

The Legal and Scientific Evaluation of Forensic Science (Especially Fingerprint Expert Testimony)

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I want to address two issues. First, I will state what I believe is the most essential test, the heart and soul of *Daubert*¹ and its progeny. In light of that essential test, I then discuss how all courts that have considered challenges to fingerprint expert testimony have concluded that the expert testimony is admissible by failing to perform that essential test.

I. THE ELEMENTAL STANDARDS FOR ADMISSIBILITY OF EXPERT EVIDENCE ON EMPIRICAL MATTERS

First, I would argue that factfinders ought to be provided with information that will help them resolve factual uncertainties relevant to the dispute they have been asked to decide—moving them closer to a correct conclusion about a disputed fact. With that touchstone in mind, I argue that it would make sense to admit any expert evidence that meets the following conditions, and to admit expert evidence only if it meets these conditions: (a) the opinions and conclusions of the expert are accompanied by information that enables the factfinder to evaluate the likely accuracy of the expert's opinion, and (b) the information is presented in such a way that factfinders will not be fooled into excessively overvaluing² the testimony. Moreover, it seems to me that much of what *Daubert* and *Kumho Tire*³ are designed to achieve is reflected by that first criterion: the requirement that claims of expertise be subjected to testing—using sound research methods (the essential purpose of peer review and

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¹ *Daubert v. Merrell Dow Pharmls., Inc.* 509 U.S. 579 (1993).

² What I mean to say here is that we can expect of courts only a rough precision. Some over-valuing or under-valuing of the expert evidence is unavoidable. Courts should be concerned with preventing jurors (or themselves) from being led immoderately off target by the expert opinion.

³ *Kumho Tire Ltd. v. Carmichael*, 526 U.S. 137 (1999).

publication), yielding meaningful data on error rates. The second criterion can be found in the helpfulness test of Federal Rule of Evidence 702 and certainly in Federal Rule of Evidence 403.

Thus, along with Richard Friedman,⁴ I would not exclude expert evidence merely because the witnesses practicing in that field assert erroneous conclusions with some regularity. I would, however, condition such admission on the factfinder being informed about the likelihood of error in the opinions, and the court being satisfied that the factfinder is capable of properly adjusting the weight to be given to the evidence. Taking Friedman's example of hair identification,⁵ suppose we could only speculate about the diagnostic value of microscopic hair evidence (which was the situation for a long time), or suppose such witnesses routinely exaggerated the accuracy of their evidence (which did and still does occur). This testimony still should not be admitted. Not by my test or by the Supreme Court's test, and probably not under Friedman's reasoning either, because without some reasonably accurate approximation of the diagnostic value of the evidence, the analysis suggested by Friedman cannot be performed, and therefore helpfulness cannot be assessed and a real risk of misleading the factfinder exists.

As emerges in Paul Giannelli's paper,⁶ the absence of the type of data needed to evaluate criminal case expert testimony seems to be the rule rather than the exception. Moreover, given the lack of hard data, forensic scientists—ironically, or perhaps understandably and inevitably—seem to go out of their way to promote exaggerated public and factfinder belief in their accuracy. The cases Giannelli discusses suggest that these experts' century long campaign of public relations (at the neglect of empirical testing) has been quite successful. All of that cuts against admissibility.

Consider for example expert testimony on bitemark identification. For a quarter of a century many forensic dentists assured judges and jurors of their competency and if they declared a

⁴ See Richard D. Friedman, *Squeezing Daubert Out of the Picture*, 33 SETON HALL L. REV. 1047 (2003).

⁵ The study to which Friedman refers, Max M. Houck & Bruce Budowle, *Correlation of Microscopic and Mitochondrial DNA Hair Comparisons*, 47 J. FORENSIC SCI. 964 (2002), disavows that its data support any possible conclusion about any error rate. But plainly a reasonable argument can be made, and Friedman has made it, that if we use mitochondrial DNA as the criterion of correctness, then an error rate for microscopic hair identification can be estimated. As Friedman points out, that error rate is that microscopic hair comparison "yields a positive result in nearly 35% of the cases in which the facts are negative."

⁶ See Paul C. Giannelli, *The Supreme Court's "Criminal" Daubert Cases*, 33 SETON HALL L. REV. 1071 (2003).

defendant's dentition to match the crime scene bitemark, the factfinder could be quite sure that the defendant is the person who left the bite at the crime scene. These experts offered no systematic data testing the accuracy of their claims, only vague assurances that no two people on the planet had indistinguishably similar dentition, assertions that bitemarks were much like fingerprints, and so on. This fails the first criterion: the experts cannot supply data with which to evaluate the likely accuracy of their opinions. The first and only published research evaluating the accuracy of forensic dentists revealed an average of 64% false positives and an average of 22% false negatives.⁷

With the advent and publication of such data, the factfinder has its first opportunity to objectively assess the value of such witnesses' identification opinions. But a court might still decide to exclude the bitemark expert testimony because one study is insufficient, or because the study is too global and not focused on the task-at-hand in the case at bar. A court might also decide to exclude the bitemark expert testimony (at least if it is offered to prove that a defendant is the biter) because the false positive error rate is so high that whatever little help it can offer is not worth the time and trouble to present it (Fed. Rule of Evid. 403). The court might also consider the risk too great that the factfinder will not properly discount the testimony, but instead will give it excessive weight (Criterion 2). Because expert witnesses might, once courts begin to insist on seeing data, strategically design evaluation studies to make themselves look as good as possible,⁸ courts might not find these studies dependable. Therefore, a court might conclude that, despite the existence of the "studies," the factfinder still lacks adequate meaningful data (Criterion 1) or the fact finder will be misled by the studies (Criterion 2). Finally, if the court fears that the gap between the public imagery of a field and its actual data are so great that the factfinder is likely to have trouble adequately discounting the

⁷ C. Michael Bowers, *Identification from Bitemarks: Proficiency Testing of Board Certified Odontologists*, 30-2.1.3[1], in MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY (DAVID L. FAIGMAN ET AL. eds., 2002) [hereinafter MODERN SCIENTIFIC EVIDENCE]. Three similar studies by the forensic odontology community were conducted but not published (because, I am told by Dr. Bowers, those results were deemed unsuitable to be made public). More generally, see Iain Pretty & David Sweet, *The Scientific Basis for Human Bitemark Analyses—A Critical Review*, 41 SCI. & JUST. 85 (2001).

⁸ Which, apparently is what the FBI internal fingerprint proficiency studies had done. The court in *United States v. Llera-Plaza*, 188 F. Supp. 2d 549, 565 (2002) (*Llera-Plaza II*) concluded: "On the record made before me, the FBI examiners got very high grades, but the tests they took did not."

testimony, then the court should exclude the evidence (Criterion 2 as well as Fed. Rules of Evid. 403 and 702). In making that assessment, some courts might take into account the possibility that any decision by the gatekeeper to admit expert testimony will seem to the jury to be some kind of endorsement of the expert evidence—an inference which is hard to avoid after *Daubert*.

In summary, suppose an expert witness addressing an empirical question was allowed to offer the jury an opinion on the task-at-hand in a case. And suppose that on direct or cross-examination the witness was asked, “When people in your field offer opinions regarding this task, how accurate are they?” And suppose the expert could not give an informative answer to such a question based on sound and adequate data—in other words, the expert’s best honest answer would have to be, “I don’t really know.” Or suppose circumstances were such that the factfinder could not evaluate the evidence with reasonable discernment. Then the expert’s testimony probably would not be helpful to the factfinder, and a court would sensibly exclude it.

II. POST-*DAUBERT* CHALLENGES TO FINGERPRINT EXPERT TESTIMONY

By the two criteria I have noted, which capture the heart of the expert evidence admissibility standards of *Daubert* and its progeny, fingerprint identification expert testimony falls short. In *both* of his *Llera-Plaza* opinions, Judge Pollak concluded that the field of fingerprint identification has thus far failed to systematically test its underlying assumptions and its claims of expertise.⁹ At the same time, the field has cultivated a public image of flawlessness, comes to court claiming (literally) a “methodological” error rate of zero and subscribes to a prohibition on “qualified” (less than certain) opinions on identification. There is also about zero chance that a factfinder will be adequately informed about the error rate and therefore be enabled to accurately assess the expert’s opinion. Consequently, one would think, given Friedman’s concerns about overly high standards for admissibility set by the Supreme Court and the revised Fed. Rule of Evid. 702, that fingerprint expert evidence would have encountered newly raised barriers to admission. But, according to a website¹⁰ maintained by members of the fingerprint expert community, of the thirty-nine cases in which fingerprint expert testimony has been challenged, the number of cases in which the

⁹ *Id.* at 564 (“I concluded in the January 7 opinion that *Daubert*’s testing factor was not met, and I have found no reason to depart from that conclusion.”).

¹⁰ See www.onin.com (last visited Feb. 10, 2003) (on file with author).

proffered testimony was excluded was, also, zero.

This might seem to be paradoxical, but it is easily explained. If instead of counting the holdings we read the cases, (fewer than half of these thirty-nine decisions have been published) what we discover is that the number of cases in which the courts conscientiously applied *Daubert* and *Kumho Tire* is also zero. In this section, I summarize and explicate how these courts could survey the wasteland of non-research on fingerprint identification through the lens of *Daubert-Kumho Tire* and yet conclude that what they see is “the very archetype of reliable expert testimony under those standards.”¹¹

Recent judicial opinions reacting to challenges¹² to asserted fingerprint identification expertise are united by their failure to conduct any thoughtful analysis under *Daubert* and *Kumho Tire*.¹³ The opinions all resort to one or another evasion so that they can arrive at what their authors assumed before analysis to be the unavoidable conclusion, namely, that asserted fingerprint identification expertise satisfies the law’s admissibility requirements. Something other than conscientious analysis is required to reach such results. The following discussion summarizes those recent opinions and explicates what that “something else” is.

A. *Refusal to Conduct a Daubert Hearing*

Some courts refused to hold a 104(a) hearing, or to provide a similar occasion on which the proponent of the expert evidence might be called upon to establish its admissibility, and through which the district court could develop an adequate record to support its decision concerning the challenged expert testimony.¹⁴ To be sure, the standard for requiring a 104(a) hearing is unclear, and district courts are permitted considerable discretion in making the determination. But holding *in limine* hearings to resolve complex evidence issues is common practice and under appropriate circumstances the failure to do so has been held to be an abuse of discretion. Because of the gatekeeping obligations of district courts, the duty to hold a 104(a) hearing has sometimes been held to be

¹¹ United States v. Havard, 117 F. Supp. 2d 848, 855 (S.D. Ind. 2000), *aff’d*, 260 F.3d 597 (7th Cir. 2001).

¹² The challengers’ case is summarized in Robert Epstein, *Fingerprints Meet Daubert: The Myth of Fingerprint “Science” is Revealed*, 75 S. CAL. L. REV. 605 (2002).

¹³ Or other applicable test, as in *Frye* jurisdictions.

¹⁴ United States v. Joseph, 2001 WL 515213 (E.D. La. May 14, 2001); *see also* United States v. Reaux, 2001 WL 883221 (E.D. La. Jul. 31, 2001); United States v. Nadurath, 2002 WL 1000929 (N.D. Tex. May 14, 2002); United States v. Ambriz-Vasquez, 2002 WL 848000 (9th Cir. May 2, 2002).

necessary even when the moving party has not requested it.¹⁵

In *United States v. Joseph*,¹⁶ the court offers no reasons for not holding a hearing; it simply did not hold one. Moreover, it apparently saw so little to be decided that it disposed of the whole *Daubert* challenge in an opinion of less than two pages.

In support of its motion *in limine* and request for a hearing, the opponent in *United States v. Reaux*¹⁷ drew the court's attention to two publications, cited in the court's opinion.¹⁸ Though the publications plainly seem to be germane, the court said nothing about them beyond citing them. The court did not comment on why the publications were insufficient to trigger a 104(a) hearing to resolve the relevant controversies described in those writings as applied to the admissibility issue before the court.

On appeal, the Ninth Circuit held in *United States v. Ambriz-Vasquez*¹⁹ that it was not error for the district court to refuse to hold a *Daubert* hearing. The Court of Appeals offered no evaluation of the propriety of that refusal, beyond suggesting that it would be onerous "to conduct *Daubert* hearings whenever defendants object to fingerprint evidence," and that in a previous case it similarly held that "a trial court did not commit clear error where it admitted fingerprint evidence without performing a *Daubert* analysis."²⁰ The court does not reveal whatever knowledge it has about asserted fingerprint expertise that makes *Daubert* hearings unnecessary.

If there are genuine issues raised concerning the claims of expertise made by or on behalf of fingerprint examiners (and such

¹⁵ See discussion and review of cases in MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 1-2.1.1 (2002).

¹⁶ *United States v. Joseph*, 2001 WL 515213 (E.D. La. May 14, 2001).

¹⁷ *United States v. Reaux*, 2001 WL 883221 (E.D. La. Jul.31, 2001).

¹⁸ The first was an article, Michael Saks, *Merlin and Solomon: Lessons from the Law's Formative Encounters with Forensic Identification Science*, 49 HASTINGS L.J. 1069 (1998) (discussing the absence, in the seminal judicial opinions admitting forensic science, including fingerprints, of any evidence or analysis of the sort that would benefit a modern court required to analyze such asserted expertise under *Daubert*). The second was a portion of a chapter by David Stoney (discussion by a fingerprint expert of areas of scientific disagreement among scientists concerning the nature and adequacy of fingerprint identification). The latter can be found in MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 27-2.3.1 (2002).

¹⁹ 2002 WL 848000 (9th Cir. May 2, 2002).

²⁰ While the quoted statement would seem to be a complete failure to perform its gatekeeping function under *Daubert*, it would appear not to have been so in the earlier case, *United States v. Sherwood*, 98 F.3d 402, 408 (9th Cir. 1996). In *Sherwood*, the Court of Appeals noted that the defense conceded almost all of the issues it might have raised in the *Daubert* hearing, so there was no need to conduct a *Daubert* hearing.

issues do seem to exist), some sort of occasion for adequately exploring those issues is required. The Ninth Circuit in *Ambriz-Vasquez* reasoned that to expect courts to hold *Daubert* hearings on asserted fingerprint expertise, “assumes that courts cannot take judicial notice of the general acceptance of fingerprinting analysis.”²¹ At some point, after courts have adequately and convincingly explored the issues under *Daubert* (which to date they have barely begun to do), it ought to be possible for subsequent courts to take judicial notice of those issues, facts, analyses, and conclusions. Even then, however, pursuant to the requirement of *Kumho Tire* that courts focus on the specific task-at-hand upon which the expert is proposing to opine (rather than a vague global approach to the whole field of claimed expertise), judicial notice similarly would have to be focused on those issues which had been adequately considered and which are *relevant to the task-at-hand* in the case at bar. The use of judicial notice therefore seems to be premature.

In *United States v. Nadurath*,²² the court stated that the opponent of admission had “not provided any information that would call into question the reliability of fingerprint expert testimony.” The court provided no elaboration, not even to say that the defendant made a bare objection without support. If that is indeed what happened, that might well justify the refusal to conduct a 104(a) hearing. Some courts have held, however, that at least a preliminary assessment of any proffered expert testimony is necessary for district courts to discharge their expert evidence gatekeeping responsibilities.²³ If nothing else, courts, such as *Nadurath*, need to explain in their opinions what it is they have done to discharge their gatekeeping obligations, so courts above, and the larger society, can evaluate the adequacy of those efforts.

B. Reversal of the Burden of Persuasion

Elementary principles of law place the burden of proof on the proponent of the admission of evidence.²⁴ Accordingly, *Daubert* places the initial burden of production on the proponent of the proffered expert witness and requires the proponent to prove by a

²¹ *United States v. Ambriz-Vasquez*, 2002 WL 848000 (9th Cir. May 2, 2002).

²² *United States v. Nadurath*, 2002 WL 1000929 (N.D. Tex. May 14, 2002).

²³ *E.g.*, *Hoult v. Hoult*, 57 F.3d 1, 4 (1st Cir. 1995).

²⁴ *See* CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE § 5053 (“Normally the proponent of the evidence will have the burden of proving the facts upon which admissibility depends, though often the objector will have the burden of producing evidence to show the existence of grounds for the objection.”).

preponderance of the evidence that the criteria for admission have been met.²⁵

Some courts have shifted the burden of persuasion onto the challenger. The *Joseph*²⁶ court commented that “the defendant has not provided any evidence that either of these techniques are no longer generally accepted within the relevant scientific community.”²⁷ This might have been an abbreviated way of saying: the proponent has met his burden and the opponent has offered nothing. But the court had nothing to say about the proponent’s case. It recited no basis beyond a vague conclusory assertion that fingerprint identification techniques, whatever their details, had “proven to be a reliable science over decades of use for judicial purposes.”²⁸ So it is not apparent that the proponent offered adequate (or any) support on behalf of its proffer. Thus, the plainest reading of the opinion is that the court expected the opponent to prove that asserted fingerprint expertise did not meet the requirements of *Daubert*, rather than requiring the proponent to prove that it did. That is an erroneous application of the law.

Similarly, the Fourth Circuit, on the appeal of *United States v. Rogers*²⁹ appeared to say that the proponent’s expert asserted the existence of “numerous studies” supporting the claims of fingerprint experts (though none are cited in the opinion), while complaining that the opponent failed to produce any studies disproving the claims of the proffered fingerprint expertise. Thus, the proponent’s general assertion that supportive studies existed was sufficient,³⁰ while, on the other hand, the opponent was faulted for providing “no evidence suggesting that fingerprint evidence is unreliable.”³¹ While the opinion is not clear on where it placed the burden of proof, the two pages the Fourth Circuit devoted to this matter seem to indicate that the court took the proponent’s case as a given, which the opponent was required to knock down. Again, this is not the correct law.

Another example of reversing the burden of proof is provided

²⁵ *Daubert*, 509 U.S. at 593 n.20 (“These matters should be established by a preponderance of proof.”).

²⁶ *United States v. Joseph*, 2001 WL 515213 (E.D. La. May 14, 2001).

²⁷ *Id.* at 1.

²⁸ *Id.*

²⁹ *United States v. Rogers*, 2001 WL 1635494 (4th Cir. Dec. 20, 2001) (Table).

³⁰ On the claim of uniqueness of fingerprints and, presumably, of fingerprint fragments as well, since that is usually the real issue in these cases, though the opinions rarely seem to address that.

³¹ *Id.* at 1.

by the district court in *United States v. Cruz-Rivera*.³² After accepting the general validity of fingerprint identification techniques, the judge framed the remaining question to be resolved as: “can the defendant establish that the Puerto Rico Police fingerprint identification practices followed in this case are so deficient . . . that the testimony must be excluded”³³

Though Judge Pollak, in *Llera-Plaza II*, found, as he had in *Llera-Plaza I*, that the “testing factor [of *Daubert*] was not met”³⁴ and that what little testing had been done was poor, the court nevertheless concluded that the error rate was sufficiently low to satisfy *Daubert*. How can this be? If there has been virtually no testing, then the rate of error cannot be known. The court found the error rate factor to be met because the opponent of admission had failed to adduce proof that the FBI had made mistakes in earlier cases:

It has been open to defense counsel to present examples of erroneous identifications attributable to FBI examiners, and no such examples have been forthcoming. I conclude, therefore, on the basis of the limited information in the record as expanded, that there is no evidence that the error rate of certified FBI fingerprint examiners is unacceptably high.³⁵

The *Llera-Plaza II* court’s theory of why a reversal of the burden is desirable is essentially this: to postpone admission of fingerprint identification expertise pending research showing what it can and cannot do and at what level of accuracy “would be to make the best the enemy of the good.”³⁶

³² 2002 WL 662128 (D.P.R. Mar. 27, 2002).

³³ *Id.*

³⁴ *Id.* at 564. “I concluded in the January 7 opinion that *Daubert*’s testing factor was not met, and I have found no reason to depart from that conclusion.”

³⁵ *Id.* at 566. Query how difficult it is to prove an erroneous conviction, especially before the advent of DNA typing.

³⁶ The court’s more complete statement of its theory is the following:

Having re-reviewed the applicability of the *Daubert* factors through the prism of *Kumho Tire*, I conclude that the one *Daubert* factor which is both pertinent and unsatisfied is the first factor—“testing.” *Kumho Tire*, as I have noted above, instructs district courts to “consider the specific factors identified in *Daubert* where they are reasonable measures of the reliability of expert testimony.” 526 U.S. at 152. Scientific tests of ACE-V—i.e., tests in the *Daubert* sense—would clearly aid in measuring ACE-V’s reliability. But, as of today, no such tests are in hand. The question, then, is whether, in the absence of such tests, a court should conclude that the ACE-V fingerprint identification system, as practiced by certified FBI fingerprint examiners, has too great a likelihood of producing erroneous results to be admissible as evidence in a courtroom setting. There are respected authorities who, it appears, would render such a verdict.

Can anything be said on behalf of the correct legal rule except that it is the law and courts have a duty to apply it? One of the virtues of the customary burden of proof is that it impels experts and proponents to produce data illuminating a court about the proffered evidence. If their evidence is admissible without such illumination, why would experts and proponents work to produce research? Actual data can only undermine the glowing judicial presumptions of such expertise by showing (as the few studies which have been done have shown) that the claims made on behalf of fingerprint identification expertise were exaggerations. If the field of fingerprint identification had not produced studies illuminating most (or any?) of its most fundamental claims about its subject and itself in the century past—because it was being admitted without the data—why will it do so in the century to come?

C. Ignoring Kumho Tire's Task-at-Hand Requirement

Under *Kumho Tire*, district judges are required to determine with some precision what the task-at-hand is to which the expert's testimony is proposed to be relevant. The gatekeeping responsibility, then, is to evaluate whether the proposed expertise is "reliable" with respect to that task-at-hand. Thus, a court must determine what the fingerprint comparison problem is (a clear and complete latent print versus a tiny fragment versus a montage of numerous overlaid smeared latents, etc.) and whether the data show that the expert is likely to be able to perform that particular type of examination accurately. Under the law, a court is not to ask about a field in a general and global way. Yet none of the courts considering challenges to asserted fingerprint identification expertise gives any indication that they appreciated and applied the task-at-hand

As explained in Part II of this opinion, I have found, on the record before me, that there is no evidence that certified FBI fingerprint examiners present erroneous identification testimony, and, as a corollary, that there is no evidence that the rate of error of certified FBI fingerprint examiners is unacceptably high. With those findings in mind, I am not persuaded that courts should defer admission of testimony with respect to fingerprinting—which Professors Neufeld and Scheck term "[t]he bedrock forensic identifier of the 20th century"—until academic investigators financed by the National Institute of Justice have made substantial headway on a "verification and validation" research agenda. For the National Institute of Justice, or other institutions both public and private, to sponsor such research would be all to the good. But to postpone present in-court utilization of this "bedrock forensic identifier" pending such research would be to make the best the enemy of the good.

Id. at 571-72.

requirement.

D. Avoidance of Actual Daubert Analysis

In this section, I disregard appellate opinions that were casual about their *Daubert* analysis if they also concluded that even if the fingerprint expert testimony was admitted in error, it was harmless error given the other evidence.³⁷ Where the expert testimony is irrelevant to the outcome of the case, there is no purpose in performing a careful *Daubert* analysis on appeal. The better course, however, is not to perform a sloppy *Daubert* analysis and then to say “but even if it was error it was harmless error.” The better course would be to decline to reach unnecessary issues.³⁸ That is to say, if a task (here, a *Daubert* analysis) is worth doing, it is worth doing right. In any event, in this subsection I am concerned primarily with cases in which a serious *Daubert* analysis was necessary, but was performed poorly or not at all.

The court in *Joseph*³⁹ noted that it is first required to determine “whether the Government’s fingerprint evidence is scientific knowledge.”⁴⁰ And, second, the court is required to determine “whether the [expert] evidence will ‘assist the trier of fact to understand or determine a fact in issue.’”⁴¹ The court answered both questions in the affirmative. These naked conclusions are just about all the court had to say on these subjects. Though the court began its opinion by reciting the *Daubert* “factors,” those factors are not employed to analyze the admissibility of the challenged fingerprint identification expertise. Indeed, the court never mentioned the factors again. Apparently, the precise issue raised by the opponent of the expert testimony was whether the method used by the proffered expert was an acceptable method (in contrast to an alternative method). To this the court stated, “fingerprint analysis has been tested and proven to be a reliable science over decades of use for judicial purposes; and fingerprint technicians utilizing both the Galton and ridgeology techniques follow established principles and use scientific methods that are recognized in their particular field.”⁴² This is a statement of faith, not legal or scientific analysis.

³⁷ United States v. Rogers, 2001 WL 1635494 (4th Cir. Dec. 20, 2001) (Table); United States v. Turner, 2002 WL 491887 (10th Cir. Apr. 2, 2002).

³⁸ See, e.g., United States v. Martinez-Garduno, 2002 WL 464532 (9th Cir. 2002).

³⁹ United States v. Joseph, 2001 WL 515213 (E.D. La. May 14, 2001).

⁴⁰ *Id.* at *1.

⁴¹ *Id.* at *2.

⁴² *Id.* at *1.

The *Reaux*⁴³ court went to some trouble to discuss the holdings of *Daubert* and *Kumho Tire* and numerous cases following in the wake of those opinions. Without explicitly saying what principles were being applied from those cases, the court's admissibility analysis had two elements. First, it discussed the qualifications of the proffered expert. Although the expert's qualifications are important for some purposes, they are irrelevant to answering the question of whether an expertise exists, which is the focus of *Daubert*.⁴⁴ Second, the court explicitly adopted the analysis of *United States v. Havvard*,⁴⁵ an exceedingly weak opinion.⁴⁶

At trial, the *Havvard* court misunderstood much of what the Supreme Court had been saying in its expert evidence admissibility rulings, and offered trial process answers to most of the scientific questions posed by *Daubert*.⁴⁷ The district court was unable to cite a single published study, or find any kind of a systematic empirical answer to any of the questions posed about the claims of fingerprint experts. In addition the court had to invent excuses for gaps left unfilled by the fingerprint field.⁴⁸ Nonetheless the court concluded that fingerprint examiners passed *Daubert* and *Kumho Tire* with flying colors, stating that the testimony was "the very archetype of reliable expert testimony under those standards."⁴⁹

⁴³ *United States v. Reaux*, 2001 WL 883221 (E.D. La. Jul.31, 2001).

⁴⁴ By analogy: It does not matter how well trained, how experienced, or how distinguished an astrologer is if astrology lacks validity.

⁴⁵ *Havvard*, 117 F. Supp. 2d 848, *aff'd*, 260 F.3d 597 (7th Cir.2001).

⁴⁶ See detailed reviews of *Havvard* in MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 27-1.2 (2002); Comment, *Evidence—Fingerprint Experts—Seventh Circuit Upholds the Reliability of Expert Testimony Regarding the Source of a Latent Fingerprint—United States v. Havvard*, 260 F.3d 597 (7th Cir. 2001), 115. HARV. L. REV. 2349 (2002). See also comments on *Havvard* in *United States v. Llera-Plaza*, 2002 WL 27305 (E.D. Pa.) [*Llera-Plaza I*].

⁴⁷ For example, see *Llera-Plaza I* (commenting on *Havvard*: "[A]dversarial' testing in court is not . . . what the Supreme Court meant when it discussed testing as an admissibility factor"). 2002 WL 27305, at *10.

⁴⁸ "In *Havvard*, the court stated that the publication factor 'does not fit well with fingerprint identification because it is a field that has developed primarily for forensic purposes.' While it is correct that the end purpose of fingerprint identifications is a forensic one, the reliability of identification techniques must be assessed just as any other scientific, technical, or specialized technique under Rule 702." *Llera-Plaza I*, 2002 WL 27305, at *12, n. 19 (E.D. Pa.).

⁴⁹ *Havvard*, 117 F. Supp. 2d at 855, *aff'd*, 260 F.3d 597 (7th Cir. 2001).

E. Turning Kumho Tire on its Head

On the appeal of *Havvard*,⁵⁰ the Seventh Circuit not only endorsed all of the district court's curious misunderstandings of *Daubert*, it invented its own curious misunderstanding of *Kumho Tire*. In *Kumho Tire*, a unanimous Supreme Court held that all fields, not only "scientific" fields, had to satisfy the fundamental reliability standards of *Daubert*.⁵¹ In responding to the appellant's argument that fingerprint evidence lacks a sufficient scientific basis, the Seventh Circuit countered by arguing:

The standards of *Daubert* . . . are not limited in application to 'scientific' testimony alone. See *Kumho*, 526 U.S. at 147, 119 S. Ct. 1167 (holding that 'the basic gatekeeping obligation' of *Daubert* applies to all expert testimony). Therefore, the idea that fingerprint comparison is not sufficiently 'scientific' cannot be the basis for exclusion under *Daubert*.⁵²

The Seventh Circuit's statement is irresolvably incoherent. By expanding *Daubert's* essential application to all fields, not only scientific fields, the Supreme Court closed a major hole through which some fields were trying to escape *Daubert's* scrutiny. *Kumho Tire* did not create new escape hatches, it closed old ones. A field amenable to evaluation by scientific criteria can readily be evaluated by the "*Daubert* factors." That is what the field of fingerprint examination is: an empirical field. That is what its practitioners claim to be: forensic scientists, people who work with observable, empirical things. And that is what the *Havvard* trial court's analysis purports to find: that it is scientific, and that it passes *Daubert's* scientific criteria with flying colors. An attack on fingerprint identification claiming that its scientific basis is inadequate (e.g., insufficient testing) is directly on point. The Court of Appeals sought to remove fingerprinting from the realm of the empirical, in order to move it

⁵⁰ *Havvard*, 117 F. Supp. 2d at 848, *aff'd*, 260 F.3d 597 (7th Cir. 2001). The Seventh Circuit states that it reviewed *Havvard de novo*. *United States v. Havvard*, 260 F.3d 597, 600 (7th Cir. 2001). Rulings on admissibility are to be reviewed deferentially. *General Electric v. Joiner*, 522 U.S. 136 (1997). Rulings on or applications of law are to be reviewed *de novo*. The Seventh Circuit does not explain what it is reviewing deferentially and what it is reviewing *de novo*, nor can those be discerned from the rest of the opinion.

⁵¹ See MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 1-3.5 (2002).

⁵² See also *United States v. Cline*, 188 F. Supp. 2d 1287, 1295 (D. Kan. Feb. 21, 2002), asserting that *Kumho Tire* reduced, rather than reinforced, the obligation of judges to evaluate proffered expert testimony in a highly rigorous way: "The Supreme Court itself eschewed such a reading when it dismissed the argument that the trial court's gatekeeping obligation depended on whether the expert knowledge to be offered was scientific, technical or other"

out of *Daubert's* reach. Bizarrely, it relied on *Kumho Tire* to accomplish that, even though *Kumho Tire* stands for exactly the opposite proposition, namely, that there is to be no escape from appropriate scrutiny.

F. Reliance on Admission by Other Courts

Some courts made much of the fact that fingerprint expert evidence had been admitted in American courts for most of the twentieth century. Of what value is this fact in the evaluation of an asserted expertise under *Daubert*?

The Fourth Circuit, in reviewing *Rogers*, stated that, "virtually every circuit and district court, both before and after *Daubert*, have a longstanding tradition of allowing fingerprint examiners to state their opinion and conclusions"⁵³ The Seventh Circuit, in reviewing *Havvard*, commented that, "The district court recognized that establishing the reliability of fingerprint analysis was made easier by its 100 years of successful use in criminal trials"⁵⁴ Neither appellate court says a word about how a long history of admission advances an admissibility analysis under *Daubert*. The mere existence of a long history of judicial admission does not in itself contribute anything to analysis under *Daubert*. The Supreme Court in *Daubert* observed, "Of course, well-established propositions are less likely to be challenged than those that are novel, and they are more handily defended." The point is not that a scientific claim gains validity by being let into courtrooms over a long period, but rather that propositions which have had time to be tested and found to have sound bases will *for that reason* be "less likely to be challenged . . . and . . . more handily defended." The Fourth and Seventh Circuits failed to say what it is that was learned during that century of admission that lent support to the claims asserted by fingerprint experts.

Ironically, some forensic scientists and their proponents have sought to explain their fields' shortcomings by arguing that their long history of admission retarded any tendency these fields might otherwise have had to seriously test their claims in a manner that would meet the requirements of *Daubert* and *Kumho Tire*.⁵⁵

⁵³ United States v. Rogers, 26 Fed. Appx. 171, 2001 WL 1635494 (4th Cir. Dec. 20, 2001) (Table).

⁵⁴ United States v. Havvard, 260 F.3d 597, 601 (7th Cir. 2001).

⁵⁵ J. Orenstein, *Effect of the Daubert Decision on Document Examinations from the Prosecutor's Perspective*, in 1 FORENSIC SCIENCE COMMUNICATIONS (Oct. 1999), at <http://www.fbi.gov/programs/lab/fsc/backissu/oct1999/abstrcte.htm>.

G. Reliance on General Acceptance

A century of admission under older rules might have no relevance to an analysis that must be conducted pursuant to a new and different rule (i.e., *Daubert*). In the present context, however, it is possible that pre-*Daubert* admissions decisions are relevant to the general acceptance “factor,” which remains a consideration under *Daubert*. Several courts relied on general acceptance to admit fingerprint experts.⁵⁶ One might argue (though none of these courts did) that a century of admission impliedly informs a post-*Daubert* court that pre-*Daubert* courts were finding general acceptance, because *Frye* was the dominant test before *Daubert*. The flaw in this reasoning would be that all of the major seminal fingerprint admission cases were decided before the general acceptance test was invented. As early as 1918, courts were admitting fingerprints merely by citing opinions from sister jurisdictions which had already admitted fingerprints. Yet those sister jurisdictions were not employing *Frye* (or any other articulable test).⁵⁷

What today’s courts might be trying to say is that there has been *judicial* general acceptance for the better part of a century (among pre-*Daubert* courts), and so there should continue to be judicial acceptance (among post-*Daubert* courts).⁵⁸ This, of course, has never been a recognized test of admissibility, and certainly is not a criterion for admission under *Daubert* or *Kumho Tire*.

The proponents of admission often claim, as they did in *Llera-Plaza I*, that, “[t]he ACE-V process has been tested empirically [in courtrooms] over a period of 100 years and in any particular case they can be tested by examination of the evidence by another expert.”⁵⁹ On the latter point, the court noted that examination by another expert is simply not the kind of testing that is capable of confirming or refuting the theory or the technique.⁶⁰ On the former

⁵⁶ United States v. Joseph, 2001 WL 515213 (E.D. La. May 14, 2001); see also United States v. Salim, 2002 WL 372911 (S.D.N.Y. Mar. 11, 2002); United States v. Ambriz-Vasquez, 2002 WL 848000 (9th Cir. May 2, 2002).

⁵⁷ See MODERN SCIENTIFIC EVIDENCE, *supra* note 7, § 27-1.1 (2002).

⁵⁸ For example, one court states: “Used successfully in criminal trials for over 100 years, fingerprint identification analysis has withstood the scrutiny and testing of the adversarial process.” United States v. Cline, 188 F. Supp. 2d 1287, 1294 (D. Kan. Feb. 21, 2002).

⁵⁹ *Llera-Plaza I*, 2002 WL 27305 at *9.

⁶⁰ Said the court:

[I]t is not apparent that a result arrived at by a second examiner discrepant from a result arrived at by a prior examiner would (1) establish that the first result was erroneous, or (2) offer a secure basis for concluding that the “technique” was faulty. A scientist might be

point, the court noted that, “[A]dversarial’ testing in court is not, however, what the Supreme Court meant when it discussed testing as an admissibility factor.”⁶¹ Moreover, while there were “numerous writings that discuss the fingerprint identification techniques employed by fingerprint examiners,” none of them tested the technique’s dependability.

But the consensus of this narrow community is not sufficient for two essential reasons, as the court in *Llera-Plaza I* explained:

General acceptance by the fingerprint examiner community does not, however, meet the standard set by Rule 702. First, there is the difficulty that fingerprint examiners, while respected professionals, do not constitute a “scientific community” in the *Daubert* sense. Second, the Court cautioned in *Kumho Tire* that general acceptance does not “help show that an expert’s testimony is reliable where the discipline itself lacks reliability.” The failure of fingerprint identifications fully to satisfy the first three *Daubert* factors militates against heavy reliance on the general acceptance factor. Thus, while fingerprint examinations conducted under the general ACE-V rubric are generally accepted as reliable by fingerprint examiners, this by itself cannot sustain the government’s burden in making the case for the admissibility of fingerprint testimony under Federal Rule of Evidence 702 [citations omitted].⁶²

Under *Daubert*, general acceptance must be evaluated in conjunction with other factors. In fields which have been found to have a vigorous tradition of testing, that which becomes generally accepted carries more weight than in fields without such a tradition. Where inquiry into other factors (such as testing, methodological quality of published peer reviewed research, and error rates) does not support admission, general acceptance does not become the one last hook on which an admission decision can be hung. As the Supreme Court stated in *Kumho Tire*, general acceptance does not “help show that an expert’s testimony is reliable where the discipline itself lacks reliability.”⁶³ In short, general acceptance cannot properly secure admission of asserted fingerprint expertise when the other criteria have failed to do so.

disposed to require scores, or perhaps hundreds, of observations before regarding the “technique” as having been “tested.”

Id. at *10.

⁶¹ *Id.* at *11.

⁶² *Id.* at *18.

⁶³ *Kumho Tire Ltd. v. Carmichael*, 526 U.S. 137,151 (1999).

H. *Emphasis on Flexibility of Criteria*

Where application of the basic “*Daubert* factors” is not providing support for admission, some courts have turned to language in both *Daubert* and *Kumho Tire* which authorizes flexibility in the selection of criteria for evaluating proffered experts. The Fourth Circuit in *Rogers* stated: “the *Daubert* Court also emphasized that this inquiry should be flexible.”⁶⁴ The *Reaux* court stated, “in *Kumho Tire*, the Supreme Court emphasized that the test of reliability is ‘flexible,’ and that *Daubert*’s list of specific factors does not necessarily, nor exclusively, apply to all experts in every case.”⁶⁵

These references to “flexibility” should have been followed by an explanation of what evaluation criteria the court thought were more appropriate than those in *Daubert*, why they were more appropriate, and then a thoughtful application of those more appropriate factors. Instead, these two courts used the “flexibility” language as a license to select vague criteria and apply them loosely and without explanation. Three concurring Justices in *Kumho Tire* anticipated such evasions, and suggested that they were likely to constitute an abuse of discretion.⁶⁶

The district court in *Cline*⁶⁷ ignored *Daubert* and *Kumho Tire*. First, *Cline* declared that “evidentiary *Daubert* hearings were unnecessary as the reliability of the methods [of fingerprint examiners] could be properly taken for granted.”⁶⁸ In criticizing decisions which had followed *Daubert* more faithfully, the court added

it seems an unreasonable stretch simply to discard this [unsystematic, unscientific] experiential testing [by fingerprint examiners] as wholly unreliable and to relegate the testifying opinions of all these fingerprint examiners to *ipse dixit*. Moreover, this court joins others who do not read *Daubert* and *Kumho* as elevating the scientific method to the touchstone by which all

⁶⁴ United States v. Rogers, 2001 WL 1635494 (4th Cir. Dec. 20, 2001) (Table). (citations omitted).

⁶⁵ United States v. Reaux, 2001 WL 883221 (E.D. La. July 31, 2001).

⁶⁶ “I join the opinion of the Court, which makes clear that the discretion it endorses—trial-court discretion in choosing the manner of testing expert reliability—is not discretion to abandon the gatekeeping function. I think it worth adding that it is not discretion to perform the function inadequately. Rather, it is discretion to choose among reasonable means of excluding expertise that is *fausse* and science that is junky. Though, as the Court makes clear today, the *Daubert* factors are not holy writ, in a particular case the failure to apply one or another of them may be unreasonable, and hence an abuse of discretion.” *Kumho Tire*, 526 U.S. at 159 (Scalia, J., concurring).

⁶⁷ United States v. Cline, 188 F. Supp. 2d 1287 (D. Kan. Feb. 21, 2002).

⁶⁸ *Id.* at 1294.

Rule 702 evidence is to be judged.⁶⁹

Although there is no one who has “read *Daubert* and *Kumho* as elevating the scientific method to the touchstone by which all Rule 702 evidence is to be judged,” the Supreme Court’s opinions in *Daubert* and *Kumho Tire* were rather clear on what is, at bottom, required. First, a conscientious determination of the soundness of proffered expertise as a condition for its admission. Second, that appropriate criteria must be utilized in making that evaluation. Where scientific criteria are appropriate the *Daubert* factors should be conscientiously employed. Where other criteria would be better and more appropriate, the court should conscientiously employ them.⁷⁰

In the field of asserted fingerprint identification expertise, there is no reason not to apply the basic *Daubert* factors. This field deals with empirical phenomena and makes entirely empirical claims. The basic scientific criteria embodied in the *Daubert* “factors” are entirely appropriate for its evaluation.⁷¹ Moreover, no one claims that the fingerprint field cannot perform empirical tests, only that it has not done so for the greater part of the past century. Indeed, this field has begun to do so only very recently and only because of the threat of limitation or exclusion under *Daubert*.⁷²

I. Bringing the Standards Down to Meet the Expertise

The *Cline*⁷³ court implicitly found that asserted fingerprint expertise is not scientific, has not been well tested, is in need of “traditional” scientific testing, lacks an adequate body of peer

⁶⁹ *Id.* at 1295.

⁷⁰ That is the gravamen of *Kumho Tire*. See MODERN SCIENTIFIC EVIDENCE, *supra* note 7, §§ 1-3.5 and 2.0 (2002).

⁷¹ As the court notes in *Llera-Plaza I*, “[i]n their submissions in the case at bar, both the government and the defendants have undertaken to apply the *Daubert* factors, albeit with discrepant results.” 2002 WL 27305 at *9. The court agreed “with the parties that, with respect to fingerprint identification evidence, the *Daubert* factors constitute a proper touchstone of admissibility . . .” *Id.*

⁷² Forensic scientists and police agencies knew that *Daubert* presented a serious challenge that they were not prepared to meet. They submitted an *amicus* brief in *Kumho Tire* urging that *Daubert*’s scrutiny not be extended to fields that had failed to test their propositions systematically. Brief *Amici Curiae* of Americans for Effective Law Enforcement, Inc. et al., *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999). Though the Supreme Court unanimously rejected such arguments, these fields did not anticipate the extent to which lower court judges would find ways to keep admitting them, notwithstanding the Supreme Court’s opinions to the contrary. Also, several fields of forensic science, including fingerprint identification, abruptly became interested in seeing federal funds spent on research to prove the validity of their claims. See NATIONAL INSTITUTE OF JUSTICE, FORENSIC FRICITION RIDGE (FINGERPRINT) EXAMINATION VALIDATION STUDIES (Mar. 2000).

⁷³ *United States v. Cline*, 188 F. Supp. 2d 1287 (D. Kan. Feb. 21, 2002).

reviewed literature, and lacks uniform standards. Had the court reached the opposite conclusion in each of these statements, about the fingerprint field's state of knowledge, we can safely assume that the court would have declared that fingerprint expertise passed muster under *Daubert*. But, having found these deficiencies the court did not conclude that the expertise at issue fails *Daubert*, and therefore testimony based on it must be excluded or have limitations placed upon it. Instead, the court concluded that these shortcomings meant that alternative, less rigorous, criteria needed to be employed in order to facilitate admission. This kind of back door to admission is what *Kumho Tire* was designed to eliminate, and in many instances has eliminated.⁷⁴

Similarly, although somewhat less explicitly, in *Llera-Plaza II*⁷⁵ Judge Pollak reasoned as though *Kumho Tire* had never been decided. That is, he refrained from subjecting the proffered expertise to the most appropriate evaluation criteria. Because the court found that fingerprint examination is not a science it determined less need be asked of it in the way of empirical verification. Judge Pollak initially commented that fingerprinting "is not, in my judgment, itself a science." The court seemed to think that this judgment affected the admissibility analysis. "In adjusting the focus of inquiry from [fingerprinting's] status as a 'scientific' discipline to its status as a 'technical' discipline, one modifies the angle of doctrinal vision." The court, thus, disregarded the mandate of *Kumho Tire* by finding that fingerprint identification could avoid the rigors of *Daubert* by dubbing its practitioners "specialists" rather than "scientists." This seems to be exactly the back door into court that in *Kumho Tire* the Supreme Court had closed and locked.⁷⁶

The court's view that fingerprinting was something other than a science changed the court's analyses of the peer review and general

⁷⁴ Compare *United States v. Starzeczyzel*, 880 F. Supp. 1027 (S.D.N.Y. 1995) (holding, before *Kumho Tire*, that because forensic document examination failed to meet *Daubert* it was not science; because it was not science it need not meet the requirements of *Daubert*; and therefore it was admissible under a much lower and unspecified standard), with *United States v. Hines*, 55 F. Supp. 2d 62 (D. Mass. 1999) (holding, after *Kumho Tire*, that because forensic document examination failed to meet *Daubert*, its opinions on identity were inadmissible).

⁷⁵ *United States v. Llera-Plaza*, 188 F. Supp. 2d 549 (2002).

⁷⁶ What *Kumho Tire* instructs is that all fields, regardless of their labels, be subjected to sound evaluation criteria. Fields are not to be excused from rigorous scrutiny for the very reason that they have not taken the trouble to subject themselves to rigorous testing. A field of endeavor need not "be a science" in order to be evaluated using scientific methods, which, after all, is essentially the use of rigorous logic to evaluate empirical claims.

acceptance criteria of *Daubert*. In his earlier decision, Judge Pollak was unimpressed with the fact that fingerprinting had been generally accepted by a self-interested guild. In *Llera-Plaza II* this uncritical consensus impressed him:

I conclude that the fingerprint community's "general acceptance" of ACE-V should not be discounted because fingerprint specialists—like accountants, vocational experts, accident-reconstruction experts, appraisers of land or of art, experts in tire failure analysis, or others—have "technical, or other specialized knowledge" (Rule 702), rather than "scientific . . . knowledge" and hence are not members of what *Daubert* termed a "scientific community."⁷⁷

J. Relegate to Weight, Not Admissibility

Further, the *Cline*⁷⁸ court argued that the central dispute about fingerprint expert evidence is whether examiners are justified in testifying to extreme assertions of absolute, certain, pinpoint, identification to the exclusion of all others in the world, even when dealing with smeared fragments of latent prints. The court opined that such a debate should be left to the jury to resolve.⁷⁹

CONCLUSION

Shortly after the decision in *Daubert*, I mused that the law's adoption of a more scientific approach to evaluating the helpfulness of expert testimony presaged a collision between the irresistible force of *Daubert* and the immovable object of fingerprint expert testimony.⁸⁰ The cases described above constitute the (current) outcome of that collision. One could say that both *Daubert* and fingerprint expert testimony emerged from the collision intact. *Daubert* did not have to be changed, it needed only to be ignored. As a result, the knowledge base of fingerprint expert testimony has not needed to be augmented nor has the testimony itself needed to be changed.⁸¹

Ironically, the failure of judges to write a coherent defense of asserted fingerprint expertise under *Daubert*, but only to seek ways to

⁷⁷ *Llera-Plaza II*, 188 F. Supp. 2d at 563.

⁷⁸ *United States v. Cline*, 188 F. Supp. 2d 1287 (D. Kan. 2002).

⁷⁹ This is the oldest device in the judicial toolbox for avoiding having to make admissibility decisions. It is surprising that it does not appear more often in today's cases.

⁸⁰ Michael J. Saks, *The Implications of Daubert for Forensic Identification Science*, in 1 SHEPARD'S EXPERT & SCI. EVID. Q. 427 (1994).

⁸¹ Such as by tempering it with the limitations of the data, the theory, or the boundary conditions made relevant by the task at hand.

shelter it from serious scrutiny, suggests that fingerprint expert evidence actually does not meet the requirements of *Daubert*.

If the claims and assumptions of fingerprint identification expertise had been empirically tested, if these empirical tests were sufficiently well designed⁸² so as to survive peer review leading to publication in scientifically respectable journals and had survived the more important debate in the intellectual marketplace following publication, and the data convincingly showed low error rates for the relevant task-at-hand,⁸³ and if these findings had come to be generally accepted among relevant scientific and professional communities beyond the circle of police technicians who practice the art—then the proponents no doubt would have eagerly offered such information to the courts and the judges would have had ample material with which to write cogent opinions. That such material was not cited in any of the opinions suggests that it does not exist. If the grounds for admitting fingerprint examiners' testimony were as sound and as solid as the judges assert that it is, then it should not be so difficult to write an opinion actually presenting those grounds.

Because conventional support for the admission of an asserted expertise about an empirical phenomenon do not exist for fingerprint identification, the courts have been casting about in search of persuasive justification for admission on some other basis, thus far without success.

⁸² A careful reading of the relevant portion of *Daubert*, as well as an understanding of the intellectual nature of science, suggests this to be the gravamen of the “peer review and publication” element. 509 U.S. at 593.

⁸³ See *Daubert*, 509 U.S. at 597 (“the trial judge” has the obligation “of ensuring that,” among other things, “an expert’s testimony” is “relevant to the task at hand”); see also *Kumho Tire*, 526 U.S. at 137 (which is informed from its outset and throughout by the task at hand notion).