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Out of the Daubert Fire and into the Frying 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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¹ . EXPERTISE IN REGULATION AND LAW (Gary Edmond ed. 2004). HARRY COLLINS & ROBERT EVANS, *RETHINKING EXPERTISE* (2007).

² . Brian Wynne, *Sheep Farming after Chernobyl: A Case Study in Communicating Scientific Information*, 31 *ENVTL MAGAZINE* 33 (1989); STEVEN

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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

⁹ . *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (U.S. 1993); *General Electric Co. v. Joiner*, 522 U.S. 136 (U.S. 1997); *Kumho Tire v. Carmichael*, 526 U.S. 137 (1999).

¹⁰ . Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, A Half-Century Later*, 80 COLUM. L. REV. 1197 (1980).

¹¹ . Adina Schwartz, *A "Dogma of Empiricism" Revisited: Daubert v. Merrell Dow Pharmaceuticals, Inc. and the Need to Resurrect the Philosophical Insight of Frye v. United States*, 10 HARV. J. LAW & TECH. 149 (1997).

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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

¹⁶ . See sources cited *infra* note 241.

¹⁷ . Jennifer L. Mnookin, *The Validity of Latent Fingerprint Identification: Confessions of a Fingerprinting Moderate*, 7 *LAW, PROBABILITY & RISK* 127 (2008).

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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 discretionary²⁶ criteria to assist judges in assessing

²³ . 509 U.S. 579 (U.S. 1993).

²⁴ . 522 U.S. 136 (U.S. 1997).

²⁵ . 526 U.S. 137 (U.S. 1999).

²⁶ . See *infra* notes 60-67 and accompanying text.

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sort of scientometric³⁴ 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.³⁵

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).

³⁵ . See generally 4 MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman et al. eds., 3rd ed. 2007) [hereinafter MODERN SCIENTIFIC EVIDENCE]; Simon A. Cole, *Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse*, 28 LAW & POL'Y 109 (2006) [hereinafter Cole, *Fingerprint Identification*]; Robert Epstein, *Fingerprints Meet Daubert: The Myth of Fingerprint "Science" is Revealed*, 75 SO. CAL. L. REV. 605 (2002); Lyn Haber & Ralph Haber, *Scientific Validation of Fingerprint Evidence under Daubert*, 7 LAW, PROBABILITY, & RISK 87 (2008); Tamara F. Lawson, *Can Fingerprints Lie? Re-weighing Fingerprint Evidence in Criminal Jury Trials*, 31 AM. J. CRIM. L. 1 (2003); Jennifer L. Mnookin, *Fingerprint Evidence In An Age of DNA Profiling*, 67 BROOK. L. REV. 13 (2001) [hereinafter Mnookin, *Fingerprint Evidence*]; Katherine Schwinghammer, *Fingerprint Identification: How "The Gold Standard Of Evidence" Could Be Worth Its Weight*, 32 AM. J. CRIM. L. 265 (2005); Sandy L. Zabell, *Fingerprint Evidence*, 13 J.L. & POL'Y 143 (2005). For defenses of latent print identification, see CHRISTOPHE CHAMPOD ET AL., *FINGERPRINTS AND OTHER RIDGE SKIN IMPRESSIONS* (2004); André Moenssens, *Fingerprint Identification: A Valid Reliable "Forensic Science"?*, 18 CRIM. JUST. 31 (2003).

Although *Daubert* is generally perceived as the wave of the future, reports of *Frye's* demise³⁶ 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).³⁷ Six additional states have incorporated *Daubert* factors but continue to adhere to *Frye*.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.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*.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.

³⁶ . See DAVID L. FAIGMAN ET AL., SCIENCE IN THE LAW: STANDARDS, STATISTICS AND RESEARCH ISSUES 7-10 (2002) (noting "[t]he Decline of *Frye*" and citing "increasing" use of the *Daubert* standard, but acknowledging that *Frye* "remains the standard by which science is evaluated for courtroom use in many jurisdictions"). See also Richard Friedman, *The Death and Transfiguration of Frye*, 34 JURIMETRICS 133 (1994).

³⁷ .

³⁸ . 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.*

³⁹ .

⁴⁰ . 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*.").

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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.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.⁴² Professor Saks argued that which standard was more exacting depended on the type of evidence.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)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.⁴⁵ Some admissibility challenges to latent print evidence, in fact, conceded the general acceptance prong.

⁴¹ .

⁴² . *E.g.*,

⁴³ . *Id.*

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. *Id.* at 1094-1127.

⁴⁵ . *See generally* However, some attorneys have noted that latent print evidence enjoys acceptance only among practitioners.

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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,⁵² it was widely assumed that challenges were more possible under *Daubert*.⁵³

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.⁵⁴ 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.⁵⁵ 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.⁵⁶

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.

⁵⁴ . See, e.g., *People v. Clevenger*, 2003 WL 22872446 (Cal. Ct. App. 2003).

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).

⁵⁶ . Legal Challenges to Fingerprints, http://www.onin.com/fp/daubert_links.html (last visited May 24, 2008).

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.

⁵⁸ . See Simon A. Cole, *Grandfathering Evidence: Fingerprint Admissibility Ruling from Jennings to Llera Plaza and Back Again*, 41 AM. CRIM. L. REV. 1189, 1196 (2004) [hereinafter Cole, *Grandfathering*].

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*].

⁶⁰ . See, e.g., John H. Mansfield, *Scientific Evidence Under Daubert*, 28 ST. MARY'S L.J. 1, 45 (1996).

⁶¹ . *General Electric Co. v. Joiner*, 522 U.S. 136, 136-37 (1997).

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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

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.

⁶⁴ . Michael J. Saks, *Reliability Standards: Too High, Too Low, or Just Right? The Legal and Scientific Evaluation of Forensic Science (Especially Fingerprint Expert Testimony)*, 33 SETON HALL L. REV. 1167 (2003).

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get quite a different result from a court that asked whether the lie detector's utility in exacting confessions was generally accepted.⁷⁰ 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.⁷¹

⁷⁰ . See generally KEN ALDER, *THE LIE DETECTORS: THE HISTORY OF AN AMERICAN OBSESSION* (2007).

⁷¹ . SCIENTIFIC WORKING GROUP ON FRICTION RIDGE ANALYSIS STUDY & 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. [hereinafter SCIENTIFIC WORKING GROUP, FRICTION RIDGE EXAMINATION].

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 inculcation. 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."⁷²

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.⁷³ 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.

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 court⁷⁴ 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.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.⁷⁶

A. CONSTITUTING THE "RELEVANT SCIENTIFIC COMMUNITY"

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

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.").

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."

⁷⁶ . DAVID L. FAIGMAN ET AL., SCIENCE IN THE LAW: STANDARDS, STATISTICS AND RESEARCH ISSUES 8 (2002).

⁷⁷ .

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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.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."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.⁸⁵

The Arizona Supreme Court agreed.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.⁸⁷

⁸³ . *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

⁸⁴ . *Reed v. State*, 391 A.2d 364, 377 (Md. 1978).

⁸⁵ . *Id.*

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.").

⁸⁷ . *Contreras v. State*, 718 P.2d 129, 135 (Alaska 1986); see also *Trout-Clark v. State*, No. A-4666, 1993 WL 13157037, *4 (Alaska App. Oct.

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."⁸⁸ 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.⁸⁹

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

20, 1993) (excluding horizontal gaze nystagmus evidence because testimony of practitioner did not suffice for general acceptance in relevant scientific community); *Halley v. State*, No. A3463, 1991 WL 11650674, *3 (Alaska App. Jan. 16, 1991) (excluding preliminary breath test evidence because testimony of practitioner did not suffice for general acceptance in relevant scientific community); *Haakanson v. State*, 760 P.2d 1030, 1034 (Alaska App. 1988) (finding polygraph evidence failed to satisfy *Frye* because polygraph examiner, in contrast to defendant's expert, a Psychology Professor, was not member of the relevant scientific community). Alaska has since adopted *Daubert*. See *State v. Coon*, 974 P.2d 386, 402 (Alaska 1999).

⁸⁸ . *State v. Thompkins*, 891 So.2d 1151, 1152 (Fla. Dist. Ct. 2005).

⁸⁹ . *People v. Barbara*, 255 N.W.2d 171, 180 (Mich. 1977); see also *People v. Coy*, 669 N.W.2d 831, 838 (Mich. Ct. App. 2003) (per curiam) ("When demonstrating that there is general scientific recognition of novel scientific techniques or principles, it is necessary to present the testimony of disinterested and impartial experts whose livelihood is not intimately connected with the technique at issue."); *Collins*, 644 P.2d at 1285 ("Acceptance must be by those experts who are relatively disinterested and impartial and whose livelihood, therefore, is not intimately connected with approval of the technique.").

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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 caution 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.

⁹² . *People v. Kelly*, 549 P.2d 1240, 1249 (Cal. 1976).

⁹³ . *People v. King*, 72 Cal. Rptr. 478, 491 (Cal. Ct. App. 1968).

⁹⁴ . *United States v. Alexander*, 526 F.2d 161, 164 n.6 (8th Cir. 1975).

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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.").

¹⁰⁴ . Bert Black, *A Unified Theory of Scientific Evidence*, 56 *FORDHAM L. REV.* 595, 633 (1988).

¹⁰⁵ .

¹⁰⁶ . *Id.* at 207; see also Jay P. Kesan, *A Critical Examination of the Post-Daubert Scientific Evidence Landscape*, 52 *FOOD & DRUG L.J.* 225, 240

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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.¹⁰⁷

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.¹⁰⁸

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."¹⁰⁹ 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.¹¹⁰

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

(1997) ("[T]he technique always will be deemed reliable and valid if the inquiry is limited to practitioners of the technique.").

¹⁰⁷ . Mnookin, *Fingerprint Evidence*, *supra* note 35, at 63.

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.

community is less convinced.¹¹¹ 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.¹¹² 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.¹¹³ The courts

¹¹¹ . Brewer, *supra* note 6, at 1633.

¹¹² . H. M. Collins, *Certainty and the Public Understanding of Science: Science on Television*, 17 SOC. STUD. SCI. 689, 692 (1987).

¹¹³ . ROBERT K. MERTON, SOCIAL THEORY AND SOCIAL STRUCTURE: TOWARD THE

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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).

¹¹⁵ . *People v. Kelly*, 549 P.2d 1240, 1248 (Cal. 1976).

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.

¹¹⁸ . *People v. Watson*, 629 N.E.2d 634, 641 (Ill. App. Ct. 1994).

¹¹⁹ . *Id.* (citing *State v. Bible*, 858 P.2d 1152 (Ariz. 1993); *People v. Barney*, 10 Cal. Rptr. 2d 731 (Cal. Ct. App. 1992); *People v. Pizarro*, 12 Cal. Rptr. 2d 436 (Cal. Ct. App. 1992); *Fishback v. People*, 851 P.2d 884 (Colo. 1993); *Lipscomb*, 574 N.E.2d 1345 (Ill. App. Ct. 1991); *Commonwealth v. Lanigan*, 413 Mass. 154, 596 N.E.2d 311 (1992); *State v. Vandebogart*, 616 A.2d 483 (N.H. 1992); *People v. Mohit*, 579 N.Y.S.2d 990 (N.Y. Co. Ct. 1992); *United States v. Yee*, 134 F.R.D. 161 (N.D. Ohio 1991)).

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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

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).

¹²⁴

¹²⁵ . See *Hodo v. Superior Court, Riverside County*, 30 Cal. App. 3d 778 (Cal. Ct. App. 1973); *United States v. Maivia*, 728 F. Supp. 1471 (D. Haw. 1990); *Commonwealth v. Lykus*, 327 N.E.2d 671 (Mass. 1975); *People v. Bein*, 453 N.Y.S.2d 343 (N.Y. Sup. Ct. 1982).

¹²⁶ . See, e.g., *Reed v. State*, 391 A.2d 364 (Md. 1978).

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community."¹²⁹ For some courts, nose counting is problematic because it entails weighing all opinions equally, rather than affording greater weight to the more qualified.¹³⁰ Others argue that waiting for a sufficient "nose count" will delay acceptance of cutting edge science.¹³¹ Some courts have criticized "nose counting" in the process of arguing that a forgiving relevancy test is preferable to the *Frye* test.¹³² Others have criticized it in the process of arguing for their own idiosyncratic admissibility standards.¹³³ Still other have criticized "nose counting" in the process of calling for a *Daubert*-like reliability inquiry to replace the *Frye* test.¹³⁴

Still, some courts and scholars have defended "nose counting."¹³⁵ 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."¹³⁶ This notion of "quality" appears to be something akin to scientific credentials or even prestige. In *Leahy* it was used to require

¹²⁹ . *People v. Leahy*, 882 P.2d at 336-37 (Cal. 1994); *People v. Marlow*, 41 Cal. Rptr. 2d 5, 31 (Cal. Ct. App. 1995); *Kaelbel Wholesale, Inc.*, 785 So.2d at 546; *Brim v. State*, 695 So. 2d 268, 272 (Fla. 1997).

¹³⁰ . *Leahy*, 882 P.2d at 336-37; *Marlow*, 41 Cal. Rptr. 2d at 31; *Kaelbel Wholesale, Inc.*, 785 So. 2d at 546; *Brim*, 695 So. 2d at 272.

¹³¹ . *State v. Alberico*, 861 P.2d 192, 201 (N.M. 1993).

¹³² . *Andrews v. State*, 533 So. 2d 841 (Fla. App. 5 Dist. 1988); *Taylor v. State*, 889 P.2d 319 (Okla. Cr. 1995); *Springfield v. State*, 860 P.2d 435 (Wyo. 1993); *State v. Williams*, 446 N.E.2d 444, 448 (Ohio 1983). In the case of *Andrews*, the call for a "relevancy" test would appear to be overruled by Florida Supreme Court cases endorsing the *Frye* test.

¹³³ . *Harper v. State*, 292 S.E.2d 389, 395 (Ga. 1982).

¹³⁴ . *United States v. Downing*, 753 F.2d 1224, 1238 (3d Cir. 1985).

¹³⁵ . *Jones v. United States*, 548 A.2d 35, 42 (D.C. 1988) (affirming "the focus is primarily on counting scientists' votes, rather than on verifying the soundness of a scientific conclusion,"); , at 222 ("Instead of evaluating various scientists' opinions, a court is only to count numbers of scientists within a relevant community who do or do not accept a theory or technique.")

¹³⁶ . *People v. Leahy*, 882 P.2d 321, 336-37 (Cal. 1994).

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"¹³⁹ 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."¹⁴⁰ 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.¹⁴¹ 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

¹³⁹ . Leahy, 882 P.2d at 337.

¹⁴⁰ . *Id.* at 340.

¹⁴¹ . See Edward J. Imwinkelried, *The Meaning of "Appropriate Validation" in Daubert v. Merrell Dow Pharmaceuticals, Inc., Interpreted in Light of the Broader Rationalist Tradition, not the Narrow Scientific Tradition*, 30 FLA. ST. U. L. REV. 735, 759-60 (2003).

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attested to their reliability.¹⁴⁵

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.¹⁴⁶ 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."¹⁴⁷ If relevant scientific communities were construed merely as practitioners, then astrologers would constitute the "relevant scientific community" that "accepts" astrology as valid and wine tasters would constitute the "relevant scientific community" for assessing the ability of wine tasters to accurately identify vintages and types of wine.

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

¹⁴⁵ . Randolph Jonakait, *Will Blood Tell? Genetic Markers in Criminal Cases*, 31 EMORY L. J. 833, 860-61 (1982).

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).

¹⁴⁷ . William G. Iacono & David Lykken, *The Scientific Status of Research on Polygraph Techniques: The Case Against Polygraph Tests*, in SCIENCE IN THE LAW: FORENSIC SCIENCE ISSUES 609, 618 (Faigman et al. eds., 2002).

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reaction in the latent print community to scientists' argument that the technique lacks validation.¹⁵³

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."¹⁵⁴ 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.¹⁵⁵ 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.¹⁵⁶ 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.¹⁵⁷ Is there such a

¹⁵³ . See, e.g., ANDRÉ MOENSSENS, *THE RELIABILITY OF FINGERPRINT IDENTIFICATION: A CASE REPORT* (2002), available at <http://www.forensic-evidence.com/site/ID/pollak2002.html>; David L. Grieve, *Rocking the Cradle*, 49 J. FORENSIC IDENTIFICATION 719 (1999).

¹⁵⁴ . *People v. Brown*, 40 Cal. 3d 512, 530 (Cal. 1985).

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

¹⁵⁶ .

¹⁵⁷ . 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

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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).

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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 review¹⁷³) 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.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."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."¹⁷⁶ But *Kumho Tire* renders the scientific/ nonscientific distinction irrelevant for purposes of applying *Daubert*. That is, *Kumho* 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 .

¹⁷⁵ . United States v. Mitchell, 365 F.3d 215, 241 (3d Cir. 2004).

¹⁷⁶ . *Id.*

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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.¹⁸⁰ 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*.¹⁸¹ For example, in the *Frye* case itself, Marston was a Harvard-trained psychologist.¹⁸² 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

¹⁸⁰ . See

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

¹⁸² . Henry T. Greely & Judy Illes *Neuroscience-based Lie Detection: The Urgent Need for Regulation*, 33 AM. J.L. & MED. 377, 385-86 (2007). See also ALDER, *supra* note 70.

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 evenhanded and predictable application of the general acceptance standard.”¹⁸⁵ 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.¹⁸⁶ 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.¹⁸⁷ It would appear then that a court

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¹⁸⁶ . ANDREW ABBOTT, *THE SYSTEM OF PROFESSIONS: AN ESSAY ON THE DIVISION OF EXPERT LABOR* (1988).

¹⁸⁷ . 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.¹⁸⁸ 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

comment that my own native discipline of Science & Technology Studies constitutes "expertise about expertise." H.M. Collins & Robert Evans, *The Third Wave of Science Studies: Studies of Expertise and Experience*, 32 SOC. STUDIES OF SCI. 235, 239 (2002).

Nonetheless, the notion of the meta-expert that I positing 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.

¹⁸⁸ . 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.

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empirical studies of performance of a particular task, rather than the ability to perform the task being studied.

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.¹⁸⁹ 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* inquires 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.

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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

¹⁹⁵ . Trial Transcript, July 7, 1999, at 158-59, *Mitchell*, 365 F.3d 215 (Mr. Ashbaugh); Trial Transcript, July 8, 1999, at 37, *Mitchell*, 365 F.3d 215 (Mr. German); Trial Transcript, July 9, 1999, at 186, *Mitchell*, 365 F.3d 215 (Mr. Meagher).

¹⁹⁶ . Trial Transcript, July 13, 1999, at 53-60, *Mitchell*, 365 F.3d 215 (Mr. Wertheim).

¹⁹⁷ . Trial Transcript, July 7, 1999, at 7, *Mitchell*, 365 F.3d 215 (Dr. Babler).

¹⁹⁸ . Trial Transcript, July 7, 1999, at 74, *Mitchell*, 365 F.3d 215.

¹⁹⁹ . See *Mitchell*, 365 F.3d at 223.

²⁰⁰ . Trial Transcript, July 9, 1999, at 141, *Mitchell*, 365 F.3d 215.

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primarily made his living in other areas, particularly
microscopy.²⁰¹ James Starrs was a Professor of both Law
and Forensic Science.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 1. General acceptance of the validity of latent print individualization among non-practitioners based on expert testimony, c. 1999.

Acceptors

No.	Name	Title	Affiliation	Degree	Institution	Discipline
1.	Bruce Budowle		Federal Bureau of Investigation	PhD		Biology

Non-Acceptors

No.	Name	Title	Affiliation	Degree	Institution	Discipline
1.	James Starrs	Professor	The George Washington University School of Law and Forensic Science Program	BA	St. John's University	English
2.	David Stoney	Director	McCrone Institute	PhD	University of California, Berkeley	Forensic Science
3.	Simon Cole	Postdoctoral Fellow	Institute for Health Care Policy, Rutgers University	PhD	Cornell University	Science & Technology Studies

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-

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

²⁰² . *Mitchell*, 365 F.3d at 228.

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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

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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.

Acceptors

No.	Name	Title	Affiliation	Degree	Institution	Discipline
None						

Non-Acceptors

No.	Name	Title	Affiliation	Degree	Institution	Discipline
1.	Mark Acree	Principal	Apex Consulting	MSFS	University of Alabama, Birmingham	Forensic Science

No.	Name	Title	Affiliation	Degree	Institution	Discipline
2.	Robert Bradley	Professor	Illinois State University	PhD	University of Kentucky	Political Science
3.	David Faigman	Professor	Hastings School of Law	MA, JD	University of Virginia	Psychology; Law
4.	Stephen Fienberg	Maurice Falk Professor	Carnegie Mellon University	PhD	Harvard University	Statistics
5.	Paul Giannelli	Richard Weathered Professor	Case Western Reserve University School of Law	MS, JD, LLM	The George Washington University; University of Virginia	Forensic Science; Law
6.	Lyn Haber	Principal	Human Factors Consultants	PhD	University of California, Berkeley	Linguistics
7.	Ralph Haber	Professor Emeritus	University of California, Santa Cruz	PhD	Stanford University	Psychology
8.	Donald Kennedy	Professor; President Emeritus	Stanford University	PhD	Harvard University	Biology
9.	Jennifer Mnookin	Professor	University of California, Los Angeles	PhD; JD	MIT; Yale University	Science & Technology Studies; Law
10.	Joëlle Anne Moreno	Professor	New England School of Law	JD	University of Pennsylvania	Law
11.	Jane Moriarty	Professor	University of Akron School of Law	JD	Boston College	Law
12.	D. Michael Risinger	Professor	Seton Hall School of Law	JD	Harvard University	Law
13.	John Vokey	Professor	University of Lethbridge	PhD	McMaster University	Psychology
14.	Sandy Zabell	Professor	Northwestern University	PhD	Harvard University	Mathematics

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

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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.") (emphasis added); Giannelli, *supra* note 10, at 1217.

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.").

²⁰⁹ . Brim v. State, 779 So. 2d 427, 435-36 (Fla. Cir. Ct. 2000) (citation omitted).

²¹⁰ . See, e.g., Nicole Egli et al., *Evidence Evaluation in Fingerprint Comparison and Automated Fingerprint Identification Systems—Modeling Within Finger Variability*, 167 FORENSIC SCI. INT'L 189 (2006); C. H. Lin et al., *Fingerprint Comparison I: Similarity of Fingerprints*, 27 J. FORENSIC SCI. 290 (1982); Cedric Neumann et al., *Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Any Number of Minutiae*, 52 J. FORENSIC SCI. 54 (2007); Cedric Neumann et al., *Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Three Minutiae*, 51 J. FORENSIC SCI. 1 (2006); David A. Stoney & John I. Thornton, *A Critical Analysis of Quantitative Fingerprint Individuality Models*, 31 J. FORENSIC SCI. 1187 (1986); John I. Thornton, *The DNA Statistical Paradigm vs. Everything Else*, 42 J. FORENSIC SCI. 758 (1997); John I. Thornton, *The Snowflake Paradigm*, 31 J. FORENSIC SCI. 399 (1986).

²¹¹ . Boris Geller et al., *Fingerprint Forgery—A Survey*, 46 J. FORENSIC SCI.

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report on proficiency testing,²¹² but essentially no
discussion of validation.²¹³ 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."²¹⁴

Beyond the general forensic science literature, there is
also narrower literature on forensic *identification*, an area in
which latent prints are an important component.²¹⁵ 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.²¹⁶ 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

731 (2001); Boris Geller et al., *A Chronological Review of Fingerprint
Forgery*, 44 J. FORENSIC SCI. 963 (1999).

²¹² . Joseph L. Peterson & Penelope N. Markham, *Crime Laboratory
Proficiency Testing Results, 1978-1991, II: Resolving Questions of
Common Origin*, 40 J. FORENSIC SCI. 1009 (1995).

²¹³ . 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).

²¹⁴ . David A. Stoney, *What Made Us Ever Think We Could Individualize
Using Statistics?*, 31 J. FORENSIC SCI. SOC'Y 197 (1991).

²¹⁵ . The "flagship journal" in this area is clearly the *Journal of Forensic
Identification (JFI)*. Other journals include *Fingerprint Whorld* 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/~dactyl/index.htm), Ridges and Furrows
(www.ridgesandfurrows.homestead.com/index.html), and www.latent-prints.com.

²¹⁶ . 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 credentialed
(the *JFI*, the leading publication, has just over half with advanced—
master's or above—degrees in science). Many contributors are not
scientists.

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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.²¹⁷

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,²¹⁸ 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.

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

²¹⁷ . 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, *The Critical Stage of Friction Ridge Pattern Formation*, 52 J. FORENSIC IDENTIFICATION 35 (2002); see also Cole, *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, *Fingerprint Identification*, *supra* note 35.

Other articles simply declare the validity of latent print individualization. John D. "Dusty" Clark, *ACE-V: Is It Scientifically Reliable and Accurate?*, 52 J. FORENSIC IDENTIFICATION 401 (2002); Kasey Wertheim, *Letter re: ACE-V: Is It Scientifically Reliable and Accurate?*, 52 J. FORENSIC IDENTIFICATION 669 (2002).

²¹⁸ . This argument is made in greater detail in Cole, *Fingerprint Identification*, *supra* note 35.

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latent print examiners.

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 [sic] Functions, with Formulas, Graphs, and Mathematical Tables*, another entitled *Statistics*, and another entitled *Evolution*.²²⁷ (However, out

²²² . SIMON A. COLE, *SUSPECT IDENTITIES: A HISTORY OF FINGERPRINTING AND CRIMINAL IDENTIFICATION* (2001).

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 MIDLO, *FINGER PRINTS, PALMS AND SOLES: AN INTRODUCTION TO DERMATOGLYPHICS* (1943). For more detail on this argument, see Cole, *Fingerprint Identification*, *supra* note 35.

²²⁴ . MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (David L. Faigman et al. eds., 1st ed. 1997); I. W. Evett & R. L. Williams, *A Review of the Sixteen Points Fingerprint Standard in England and Wales*, 46 J. FORENSIC IDENTIFICATION 49 (1996). *But see* BERNARD ROBERTSON & G. A. VIGNAUX, *INTERPRETING EVIDENCE: EVALUATING FORENSIC SCIENCE IN THE COURTROOM* 137 (1995). *But* this discussion largely elides discussion of validity, concluding only that "Fingerprint identification is a matter of expert judgment." *Id.* at 146.

²²⁵ . *IDENTIFICATION WANTED: DEVELOPMENT OF THE AMERICAN CRIMINAL IDENTIFICATION SYSTEM, 1893-1943* (Donald C. Dilworth ed.) (1977).

²²⁶ . COLIN G.G. AITKEN, *STATISTICS AND THE EVALUATION OF EVIDENCE FOR FORENSIC SCIENTISTS* 132 (1995). ("Evaluation of fingerprint evidence is not discussed here.").

²²⁷ . I subsequently obtained *Evolution*. There do not appear to be any references to fingerprinting, latent prints, or even to friction ridge skin.

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that fingerprints were "useful" for individual identification.²³² Only two directly addressed the issue of accuracy.²³³ One of these asserted that latent print identification was "accurate," and both claimed it was "infallible."²³⁴ 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.²³⁵ The only proof discussed in the remainder of the article was Galton's purported proof of the *persistence* of friction ridge details.²³⁶ 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."²³⁷ 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,"²³⁸ but of course a court decision can show no such thing.²³⁹ 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.

²³² . S.M.S. Bhalla, *Can the Science of Fingerprints Be Stifled by Human Ingenuity or Manipulation*, 15 J. INDIAN ACAD. FORENSIC SCI. 24 (1976); Ralph M. Garruto & C.C. Plato, *Fingerprints, Palms, and Soles: Historical Transitions*, 27 BIRTH DEFECTS ORIGINAL ARTICLE SERIES 7, 10 (1991) *reprinted in* DERMATOGLYPHICS: SCIENCE IN TRANSITION (C.C. Plato et al. eds., 1991) (which is the work cited in the government's bibliography).

²³³ . K. S. Puri, *Do Monoovular Twins Have Identical Fingerprints?*, INT'L CRIM. POLICE REV. 45 (1968); S. K. Chatterjee, *Origin of Fingerprint Science and Its Development During Last 75 Years*, 13 J. INDIAN ACAD. OF FORENSIC SCI. 2 (1974).

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

²³⁵ . 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).

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authors holding the opposite position.²⁴² These two lists of authorities unequivocally strengthen the case against the general acceptance of latent print individualization validity.²⁴³

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

327, 383 (H. C. Lee and R. E. Gaensslen eds., 2001) ("From a statistical viewpoint, the scientific foundation for fingerprint individuality is incredibly weak."); Jennifer L. Mnookin, *Fingerprint Evidence In An Age of DNA Profiling*, 67 BROOK. L. REV. 13 (2001) ("In the case of fingerprinting, the general rate of error is simply not known."); SIMON A. COLE, *SUSPECT IDENTITIES: A HISTORY OF FINGERPRINTING AND CRIMINAL IDENTIFICATION* (2001); David L. Faigman, *Is Science Different for Lawyers?* 297 SCIENCE 339 (2002) (fingerprinting has "not been seriously tested"); Paul Giannelli, *Fingerprints Challenged!* 17 CRIM. JUST. 33, 35 (Spring 2002) ("In its interpretation of *Daubert, Plaza I* is a well-written opinion. *Havvard* is not."); Robert Epstein, *Fingerprints Meet Daubert: The Myth of Fingerprint "Science" is Revealed*, 75 SO. CAL. L. REV. 605, 657 (2002) ("Having considered the various indicators of reliability set forth by the Supreme Court in *Daubert*, it is evident that at the present time, latent fingerprint identifications do not constitute reliable evidence."); Jessica M. Sombat, *Latent Justice: Daubert's Impact on the Evaluation of Fingerprint Identification Testimony*, 70 FORDHAM L. REV. 2819, 2825 (2002) ("the result Judge Pollak reached when he excluded expert testimony concerning fingerprints [in *Llera Plaza I*] was fair."); *Recent Case*, 115 HARV. L. REV. 2349, 2352 (2002) ("Fingerprint expert testimony does not survive application of the *Daubert* factors . . ."); Lyn Haber & Ralph Norman Haber, *Error Rates for Human Fingerprint Examiners*, in *AUTOMATIC FINGERPRINT RECOGNITION SYSTEMS* 339 (N. K. Ratha & R. Bolle eds., 2004) ("no data have been collected on how accurately latent print examiners match different images of the same finger."); Donald Kennedy, *Forensic Science: Oxymoron?* 302 SCIENCE 1625 (2003) (Fingerprinting's "reliability is unverified either by statistical models of fingerprint variation or by consistent data on error rates."); David H. Kaye, *The Nonscience of Fingerprinting: United States v. Llera Plaza*, 21 QLR 1073, 1087 (2003) ("As *Llera-Plaza I* so clearly reveals, this [the evidence advanced in support of the admissibility of latent fingerprint individualization] does not satisfy *Daubert*."); Jennifer L. Mnookin, *Fingerprints: Not a Gold Standard*, 20 ISSUES SCI. & TECH. 47 (2003) ("Judge Pollak's first opinion [restricting latent fingerprint individualization testimony] was the better one."); Tamara F. Lawson, *Can Fingerprints Lie? Re-weighing Fingerprint Evidence in Criminal Jury Trials*, 31 AM. J. CRIM. L. 1, 65 (2003) ("Currently fingerprint analysis is under attack because of the lack of study done on the accuracy of the examiners . . ."); Tara Marie La Morte, *Sleeping Gatekeepers: United States v. Llera Plaza and the Unreliability of Forensic Fingerprinting Evidence under Daubert*, 14 ALB. L.J. SCI. & TECH. 171, 173

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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,²⁴⁴ 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.

²⁴³ . See also Jennifer L. Mnookin, Comment, *The Validity of Latent Fingerprint Identification: Confessions of a Fingerprinting Moderate*, 7 LAW PROBABILITY & RISK 127 (2008).

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); CHRISTOPHE 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."

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 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.

Acceptors

	Name	Title	Affiliation	Deg.	Institution	Discipline	Publ'n
1	André Moenssens	Douglas Stripp Professor of Law	University of Missouri, Kansas City	JD, LLM	Illinois Institute of Technology; Northwestern University	Law	Criminal Justice
2	Stephen Stigler	Ernest DeWitt Burton Distinguished Service Professor	University of Chicago	PhD		Mathematics	<i>Genetics; Issues in Science & Technology</i>

Non-Acceptors

	Name	Title	Affiliation	Deg.	Institution	Discipline	Publ'n
1	Nathan Benedict	Law student		JD	?	Law	<i>Arizona Law Review</i>
2	Margaret Berger	Professor	Brooklyn Law School	JD	?	Law	<i>American Journal of Public Health</i>
3	Robert Epstein	Attorney	Federal Defender	JD	Harvard University	Law	<i>Southern California Law Review</i>
4	David Kaye	Professor	Arizona State University School of Law	JD	?	Law	<i>Quinnipiac Law Review; Int'l Statistical Review</i>

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	Name	Title	Affiliation	Deg.	Institution	Discipline	Publ'n
5	Tara Marie La Morte	Law student		JD	?	Law	<i>Albany Law Journal of Science & Technology</i>
6	Tamara Lawson	Professor	St. Thomas School of Law	JD	?	Law	<i>American Journal of Criminal Law</i>
7	Michael Saks	Professor	Arizona State University School of Law	PhD	Ohio State University	Psychology	<i>Numerous law review articles, Modern Scientific Evidence</i>
8	Katherine Schwinghammer	Law student		JD	?	Law	<i>American Journal of Criminal Law</i>
9	Jessica Sombat	Law student	Fordham University School of Law	JD	Fordham University	Law	<i>Fordham Law Review</i>

At this point, by the most conservative accounting, the "score" in the scientific community stands at twenty-five to three against acceptance.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

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)

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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.²⁴⁹ 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.²⁵⁰ 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.²⁵¹ 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

²⁴⁹ . Andre A. Moenssens, *The Fingerprint Witness in Court*, 54 *FINGER PRINT & IDENTIFICATION MAG.* 3 (1973).

²⁵⁰ .

²⁵¹ . *Contra* *People v. Clevenger*, 2003 WL 22872446, *8 (Cal. Ct. App. 2003) (dismissing Professor Saks as a "law professor" who "does not . . . claim to be a scientist").

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.

²⁵³ . See Robert C. Ellickson, *Trends in Legal Scholarship: A Statistical Study*, 29 J. LEGAL STUD. 517, 529 (2000); Elizabeth Chambliss, *When Do Facts Persuade? Some Thoughts on the Market for "Empirical Legal Studies,"* 71 LAW & CONTEMP. PROB. (forthcoming 2008).

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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 . Bart 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

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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,²⁵⁵ 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.²⁵⁶

It is true that some state courts appear to have added a "novelty" requirement in their cases adopting *Frye*.²⁵⁷ Other

²⁵⁵ . See *People v. Jennings*, 96 N.E. 1077, 1080 (Ill. 1911).

²⁵⁶ . See DAVID H. KAYE ET AL., *THE NEW WIGMORE: EXPERT EVIDENCE*, 299 (2004); James E. Starrs, *Frye v. United States Restructured and Revitalized: A Proposal to Amend Federal Evidence Rule 702*, 26 *JURIMETRICS J.* 249, 252-53 (1986).

²⁵⁷ . See, e.g., *Still v. State*, 917 So. 2d 250 (Fla. Dist. Ct. App. 2005); *Dirling v. Sarasota County Gov't*, 871 So. 2d 303 (Fla. Dist. Ct. App. 2004); *State v. Sercey*, 825 So. 2d 959 (Fla. Dist. Ct. App. 2002); *U.S. Sugar Corp. v. Henson*, No. 1D99-27982000, 2000 WL 1880340 (Fla. Dist. Ct. App.

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validity.²⁶¹ Finally, to the extent that courts do enforce a non-novelty loophole, they defy common sense, as legal scholars have pointed out.²⁶²

D. NONSCIENTIFIC EVIDENCE

Another "loophole" in *Frye* is that many courts refuse to apply it to "nonscientific" evidence.²⁶³ 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."²⁶⁴ 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,²⁶⁵ there can be little doubt that it is presented to the jury as "science." Therefore, it should be required to meet the *Frye*

²⁶¹ . Andy Newman, *Fingerprinting's Reliability Draws Growing Court Challenges*, N.Y. TIMES, Apr. 7, 2001, at A8; Andy Newman, *Judge Rules Fingerprints Cannot Be Called a Match*, N.Y. TIMES, Jan. 11, 2002, at A14; Seth Stern, *A Harder Day in Court for Fingerprint, Writing Experts*, CHRISTIAN SCI. MONITOR, Jan. 16, 2002, at 2; Michael Specter, *Do Fingerprints Lie?*, NEW YORKER, May 27, 2002, at 96; David L. Faigman, *Is Science Different for Lawyers?*, 297 SCIENCE 339 (2002); Adrian Cho, *Fingerprinting Doesn't Hold Up as a Science in Court*, 295 SCIENCE 418 (2002); Shannon P. Duffy, *Philadelphia Judge Reverses Landmark Fingerprint Decision*, LEGAL INTELLIGENCER, Mar. 14, 2003; Michael Higgins, *Fingerprint Evidence Put on Trial*, CHI. TRIB., Feb. 25, 2002, at 1; Giannelli, *supra* note 241, at 33; Mike Weiss, *U.S. Judge Challenges 'Science' of Fingerprints*, S.F. CHRONICLE, Feb. 24, 2002, at A1; Edward Lazarus, *Why Judges Rarely Change Their Minds*, LEGAL AFFAIRS, July/August, 2002, at 39.

²⁶² .

²⁶³ . Strong, *supra* note 260, at 367; Edward J. Imwinkelried, *The Escape Hatches from Frye and Daubert: Sometimes You Don't Need to Lay Either Foundation in order to Introduce Expert Testimony!*, 23 AM. J. TRIAL ADVOC. 1 (1999).

²⁶⁴ . Strong, *supra* note 260, at 367.

²⁶⁵ . Michele Triplett & Lauren Cooney, *The Etiology of ACE-V and its Proper Use: An Exploration of the Relationship Between ACE-V and the Scientific Method of Hypothesis Testing*, 56 J. FORENSIC IDENTIFICATION 345 (2006); André Moenssens, *Is Fingerprint Identification a "Science"?*, http://www.forensic-evidence.com/site/ID/ID00004_2.html (last visited Mar. 15, 2008); Bernard W.N. Robertson, *Fingerprints, Relevance and Admissibility*, 2 N.Z. RECENT L. REV. 252, 256 (1990) ("Fingerprint 'experts' are in fact technicians and not scientists.").

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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*.²⁶⁹ 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."²⁷⁰ 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*²⁷¹ 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."²⁷² 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.²⁷³ 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.²⁷⁴ Indeed, as the court did *not* mention, Babler has never made any statement concerning the

²⁶⁹ . 840 N.E.2d 12 (Mass. 2005).

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 . 733 N.E.2d 1042 (Mass. 2000).

²⁷² . *Patterson*, 840 N.E.2d at 25.

²⁷³ . *Patterson*, 840 N.E.2d at 24 n. 12.

²⁷⁴ . *Id.*

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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."²⁷⁸

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]."²⁷⁹ 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."²⁸⁰ 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*.²⁸¹

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

²⁷⁸ . *Patterson*, 840 N.E.2d at 29 (emphasis added).

²⁷⁹ . *Id.* (emphasis added).

²⁸⁰ . *Id.*

²⁸¹ . *Id.*

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changed the meaning of the "breadth" principle. Whereas all the previous discussions of "breadth," 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

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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.²⁸⁴

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.²⁸⁵

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.²⁸⁶

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.

²⁸⁴ . DAVID R. ASHBAUGH, QUANTITATIVE-QUALITATIVE FRICTION RIDGE ANALYSIS: AN INTRODUCTION TO BASIC AND ADVANCED RIDGEOLOGY, 4 (1999).

²⁸⁵ . *Id.*

²⁸⁶ . David L. Grieve, *Possession of Truth*, 46 J. FORENSIC IDENTIFICATION 521, 528 (1996) (describing "shock" and "disbelief" "within the forensic science community" at the results of the 1995 test).

get into evidence.

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*.²⁹² 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*.

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B. *Frye* OR *Daubert*?

Although *Daubert* is frequently criticized, relatively few scholars, principally Professor Schwartz, have gone so far as to argue that *Frye* is actually preferable.²⁹³ 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.²⁹⁴ 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.²⁹⁵ 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*.²⁹⁶ 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.

²⁹⁴ . Simon A. Cole, *Jackson Pollack, Judge Pollak, and the Dilemma of Fingerprint Expertise*, in *EXPERTISE IN REGULATION AND LAW* 98 (Edmond ed., 2004).

²⁹⁵ . See David A. Stoney, *Fingerprint Identification: Scientific Status*, in *MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY* 55 (Faigman, et al. eds., 1997); Fred Woodworth, *A Printer Looks at Fingerprints*, *MATCH!*, Winter, 1997, at 36.

²⁹⁶ . Kasey Wertheim et al., *A Report of Latent Print Examiner Accuracy During Comparison Training Exercises*, 56 *J. FORENSIC IDENTIFICATION* 55 (2006).

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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 communit[y]" as if it were something conferred by courts themselves, rather than by an external expert community.³⁰¹ What might "acceptance" in the "judicial communit[y]" 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

²⁹⁹ . United States v. Sullivan, 246 F. Supp. 2d 700 (E.D. Ky. 2003); United States v. Mitchell, 365 F.3d 215 (3d Cir. 2004); *Llera Plaza II*, 188 F. Supp. 2d 549 (E.D. Pa. 2002).

³⁰⁰ . Simon A. Cole, *Grandfathering Evidence: Fingerprint Admissibility Ruling from Jennings to Llera Plaza and Back Again*, 41 AM. CRIM. L. REV. 1189 (2004).

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.

