interest is in the formation of friction ridge skin and, to a lesser extent, its function. At times, they have offered opinions as to the \textit{uniqueness} of friction ridge skin. One anatomist, William Babler, testified to such an opinion in the admissibility hearing in \textit{Mitchell}. But, neither Babler nor any other anatomist has ever offered an opinion, in print, as to the accuracy of latent print individualization. This is why Babler is not included on Tables 1–3.

Perhaps the best way to delineate the anatomical literature is to refer to a bibliography of 120 references submitted into evidence by the government in the first \textit{Daubert} admissibility challenge in \textit{Mitchell}. The bibliography was offered in response to both the “peer review and publication” and the “general acceptance” prongs of \textit{Daubert}.\textsuperscript{221} It’s an impressive body of literature. However, none of the anatomical literature cited in this bibliography addresses the issue of the validity of latent print individualization. Some of the literature addresses the formation of friction ridge skin, some of it discusses looking for correlations between friction ridge skin patterns and disease or behavioral characteristics, some if it explores whether ethnicity can be predicted from friction ridge skin patterns, and some seeks to trace ancestry through friction ridge skin patterns. None of this is directly relevant to attributions of the source of latent prints by professional


\textsuperscript{220} Llera Plaza II, 188 F. Supp. 2d 549 (E.D. Pa. 2002).

\textsuperscript{221} (“there is extensive peer review and widespread acceptance of the basis [sic] method of fingerprint analysis.”).
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Let me offer some support for this assertion. At the time of the Mitchell hearing, I estimate that I had already read thirty-one of the sources listed in the bibliography through my own research on the history of fingerprinting.222 I knew, from having read these sources, that very few of them even addressed the validity of latent print individualization,223 and those that did, stated that it had not been validated.224 At least one was a history book that had little to say about validation.225 At least one of the sources explicitly eschewed discussion of latent print evidence altogether, leading one to wonder why it was included on the list at all.226 I, therefore, suspected that the remainder of the sources did not address validity either. In order to make a provisional test of this hypothesis, I selected twenty-seven sources that seemed, based on their titles most likely to contain information about latent print individualization. In this exercise, I excluded sources that seemed least likely to contain information about latent print individualization. For example, I excluded a book entitled Handbook of Mathematical Functions, with Formulas, Graphs, and Mathematical Tables, another entitled Statistics, and another entitled Evolution.227 (However, out

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223 For example, some of the better known sources address only the formation or uniqueness of friction ridge skin, not the accuracy of latent print individualization. FRANCIS GALTON, FINGER PRINTS (1892); HARRIS HAWTHORNE WILDER & BERT WENTWORTH, PERSONAL IDENTIFICATION: METHODS FOR THE IDENTIFICATION OF INDIVIDUALS, LIVING OR DEAD (1918); HAROLD CUMMINS & CHARLES MEDLO, FINGER PRINTS, PALMS AND SOLES: AN INTRODUCTION TO DERMATOGLYPHICS (1943). For more detail on this argument, see Cole, Fingerprint Identification, supra note 35.
227 I subsequently obtained Evolution. There do not appear to be any references to fingerprinting, latent prints, or even to friction ridge skin.
of curiosity, I included Grey’s Anatomy, even though I did not expect that it would have much to say about the validity of latent print individualization.) I assigned a research assistant to look up these articles and search them for any reference to latent print identification (not specifically to validity). Many of the sources were old or in relatively obscure journals, and my assistant was unable to locate nine of the sources. (It should be noted that this search was conducted at a branch of the largest research library in the world.) To be sure, more diligent searching might eventually unearth more of these sources. In addition, if the source was not available in the University of California Libraries, we did not choose to entail the costs of interlibrary loan. But I am satisfied that such measures were not necessary as explained below.

Of the eighteen sources that were successfully retrieved, only five of them even remotely discussed latent print identification at all. The remainder discussed the embryological formation of friction ridge skin, the inheritance of friction ridge skin patterns, or “dermatoglyphics,” the interpretation of friction ridge skin patterns. At least one did not even contain the word “fingerprint.” Another concerned the formation of skin in general, not even specifically friction ridge skin. (In addition, according to my assistant, Grey’s Anatomy does not discuss fingerprinting at all.) Of the five that did discuss latent print identification, one discussed the identification of prints by automated systems not humans, and two stated

The following search terms were not found in the index: fingerprints, hands, papillary, friction, skin, epidermis, palm.

231. Andrea A. Roddy & Jonathan Stosz, Fingerprint Features—Statistical Analysis and System Performance Estimates, 85 PROC. IEEE 1390 (1997). Automated systems are used to search for candidate matches in a database, not to determine the source of a latent print. Their performance at this task does not determine the accuracy of source attributions made by human examiners. In any case, human examiners claim higher accuracy rates than the measured performance of automated systems.
that fingerprints were “useful” for individual identification. Only two directly addressed the issue of accuracy. One of these asserted that latent print identification was “accurate,” and both claimed it was “infallible.” A closer examination of these two authorities revealed no studies, data, or evidence supporting these assertions but only ipse dixit declarations. Chatterjee declared that “it was proved scientifically that identification from fingerprints was infallible,” but offered no indication as to what proof this statement refers. The only proof discussed in the remainder of the article was Galton’s purported proof of the persistence of friction ridge details. Puri stated that “[i]t is now an established fact that the science of fingerprints is an exact one and the most accurate method of human identification.” Again, there was no indication as to what it was that supposedly “established” this “fact.” Puri made reference to court decisions that supposedly “show that identification through fingerprints is flawless and infallible,” but of course a court decision can show no such thing. The remainder of the article was devoted to the “identical twins” argument in favor of the uniqueness of friction ridge skin, which, again, invokes the fingerprint examiner’s fallacy and fails to address the validity of latent print individualization.

With more resources, I could go through the whole list.


[234] Puri, supra note 233, at 45; Chatterjee, supra note 233, at 2.


[236] Id. at 3.

[237] Puri, supra note 233, at 45.

[238] Id.

[239] Courts do not typically perform validation studies. A legal opinion cannot provide evidence of validation unless that decision refers to some study or data that does provide validation. For more detail on this argument, see Simon A. Cole, ‘Implicit Testing’: Can Casework Validate Forensic Techniques?, 46 JURIMETRICS 117 (2006).
However, at this point I am convinced that it is extremely unlikely that the Mitchell bibliography contains a hidden gem that demonstrates the validity of latent print individualization. I suspect that if there were such a gem, the government would have pointed it out in Mitchell or a subsequent case. Therefore, at this point, I am willing to take the risk of being proven wrong.

Thus, the anatomical literature cannot provide evidence in support of the general acceptance of latent print individualization. Moreover, anatomists do not constitute the relevant scientific community for the matter of the validity of latent print individualization for the simple reason that they have evinced in their published literature no interest whatsoever in this question. Anatomists are the relevant scientific community for questions that do fall within their interest and expertise. But, if a court is interested in literature that addresses the validity of latent print individualization it is to another (largely legal) body of literature that it must turn.

Literature on the Validity of Latent Print Individualization

A glance at the legal and scientific literature reveals authorities by twenty different authors or sets of authors attesting to the lack of validation of latent print individualization. It also reveals authorities by two

\[\text{240. Questions such as: How is friction ridge skin formed? What is its biological function? To what degree are friction ridge skin patterns inherited? Do certain friction ridge patterns correlate with disease or behavioral propensities or ethnic groups?}\]

2008] LATENT PRINT EVIDENCE ADMISSIBILITY 517 authors holding the opposite position. These two lists of authorities unequivocally strengthen the case against the general acceptance of latent print individualization validity.

Many of the scholars who produced this literature have already been accounted for in our previous two surveys. Indeed, most of the entrants in our previous two tables produced some published literature. “New entrants” to the field are reported in Table 3: those scholars who appear in a survey of the literature but did not already appear in our...
surveys of expert witnesses and amici. In this table, I have tried to include all scholarly articles that directly address the issue of the validity of latent print individualization. As a scholar whose work focuses on the problem of the validity and admissibility of latent print individualization, I relied on my own research and literature searches to compile this survey.

It should be noted that, like the other tables, Table 3 is a table of scholars, not of published works. Scholarship is measured as an indicator of the views of the scholar who

242 André Moenssens, *Fingerprint Identification: A Valid Reliable "Forensic Science"?*, 18 CRIM. JUST. 31 (2003); Stephen M. Stigler, *Galton and Identification by Fingerprints*, 140 GENETICS 857 (1995); Stephen M. Stigler, *The Fingerprint Controversy*, 20 ISSUES SCI. & TECH. 12, (Winter, 2004). Professor Moenssens has been quite clear in his views. I am including the other scholar, Professor Stigler in the conservative spirit of interpreting the evidence in the light least favorable to my argument. At the same time, I want to be careful to be fair to Professor Stigler. I must confess that I suspect that were the issue presented as sharply as I have endeavored to do here Professor Stigler’s views might turn out to be more consistent with the “non-acceptors” views than his published writings indicate. But this is mere supposition on my part, and I characterize him as an “acceptor” here in the conservative spirit of
produced it. Therefore, I have included each scholar as a single line item, no matter how many works addressing the validity of latent print individualization the scholar has produced. This seems the fairest way to proceed so as not to allow the counts to be dominated by a small number of scholars who produce a large numbers of works repeatedly drawing the same conclusion. A small number of scholars’ views were difficult to categorize, and they are not included in Table 3.

As Table 3 indicates, a survey of the published literature further strengthens the case against the general acceptance of latent print individualization. A survey of the published literature adds two highly credentialed scholars to the list of acceptors, but ten more non-acceptors. If we remove Mr. Epstein and Mr. Mears and Ms. Day, on the grounds that they have been adversaries in an admissibility challenge to latent print evidence, that leaves eight new non-acceptors. It is also important to note that, a survey of interpreting the evidence in the light least favorable to my argument.


244. Principally, this refers to the group of scientists including and surrounding Professor Champod. Their views have been expressed in numerous articles and a comprehensive book: Christophe Champod, Edmond Locard—Numerical Standards and ‘Probable’ Identifications, 45 J. FORENSIC IDENTIFICATION 136 (1995); Christophe Champod & Ian W. Evett, A Probabilistic Approach to Fingerprint Evidence, 51 J. FORENSIC IDENTIFICATION 101 (2001); CHAMPOD ET AL., FINGERPRINTS AND OTHER RIDGE SKIN IMPRESSIONS (2004). Although these scholars express confidence in latent print identification, they also acknowledge that it has not been validated and characterize its conclusions as based on a “leap of faith.” CHAMPOD ET AL., supra at 33. This characterization is consistent with that of Dr. Stoney, who has testified for defendants in admissibility challenges. David A. Stoney, Fingerprint Identification: Scientific Status, in MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY 55 (Faigman, et al. eds., 1997). But Champod et al. have not so testified. In addition, they reject the concept of “individualization,” Champod, supra; Champod & Evett, supra; CHAMPOD ET AL., supra, which is fundamental to contemporary latent print practice, at least in the United States. See Scientific Working Group on Friction Ridge Analysis Study and Technology, Friction Ridge Examination Methodology for Latent Print Examiners, 3 (2002), available at http://www.swgfast.org/Friction_Ridge_Examination_Methodology_for_Latent_Print_Examiners_1.01.pdf. Under these circumstances, it does not seem justified to characterize these excellent scholars as either “acceptors” or “non-acceptors.”
published literature alone would be even more lopsided than Table 3 indicates because most of the entrants on Tables 1 and 2 have produced published literature. The relative number of authorities in notes 241 and 242 give some indication of what a survey of the published literature would look like.

**Table 3.** General acceptance of the validity of latent print individualization among non-practitioners not listed in Table 1 or 2 based on published literature.

<table>
<thead>
<tr>
<th>Acceptor Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree</th>
<th>Institution</th>
<th>Discipline</th>
<th>Publ'n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 André Moenssens</td>
<td>Professor of Law</td>
<td>University of Missouri, Kansas City</td>
<td>JD, LLM</td>
<td>Illinois Institute of Technology; Northwestern University</td>
<td>Law</td>
<td>Criminal Justice</td>
</tr>
<tr>
<td>2 Stephen Stigler</td>
<td>Professor</td>
<td>University of Chicago</td>
<td>PhD</td>
<td>Mathematics</td>
<td>Genetics; Issues in Science &amp; Technology</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Acceptor Name</th>
<th>Title</th>
<th>Affiliation</th>
<th>Degree</th>
<th>Institution</th>
<th>Discipline</th>
<th>Publ'n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Nathan Benedict</td>
<td>Law student</td>
<td></td>
<td>JD</td>
<td>Arizona Law School</td>
<td>Law</td>
<td>Arizona Law Review</td>
</tr>
<tr>
<td>2 Margaret Berger</td>
<td>Professor</td>
<td>Brooklyn Law School</td>
<td>JD</td>
<td>Harvard University</td>
<td>Law</td>
<td>American Journal of Public Health</td>
</tr>
<tr>
<td>3 Robert Epstein</td>
<td>Attorney</td>
<td>Federal Defender</td>
<td>JD</td>
<td>Harvard University</td>
<td>Law</td>
<td>Southern California Law Review</td>
</tr>
<tr>
<td>4 David Kaye</td>
<td>Professor</td>
<td>Arizona State University School of Law</td>
<td>JD</td>
<td></td>
<td>Law</td>
<td>Quinnipiac Law Review; Int'l Statistical Review</td>
</tr>
</tbody>
</table>
At this point, by the most conservative accounting, the “score” in the scientific community stands at twenty-five to three against acceptance.\textsuperscript{245} In summary, we can conclude that non-acceptors have always outnumbered acceptors and that the difference is becoming more pronounced as time goes on. As of this writing, a significant number of non-practitioner scientists and scholars have expressed clear opinions that latent print individualization lacks validation. At the same time, the government and fingerprint community have shown remarkably little

\textsuperscript{245}I certainly recognize the crudity of “keeping score” in this manner. It should be noted, however, that for many years a prominent latent print examiner web site featured a “Daubert score” in the upper right corner of its home page recording the number of victories for latent print identification in Daubert admissibility challenges. Although still in use as recently as 2007, the “score” has now been discontinued. See Latent Print Examination, http://onin.com/fp/ (last visited Mar. 15, 2008). To see the “score,” see Latent Print Examination (via the Internet Archive: The Way Back Machine), http://web.archive.org/web/20070702092813/http://www.onin.com/fp/ (last visited Mar. 15, 2008)
success at finding any non-practitioner scientist or scholar to take the position that latent print individualization has been validated. The result of a Frye analysis, therefore, should be clear.

4. Anticipated Objections

As noted above, one of the characteristics of the Frye admissibility regime is that designations of the “relevant scientific community” are highly contestable. One might anticipate that proponents of latent print evidence would object to the constitution of the relevant scientific community, as I have construed it in the preceding section.

First, one might object that the scientists and scholars in Tables 1 and 2 consist simply of paid defense experts and that their opinions are, therefore, of no value. Some scholars have argued that individuals with a substantial pecuniary, or even a non-pecuniary, interest, should be excluded from a properly constituted relevant scientific community in a proper Frye analysis.246 One might arguably exclude the opinions of up to five members of Tables 1–2 on this ground because they have testified on behalf of criminal defendants in challenges to latent print evidence.247 However, the need to exclude these five individuals is debatable because even those scholars who argue for the exclusion of interested experts suggest that the test should be applied carefully and should only exclude experts whose “livelihood,” to quote the Michigan Supreme Court, is “intimately connected with the new technique.”248 Thus, under this careful test, it is not clear that these individuals should necessarily be excluded at all.

However, even if they are excluded, the overall acceptance picture does not change because the non-
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acceptors still dramatically outnumber the acceptors. Moreover, if the opinions of those individuals who have ever testified on behalf of criminal defendants were bracketed, it would also be necessary to bracket the opinions of interested government experts, whose livelihood is far more “intimately connected” to the technique than any of the individuals who have testified on behalf of defendants. This would have the effect of eliminating all latent print examiners’ opinions from consideration. It would also be necessary to eliminate two of the three scholars who support the claim of latent print individualization. Dr. Budowle is an employee of the FBI, a law enforcement agency housing the largest collection of fingerprint records in the world. Professor Moenssens, though a distinguished scholar, was himself a practitioner of latent print analysis. Thus, eliminating “interested” experts would, in fact, leave the government in a worse position because the data would show that latent print individualization evidence is accepted by only one non-practitioner while still not accepted by twenty non-practitioners.

Another potential objection to the scholars in Tables 1–3 is that some of them are not scientists. Some scholars have suggested that a rigorous application of Frye requires that the relevant scientific community consist of scientists. Many of the meta-experts listed on Tables 1–3 are legal scholars, some are social scientists, and two are forensic scientists. Each of these categories might reasonably be deemed non-scientists. Whatever the merits of the argument to bracket the opinions of some scholars on Tables 1–3 as non-scientists, the argument on the whole is unconvincing. First, some individuals who may appear to be legal scholars in fact have scientific training. One legal scholar on Table 3, despite being a professor of law, not only has a master’s level degree in law, but also a doctoral degree in psychology. Another law professor has a master’s degree in psychology in addition to his degree in law, and another has a master’s degree in forensic science.

in addition to his degree in law. Second, many of the legal scholars on Tables 1–3 are evidence scholars and have acquired a sophisticated understanding of scientific arguments, methods, and procedures.252 Third, legal scholarship is changing; currently it verges closely to the scientific, or at least the social scientific, than it did in the past. Although some legal scholars continue to limit themselves to doctrinal, textual analysis, many contemporary legal scholars deploy sophisticated empirical and statistical analyses.253 Fourth, given that latent print individualization (as opposed to other uses of friction ridge information, such as biometrics or dermatoglyphics) is almost solely used in legal, not scientific, settings, it is hardly surprising that legal scholars are among the most likely members of the scholarly community to take the time to develop a reasonably comprehensive understanding of the evidence concerning its validity. Therefore, it might reasonably be argued that the legal academic community does, to some extent, constitute the relevant scientific community for the question of the validity of latent print individualization.

With regard to the social scientists on the list, the question of whether or not social science should be characterized as “science” is a hotly debated one. Even if one concluded that it should not, two of the meta-experts on the list (including the author) were trained in a discipline that might be an exception. Science & Technology Studies (STS) is a field of social science that takes science as its object. As such, training in this discipline involves a great deal of training, education, and thought about what makes various propositions, theories, research programs, or disciplines “scientific.” Individuals with this training might be viewed as especially well equipped to assess whether or not a body of evidence supports a particular knowledge claim.

252 For example, Professor Kaye is undoubtedly among the leading legal scholars in the world in terms of his understanding of statistical inference and also commands sophisticated knowledge of the science that contributes to DNA testing.

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Finally, it might be objected that four of the entrants on Table 3 were authored by law students. It is perhaps appropriate to assign less weight to student-authored publications. Nonetheless, the conventions of legal scholarship dictate that a great deal of legal scholarship is student-authored. Although student-authored literature is traditionally accorded less weight than faculty-authored material, it is not uncommon for student-authored literature to be treated as authority in legal scholarship and indeed in judicial opinions by even the highest courts.254 There seems, therefore, to be no sound justification for bracketing the opinions of student authors. In any case, even removing student-authored material does not significantly change the overall acceptance picture. Notably, every single student-authored article on the subject finds that latent print individualization has not been validated. If there were a plausible argument to be made that latent print individualization has been validated, one would imagine that some law professor would direct a student to it, as a more interesting research and writing project than yet another article noting the lack of validation. And yet, no such article has appeared. Could this be because no such argument can be made? It might perhaps be argued that all the legal scholarship finds against validation because that is the only side of the argument that needs articulating, given that courts have already articulated the argument that latent print individualization is validated. Even if this were correct, at this point in history enough legal scholarship finding a lack of validation has been produced that a legal scholar or law student could today perceive the argument for validation as one that needs articulating, in the scholarly literature if nowhere else. Again, that no legal scholar other than Professor Moenssens has done so might suggest to a court undertaking a Frye analysis that the argument is not one that legal scholars believe.

As with the elimination of interested individuals, any strict bracketing of non-scientists actually strengthens rather than weakens the case against general acceptance of latent print individualization evidence. Such a procedure

254 carpet Sloan, What Are We Writing For? Student Works as Authority and Their Citation by the Federal Bench, 1986-1990, 61 GEO. WASH. L. REV. 221, 227 (1992).
would eliminate the vast majority of practitioners, who lack backgrounds in science. This would leave the technique accepted only by a small community of practitioners who have backgrounds in science (if one wants to label someone with a degree in science who practices latent print identification for a living a “scientist”) and three non-practitioner scientists. But a significant number of non-acceptors would remain.

5. Summary

Based on the evidence assembled in Tables 1–3, a general acceptance analysis of latent print individualization evidence under Frye should be an easy case. As long as a court resists the temptation to allow the practitioner community to self-validate its own knowledge claims, the picture is quite clear. The acceptors include only three scholars, two of whose opinions arguably should be eliminated because they are too closely interested. The non-acceptors, however, include more than twenty scholars from a diversity of disciplinary perspectives. While various criticisms might be made of various individuals among the non-acceptors, none applies to all of them, not even the criticism of not being practitioners. In their totality, this group wields a high degree of academic firepower: they include two members of the National Academy of Science, one of the most prestigious honors bestowed in scientists in the United States, the former President of one of the top five research universities in the United States, and some of the legal academy’s most eminent evidence scholars. They include four Harvard degrees, (the “acceptor” group includes one). Although the motives or qualifications of some of these individuals may be impugned, even the elimination from consideration of a couple of them leaves the opinions of some of the others standing. The point here is that the weight of scholarly opinion seems to be approaching very closely, despite all personal and disciplinary differences, a common conclusion that latent print individualization lacks validation. This degree of consensus, it would seem, is precisely what the notion of “general acceptance in the relevant scientific community” was intended to capture.

None of this is to suggest that courts must, as a general
rule, deem propositions unaccepted every time they are presented with a petition containing the signature of twenty-five people with advanced degrees, or that degrees from fancy universities should automatically connote authority. Deference to scientists and scholars must surely be exercised with caution. However, in this case, the totality of evidence of non-acceptance, combined with the failure of the proponents of the evidence to attract any significant support from any informed observers outside the practitioner community would seem to be a situation that should make a court very uncomfortable about deeming the evidence “generally accepted.”

C. Non-Novelty

A common argument holds that the Frye test only applies to “novel” expert evidence. Therefore, it is argued, even if latent print individualization would fail a general acceptance analysis, it would not reach that analysis because it is not novel evidence. Since Frye postdated the introduction of latent print evidence to U.S. courts by more than two decades, this view would find that latent print evidence was never properly the subject of Frye analysis. The supposed non-novelty loophole has probably been one of the chief deterrents to admissibility challenges to latent print evidence under Frye.

In fact, the non-novelty loophole should not be treated as an obstacle to challenging the admissibility of latent print evidence under Frye. First, the notion that Frye limited itself to novel evidence is a myth. The Frye opinion contains no reference to novelty. Instead, it has been suggested that the notion that Frye is limited to novel evidence can be traced to a law professor. It is true that some state courts appear to have added a “novelty” requirement in their cases adopting Frye. Other
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courts have rejected the novelty requirement.258 But even some courts with a novelty requirement, such as the California Supreme Court, have interpreted it to refer not merely to new techniques, but also to new information about the general acceptance, or even reliability, of even time-honored techniques. People v. Kelly states that the non-novelty loophole remains open only “until new evidence is presented reflecting a change in the attitude of the scientific community.”259 Clearly, as demonstrated by the above discussion, infra Part , the attitude of the scientific community has been developing rapidly over the last decade. A litigant could demonstrate the existence of such new information, as explicated above, and such an interpretation would, therefore, allow a Frye challenge to latent print individualization evidence. Legal scholars agree that ‘the ‘novelty’ requirement should not bar relitigation if the scientific community changes its mind when further research reveals that a previously trusted technique no longer is valid.”260 This is precisely the case for latent print evidence. Indeed, the courts’ openness to “new evidence reflecting a change in the attitude of the scientific community” is particularly pertinent to the case of latent print evidence where only the publicity generated by earlier admissibility challenges drew the attention of the mainstream scientific community to the issue of its

259 People v. Kelly, 549 P.2d at 1245; see also Fishback v. People, 851 P.2d 884, 891 (Colo. 1993).
Finally, to the extent that courts do enforce a non-novelty loophole, they defy common sense, as legal scholars have pointed out.

**D. NONSCIENTIFIC EVIDENCE**

Another “loophole” in Frye is that many courts refuse to apply it to “nonscientific” evidence. Should this be a bar to subjecting latent print evidence to Frye? It would seem not. The rationale for applying the Frye test to scientific evidence is that “it is widely agreed that propositions perceived as ‘scientific’ by the jury possess an unusually high degree of persuasive power.” Arguably, nonscientific evidence that does not enjoy the extra degree of persuasive power associated with “science,” need not bear the burden of a Frye inquiry. But, while the issue of whether latent print individualization truly is or is not properly characterized as “science” is a contested and vexing, there can be little doubt that it is presented to the jury as “science.” Therefore, it should be required to meet the Frye


263 Strong, supra note 260, at 367.

264 Strong, supra note 260, at 367.

standard. As Professor Strong put it, “[p]ropositions possessing significantly increased potential to influence the trier of fact as ‘scientific’ assertions should be required to meet scientific standards of reliability.”

IV. FRYE RULINGS

Astonishingly, until 2007 there was no ruling that explicitly considered the admissibility of latent print individualization evidence under Frye. As discussed above, this glaring lacuna was probably due to several factors including the non-novelty loophole and the defense bar’s assumption that such challenges were only plausible under Daubert. There have, however, been some admissibility rulings in Daubert or mixed jurisdictions that have considered the issue of the general acceptance of latent print individualization.

Many courts have reasoned that latent print evidence satisfies the general acceptance requirement by restricting the relevant community to fingerprint examiners or to the forensic community. Some courts have relied exclusively on general acceptance to find latent print evidence admissible under Daubert.

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266 Strong, supra note 260, at 368.
267 See, e.g., United States v. Sullivan, 246 F. Supp. 2d 700, 703 (E.D. Ky. 2003) (“The court finds that ACE-V is generally accepted in the fingerprint analysis and forensic science fields . . . .”). While it would be difficult to dispute this assertion as it concerns fingerprint examiners, it is far less clear that it is accurate as it concerns the field of “forensic science” more generally. In any case, although the court noted that “[t]he plaintiff’s expert, Joy Younce, testified that ACE-V is the standard methodology used by fingerprint examiners in analyzing fingerprints,” id. (emphasis added), the court refers to no evidence about the state of general acceptance among forensic scientists. See also United States v. Mitchell, 365 F.3d 215, 241 (3d Cir. 2004); United States v. Collins, 340 F.3d 672, 682 (8th Cir. 2003) (“Fingerprint evidence and analysis is generally accepted.”); United States v. Crisp, 324 F.3d 261, 268 (4th Cir. 2003) (“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.”); United States v. Abreu 406 F.3d 1304, 1307 (11th Cir. 2005).
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A. COMMONWEALTH V. PATTERSON

Perhaps the most extended discussion of general acceptance can be found in the Supreme Judicial Court of Massachusetts’s ruling in Commonwealth v. Patterson. The case was an unusual one in that it dealt both with the admissibility of latent print individualization testimony in general and with a particular application known as “simultaneous impressions.” Massachusetts is a mixed Frye-Daubert jurisdiction, but the decision in Patterson relied heavily on general acceptance. The court began by acknowledging that its own ruling in Canavan’s Case mandated that the relevant scientific community “be defined broadly enough to include a sufficiently broad sample of scientists so that the possibility of disagreement exists,” not “so narrowly that the expert’s opinion will inevitably be considered generally accepted.” This would seem to clearly call for extending the relevant scientific community beyond the narrow confines of practitioners.

At one point, the court appeared to claim that there are some “scientists” who accept latent print individualization, naming one: Professor Babler. But, as the court acknowledged, and I noted above, Babler’s research concerns “the underlying premises of fingerprint examination,” not the validity of latent print individualization. Indeed, as the court did not mention, Babler has never made any statement concerning the

270 The details of simultaneous impression identification need not concern us here, but it consists of aggregating consistent ridge detail from multiple latent prints when no one of those latent prints has “sufficient” (“sufficiency” being an undefined concept in latent print analysis) ridge detail for identification. Such aggregation is, of course, only legitimate if it is known that the latent prints were laid down by a single hand—that is, “simultaneously” and not by different hands at different times. The ability of latent print examiners to distinguish between simultaneous and non-simultaneous sets of latent prints had never been measured at the time Patterson was decided, though one pilot study has now been conducted. John P. Black, Pilot Study: The Application of ACE-V to Simultaneous (Cluster) Impressions, 56 J. Forensic Identification 933 (2006).
271 Patterson, 840 N.E.2d at 25.
272 Commonwealth v. Patterson, 840 N.E.2d 12 n. 12.
273 Id.
validity or accuracy of latent print individualization.

In the final analysis, the court did not rely on Babler, but instead simply excluded all scientists from the relevant community altogether and limited the community to practitioners. Directly after acknowledging its own call for breadth in Canavan’s Case, the court then said:

The judge properly ensured that the technical community in which latent fingerprint identification and ACE-V is generally accepted is broad enough to include ‘some practitioners who acknowledge flaws in the methodology’ and tolerant enough to allow ‘some, albeit, limited room for dissent.’

Therefore, the Supreme Court upheld the trial court’s finding “that both latent fingerprint identification theory in general and the ACE-V methodology in particular are generally accepted in the fingerprint examiner community” because of “the unanimous and long-standing acceptance of latent fingerprint identification theory.” In upholding the trial court’s finding of “unanimous” acceptance, the Supreme Court not only sanctioned the exclusion of all non-practitioners from the “relevant scientific community,” but also the exclusion of even those practitioners who dared to doubt that the validity of latent print individualization had been established, such as Mr. Acree, a latent print examiner who signed the amicus curiae brief. (discussed supra, Part . Thus, the court’s designation of the “relevant scientific community” was not really disciplinary, but merely ideological. Mr. Acree was presumably excluded from the relevant scientific community not because he wasn’t a practitioner—he was—but merely because he held the “wrong” opinion.

However, the court went on to rule that the trial court did abuse its discretion in admitting latent print evidence concerning simultaneous impressions. The government did not make a sufficient showing that simultaneous impressions were generally accepted within even the latent print practitioner community. But, even in excluding simultaneous impressions, the court emphasized its narrow definition of the relevant scientific community. It explicitly noted that it is the fingerprint community, not the broader

275 Id. at 25 (emphasis added).
276 Id. at 20.
277 See Part III. B. 3. b. supra.
scientific community, whose “general acceptance” would be necessary to render simultaneous impression evidence admissible: “if the Commonwealth establishes that the application of ACE-V to simultaneous impressions is generally accepted in the fingerprint examiner community, the evidence is properly admitted.”

As evidence of its claim that the practitioner community was “broad” in and of itself, the court offered the following: first, “the guidelines and standards developed by the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST) committees are subject to repeated discussion, critique, and debate by the entire SWGFAST community and by members of the IAI [International Association for Identification].” Second, “[a]dditional room for disagreement lies in the ongoing debate over how many points of similarity, if any, are needed to conclusively make a match.” Third, the court noted that some latent print examiners disapprove of the use of simultaneous impressions, the application of latent print analysis at issue in Patterson.

The first assertion is, of course, laughable because the court has, in its very articulation of the latent print community’s supposed “breadth” and “tolerance” for dissent, acknowledged that it is in fact quite clearly a closed community whose doctrines are not open to discussion by those who are not either members of the professional organization or to an elite appointed body, convened by the FBI, that seeks to set voluntary practice guidelines for the profession (SWGFAST). The second two assertions speak to matters of debate within the profession (the number of points necessary to establish an individualization and the appropriateness of individualization from simultaneous impressions), but not to the fundamental validity of latent print individualization itself.

The court conflates a discipline’s commitment to robust internal debate within the community with the discipline’s ability to achieve “external validation”—to convince
qualified outsiders that the discipline’s claims are true. Certainly, a court should want to find robust internal criticism within any expert community seeking to offer evidence in court. Classically believed to be an indispensable attribute of a healthy scientific community (or, for that matter, any community devoted to rational inquiry whether or not it calls itself “science”), this sort of open inquiry is supposed to encourage the rigorous testing of ideas and help eliminate weak claims. However, while internal criticism may be necessary for admissibility under Frye, it is not sufficient. Astrologers could make an persuasive showing of robust internal debate by showing that astrologers disagree as to what particular practices should be used to answer particular questions, what particular astrological techniques should be used under what circumstances, how to interpret various astrological signs, and so on. But, astrologers cannot demonstrate external validity. They have not convinced qualified outsiders—scientists—that the discipline’s claims are true. In Patterson, the court was able to find evidence of robust internal debate, but it was able to find no evidence of external validation. The court then fundamentally

282 Among the thinkers who claimed that such open inquiry was an ideal of scientific inquiry were the sociologist Robert Merton who called it “organized skepticism” and the philosopher Karl Popper. ROBERT K. MERTON, SOCIAL THEORY AND SOCIAL STRUCTURE: TOWARD THE CODIFICATION OF THEORY AND RESEARCH (1949); KARL POPPER, CONJECTURES AND REFUTATIONS (1965).

283 Indeed, though they are not all in the Patterson record, there are numerous indicators of the latent print community’s outright hostility to external validation. See Donald Kennedy, Forensic Science: Oxymoron?, 302 SCIENCE 1625 (2003) (reporting that a National Research Council report on forensic examination “was dropped because the government insisted on rights of review that the Academies have, at least in the recent past, refused to grant a sponsor.”); United States v. Mitchell, 365 F.3d 215, 255 (3d Cir. 2004) (claiming to be “deeply discomforted” by credible, through contested, allegations “that a conspiracy within the Department of Justice intentionally delayed the release of [a grant] solicitation” for validation research until after the defendant was convicted.); Itiel E. Dror, Cognitive Effects and Cognition of Forensic Experts, Presentation to the National Academies’ Meeting of the Committee on Identifying the Needs of the Forensic Sciences Community (Dec. 6, 2007) (presentation slides available at http://www7.nationalacademies.org/ sti/Forensics.html) (reporting “attempts to hide/bury/censor” issue of cognitive and contextual bias in the production of a friction ride Sourcebook by the National Institute of Justice by removing a commissioned article that had been favorably peer reviewed from the Sourcebook).
changed the meaning of the “breadth” principle. Whereas all the previous discussions of “breath,” including the court’s own, conceive of breadth as extending the discussion beyond the practitioner community to the scientific community, in Patterson breadth has come to be defined by “tolerance” for dissenting views within the practitioner community itself.

Even if the court did find that robust internal criticism could substitute for external validation, what is remarkable is how underwhelming was the court’s endorsement of the latent print community’s adherence to this ideal of robust internal criticism. Far from finding a resounding commitment to open inquiry, the court characterizes the latent print community as allowing only “limited room for dissent.” This rather lukewarm characterization raises more questions than it answers. What, precisely, did the court mean when it said that room for dissent is “limited” in the latent print practitioner community? If it is a scientific community, or even a non-scientific professional community, why is room for dissent “limited”? If it is a community that serves the interests of justice, why is room for dissent “limited”? Why, if fingerprinting is as clear cut, as accurate, indeed as “infallible” as its proponents claim, is there a need to “limit” dissent in the practitioner community anyway? And, if latent print examiners constitute a community that limits dissent, wouldn’t that be all the more reason to weigh heavily the opinions of outsiders and not allow such a community to constitute a self-certifying “relevant technical community”? Isn’t the suspicion that a community limits dissent precisely the sort of situation that necessitates broadening the field of inquiry in the general acceptance analysis?

Perhaps, in using the term “limited room for dissent,” the court had in mind some of the statements from latent print practitioners themselves that may be found in the exhibits submitted in the Patterson case, attesting to the prevalence of “dogma” and a “cultish demeanor” within the latent print community. Perhaps it had in mind Mr. Ashbaugh’s statement:

In the past the friction ridge identification science has been akin to a divine following. Challenges were considered heresy and challengers frequently were accused of chipping at the foundation
536 MINN. J.L. SCI. & TECH. of the science unnecessarily. This cultish demeanor was fostered by a general deficiency of scientific knowledge, understanding, and self-confidence within the ranks of identification specialists. A pervading fear developed in which any negative aspect voiced that did not support the concept of an exact and infallible science could lead to its destruction and the destruction of the credibility of those supporting it.  

Or perhaps this:

The failure of the identification community to challenge or hold meaningful debate can also be partly attributed to the fact that the friction ridge identification science has been basically under the control of the police community rather than the scientific community. In the eyes of many police administrators, friction ridge identification is a tool for solving crime, a technical function, as opposed to a forensic science.  

Or perhaps it had in mind the following statement by Mr. Grieve, long the editor of the Journal of Forensic Identification:

[T]his categorical requirement of absolute certainty has no particular scientific principle but has evolved from a practice shaped more from allegiance to dogma than a foundation in science. Once begun, the assumption of absolute certainty as the only possible conclusion has been maintained by a system of societal indoctrination, not reason, and has achieved such ritualistic sanctity that even mild suggestions that its premise should be re-examined are instantly regarded as acts of blasphemy. Whatever this may be, it is not science.  

Such statements, coming from the technique’s own practitioners, would seem to make the latent print community a poor choice for a practitioner community that is permitted to “self-validate” its own claims and exclude outsiders from the assessment of these claims. In sum, the Patterson decision is unconvincing because the court allowed admissibility to rest upon internal criticism instead of the external validation it demanded in Canavan’s Case and allowed it to rest upon an extremely weak finding of commitment to robust internal criticism at that.

285. Id.
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V. FURTHER IMPLICATIONS

In 2007 in State v. Rose, the trial court in a capital murder trial ruled latent print evidence inadmissible under Maryland’s Frye standard.287 The ruling marks the first wholesale exclusion of latent print evidence since the earliest challenge in 1999 in a case in which the government put on a case in response to an admissibility challenge.288 It is perhaps significant that the government’s case consisted solely of testimony from a practitioner. The government did not refer to any non-practitioner scientists who accept the claim that latent print individualization is valid.

This ruling raises interesting implications relevant to my discussion here. On the one hand, it supports my suggestion that latent print individualization may have survived its Daubert trials only to end up in the “Fryeing pan.” Further, it may contradict the conventional wisdom that Daubert is a more stringent admissibility threshold than Frye, especially for unpopular litigants with unpopular causes.289 The government’s recent decision to refile the case in federal court would seem to support this interpretation.290 If this tactic succeeds, it could lead to the rather awkward conclusion that expert evidence that cannot satisfy that admissibility requirements of the Maryland state courts is nonetheless welcome in the federal courts. It, moreover, evokes the rather surprising notion that latent print evidence, once called “the very archetype of reliable expert testimony,”291 must forum shop in order to

288. In Patterson v. Commissioner, 40 N.E.2d 12 (Mass. 2005), only simultaneous impressions were ruled inadmissible. In Virgin Islands v. Jacobs, 634 F. Supp. 933 (D. Virgin Islands 1986), latent print evidence was excluded after an admissibility challenge in which the government failed to put on a case. As mentioned previously, in Pennsylvania, latent print examiners conclusions were limited in Llera Plaza I, until the court reversed itself.
This article has focused on the neglected issue of the admissibility of latent print evidence in Frye jurisdictions. While this should be of importance to those wrestling with the admissibility of latent print (and other forensic) evidence in those jurisdictions, the research reported here has implications that go beyond Frye jurisdictions and go beyond latent print evidence. The process of applying Frye to a single form of evidence has focused our attention on a number of important principles that should apply for Frye analyses of any evidence, including the problems with practitioner-only evidence, the importance of breadth, and the challenges of constituting a relevant scientific community for techniques like latent print identification whose testimonial claims are not obviously within the domain of any particular scientific discipline. I will explore some of these further implications below.

A. IMPLICATIONS FOR DAUBERT JURISDICTIONS

As I have noted above, I have turned my attention from Daubert to Frye only reluctantly, due to my strong belief, a belief shared by the overwhelming bulk of legal scholarship on the issue, that latent print individualization evidence does not satisfy any reasonable application of Daubert. Nonetheless, the argument presented here for exclusion of latent print individualization evidence under the Frye rule may yet be of some relevance for consideration of the same evidence under the Daubert standard. Daubert still incorporates the general acceptance standard as one of the five factors designed to assess its “reliability” requirement. Thus, the case presented here demonstrates clearly that latent print individualization evidence fails to satisfy at least one of the five Daubert factors, and, moreover, it fails to satisfy the factor that it has widely been assumed it would have easiest time satisfying.

2000).  
292. Most evidence scholars who have addressed the issue agree that if Daubert has any meaning at all, it must preclude the admission of evidence that cannot demonstrate reliability. See, citations in note 241, supra.
Although *Daubert* is frequently criticized, relatively few scholars, principally Professor Schwartz, have gone so far as to argue that *Frye* is actually preferable. Should this case study change our view on this question?

I have previously argued that, in the understanding of the scientific basis of latent print individualization, *Daubert* has had a transformative effect. What is probably the principal flaw in the arguments vouching for latent print individualization—the confusion between uniqueness and accuracy that I have labeled the “fingerprint examiner’s fallacy”—was not clearly enunciated until after the *Daubert* decision. It would not be going too far to suggest that *Daubert* had a salutary effect on the understanding of the scientific basis underlying latent print individualization merely by prompting a renewed look at the evidence after nearly a century of “general acceptance.”

In addition, of course, *Daubert*’s focus on reliability sharpened the questions that were asked and focused attention of the crucial, and hitherto neglected, issue of validity. That pilot accuracy studies are now being undertaken, after a century of use of the technique in court, may to some extent be ascribed to the influence of *Daubert*. Thus, the principal merit of *Daubert* has been symbolic in compelling various legal system actors to look more closely and more searchingly at many types of evidence that have long been taken for granted. But these searching inquiries have not necessarily generated rigorous admissibility rulings.

As demonstrated above, *Daubert*’s celebrated vagueness has essentially allowed trial judges free rein to rule according to their instincts. One undervalued virtue of *Frye* is that, however vague it may be, it is less vague than

293. Schwartz, supra note 33.
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Daubert. At some point, the existence of general acceptance becomes difficult to fudge, especially if the principles enunciated above, against practitioner-only acceptance and for breadth, are adhered to. My principal reason for skepticism about Professor Schwartz’s embrace of Frye lay in my sense that it would be too receptive to closed communities, despite Professor Schwartz’s and some courts’ efforts call for a broad interpretation of Frye. It would appear, however, that applying Frye’s notion of the “relevant scientific community” is not necessarily any more difficult than applying Daubert’s notion of reliability.

This discussion would seem to support the emerging scholarly view that Frye and Daubert are not as different as scholars have previously assumed. Most evidence that fails Daubert should probably fail Frye and vice versa. Indeed, this case study shows that even one of Professor Saks’s prime examples of a technique that satisfied Frye and failed Daubert actually fails Frye too. The difficulties appear to lie not so much with which admissibility standard is chosen, but in operationalizing either standard in an even-handed manner.

C. THE CLASH OF THE LEGAL AND SCIENTIFIC COMMUNITIES

By showing the lack of general acceptance of the validity of latent print individualization, this article raises a larger issue that transcends the narrow question of legal admissibility: the disconnect between the legal and scientific communities as concerns the validity of latent print individualization. The evidence assembled above clearly demonstrates that members of the scientific community do not accept that the validity of latent print individualization has been established. In the course of demonstrating that latent print individualization lacks general acceptance, this article has demonstrated the more important fact that only with difficulty can the government produce any non-practitioner scientists who accept the

297 Saks, supra note 42.
claim that latent print individualization is valid. And yet, paradoxically, few courts have acknowledged this deficiency, and those that have have tended to deem it irrelevant to admissibility.\(^299\) Most courts have tended to uphold the admissibility of latent print individualization with ringing pronouncements about its validity. As I have noted elsewhere, these pronouncements have come to stand in for scientific validation when proponents of latent print individualization are called upon to justify their claims.\(^300\)

Indeed, courts have essentially become the “relevant scientific community” for latent print evidence, a fact they sometimes inadvertently acknowledge when they discuss “general acceptance” in the “judicial community” as if it were something conferred by courts themselves, rather than by an external expert community.\(^301\) What might “acceptance” in the “judicial community” mean, other than following precedent? Such reasoning turns a Frye analysis into an exercise in following legal precedent, rather than the deference to an external expert community that stands at the heart of Frye.\(^302\) Moreover, courts’ upholding of the admissibility of latent print evidence has required them to essentially deem irrelevant the views of the scientific community.

It is difficult to think of comparable examples of scientific issues upon which the legal and scientific communities stand in such stark and dramatic disagreement. Will courts continue to hold out against the


\(^{301}\) United States v. Crisp, 324 F.3d. 261, 268 (4th Cir. 2003) (discussing “general acceptance, not only in the expert community, but in the courts as well”); Id. at 269 (referring to “the consensus of the expert and judicial communities that the fingerprint identification technique is reliable.”); Megan J. Erickson, Daubert’s Bipolar Treatment of Scientific Expert Testimony—From Frye’s Polygraph to Farwell’s Brain Fingerprinting, 55 DRAKE L. REV. 763, 809 (2007) (“The courts willingly overlook the subjectivity inherent in latent fingerprint evidence testimony because of what the court considers to be its own ‘general acceptance’ (even if ‘general acceptance’ means within the judicial community, rather than scientific community).”).

\(^{302}\) Giannelli, supra note 10, at 1218-19.
view of the scientific community? Will the scientific community become more aggressively interventionist? The recent formation of a panel on forensic science by the National Academies, the most prestigious and credible scientific organization in the United States, raises the possibility of a more forceful intervention on behalf of the scientific community. But whether and to what extent the panel will directly address the issue of validity remains to be seen.

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