

1999

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Recommended Citation

Edward J. Imwinkelried, *Should the Courts Incorporate a Best Evidence Rule into the Standard Determining the Admissibility of Scientific Testimony: Enough is Enough Even When It Is Not the Best ?*, 50 Case W. Res. L. Rev. 19 (1999)

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ARTICLES

SHOULD THE COURTS INCORPORATE A BEST EVIDENCE RULE INTO THE STANDARD DETERMINING THE ADMISSIBILITY OF SCIENTIFIC TESTIMONY?: ENOUGH IS ENOUGH EVEN WHEN IT IS NOT THE BEST

Edward J. Imwinkelried[†]

“Striving to better, oft we mar what’s well.”¹

At one time the best evidence principle dominated the law of evidence.² In a 1700 opinion, Chief Justice Holt referred to a requirement for “the best proof that the nature of the thing will afford”³ Midway through the 18th century Sir Geoffrey Gilbert authored one of the first English evidence treatises.⁴ In that treatise, Gilbert proclaimed: “The first . . . and most signal Rule, in Relation to Evidence, is this, That a Man must have the utmost Evidence, the Nature of the Fact is capable of”⁵ Gilbert endeavored to “subsume the whole of the law [of evidence] under a single principle, ‘the best evidence rule.’”⁶ In the same vein, in his celebrated *Commentaries*, Blackstone stated that “the best evidence the nature of the case will admit of shall always be required, if possible to be had.”⁷ In the 19th century, American writers took up the same theme. Greenleaf,

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¹ WILLIAM SHAKESPEARE, *KING LEAR*, act I, scene 4.

² See, e.g., Dale A. Nance, *The Best Evidence Principle*, 73 IOWA L. REV. 227, 248-56 (1988) (discussing the historical rise and fall of the best evidence rule).

³ *Ford v. Hopkins*, 91 Eng. Rep. 250, 250 (K.B. 1700).

⁴ See Stephan Landsman, *From Gilbert to Bentham: The Reconceptualization of Evidence Theory*, 36 WAYNE L. REV. 1149, 1151-52 (1990) (“Sir Geoffrey Gilbert . . . wrote one of the first English treatises devoted exclusively to questions of evidence.”).

⁵ GEOFFREY GILBERT, *THE LAW OF EVIDENCE* 3 (Dublin, Sarah Cotter 1754).

⁶ William Twining, *The Rationalist Tradition of Evidence Scholarship*, in *WELL AND TRULY TRIED* 213 (Enid Campbell & Lewis Waller eds., 1982).

⁷ 3 WILLIAM BLACKSTONE, *COMMENTARIES* *268.

for example, made the best evidence principle one of the central notions of his evidence text.⁸

The principle, though, has waned in the 20th century. At the turn of the century, Thayer pointed out that with one exception, there was never a prevailing, full-fledged exclusionary rule that inferior types of evidence are inadmissible.⁹ The exception related to documentary evidence. In that limited setting, the case law had recognized a true exclusionary rule. As Thayer wrote, the published opinions imposed a requirement that "if you would prove the contents of a writing, you must produce the writing itself,"¹⁰ and enforced the requirement by barring secondary evidence of the writing's contents such as copies and oral testimony about the writing. The modern understanding is that the best evidence rule is confined to documentary evidence.¹¹ The broad expression, "the best evidence rule," is both a misnomer and potentially misleading.¹² As one of the most popular 20th century treatises states, "there is no such general rule. The only actual rule that the 'best evidence rule' denotes today is the rule requiring the production of the original writing."¹³ For that reason, it has been seriously proposed that the doctrine be renamed the "Original Document Rule."¹⁴ That title would convey a much more accurate sense of the narrow scope of the modern best evidence rule.

Even in that limited, diminished form, the rule is under attack. Earlier this decade the California Law Revision Commission undertook a study of the rule. In 1996, the Commission released the report summarizing its study.¹⁵ The report asserts:

⁸ See 1 SIMON GREENLEAF, A TREATISE ON THE LAW OF EVIDENCE, §§ 82-97 (Boston, Little Brown 1842) (identifying the best evidence rule as one of the primary rules governing the admissibility of evidence); see also Nance, *supra* note 2, at 248 ("[T]he centrality of the best evidence principle in Greenleaf's conception of evidence law is undeniable.").

⁹ See JAMES BRADLEY THAYER, PRELIMINARY TREATISE ON EVIDENCE AT THE COMMON LAW 505 (Boston, Little Brown 1898) ("The [best evidence rule] should be discarded, in any sense of a working rule of exclusion In only one way . . . is it possible any longer to use this old phraseology with advantage.").

¹⁰ *Id.* at 503.

¹¹ See, e.g., RONALD L. CARLSON ET AL., EVIDENCE: TEACHING MATERIALS FOR AN AGE OF SCIENCE AND STATUTES 639 (4th ed. 1997) ("The best evidence rule rests on the assumption that one type of evidence, the original document, has superior trustworthiness. The common law implements that assumption by demanding that the proponent produce or account for the original *document* when the document's terms are in issue.") (emphasis added).

¹² See *id.* at 640 ("As many commentators have noted, the expression the 'best evidence rule' is a misnomer and, worse still, misleading.").

¹³ 2 CHARLES T. MCCORMICK, MCCORMICK ON EVIDENCE § 229, at 61 (John William Strong et al. eds., 4th ed. 1992); see also *Simas v. First Citizens' Fed. Credit Union*, 170 F.3d 37, 51 (1st Cir. 1999) (holding that the best evidence rule is not a general rule and that it applies only in some limited ways to the production of documents).

¹⁴ See 2 MCCORMICK, *supra* note 13, § 230, at 61 (defining the Original Document Rule in terms identical to the traditional scope of the best evidence rule).

¹⁵ See 26 CAL. LAW REVISION COMMISSION, *Best Evidence Rule* 369 (1996).

The Best Evidence Rule is an anachronism. In yesterday's world of manual copying and limited pretrial discovery, it served as a safeguard against misleading use of secondary evidence. Under contemporary circumstances, in which high quality photocopies are standard and litigants have broad opportunities for pretrial inspection of original documents, the Best Evidence Rule is no longer necessary to protect against unreliable secondary evidence. Because the rule's costs now outweigh its benefits, the Law Revision Commission recommends that it be repealed.¹⁶

The California legislature adopted the Commission's recommendation by enacting the Secondary Evidence Act of 1998, California Evidence Code §§ 1520-23.¹⁷ The new provisions expand the types of written secondary evidence which are presumptively admissible over a best evidence objection.¹⁸ Indeed, the first sentence of California Evidence Code § 1521(a) now enunciates a general rule that "[t]he content of a writing may be proved by otherwise admissible secondary evidence."¹⁹

Given the declining influence of the best evidence rule, it came as a mild surprise in 1999 when it was seemingly proposed to extend the rule to a new setting, namely the assessment of the admissibility of expert testimony. The proposal appears in the 1999 supplement to one of the foremost treatises²⁰ on scientific evidence, *Modern Scientific Evidence: The Law and Science of Expert Testimony*, co-authored by Professors David Faigman, David Kaye, Michael Saks, and Joseph Sanders.²¹ As the title of the treatise suggests, the treatise covers several scientific disciplines as well as the law governing the admissibility of testimony by experts from those disciplines. Chapter 1 of the treatise is devoted to an analysis of the admissibility standards. In particular, several sections of the chapter address the impact of the Supreme Court's 1993 decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*²² In *Daubert*, the Supreme Court held that the enactment of the Federal Rules of Evidence in 1975 had superseded the common-law general acceptance test for the admissibility of pur-

¹⁶ *Id.* at 389.

¹⁷ Secondary Evidence Act of 1998, CAL. EVID. CODE §§ 1520-23 (West Supp. 1999).

¹⁸ EDWARD J. IMWINKELRIED & TIMOTHY HALLAHAN, IMWINKELRIED & HALLAHAN'S CALIFORNIA EVIDENCE CODE ANNOTATED, §§ 261-62 (1999).

¹⁹ CAL. EVID. CODE § 1521 (West Supp. 1999).

²⁰ See *United States v. Scheffer*, 523 U.S. 303 (1998) (recognizing the treatise as authoritative and citing the work numerous times throughout the opinion).

²¹ 1 DAVID L. FAIGMAN ET AL., MODERN SCIENTIFIC EVIDENCE: THE LAW AND SCIENCE OF EXPERT TESTIMONY § 1-3.4[4], 17 (1997 & Supp. 1999) (concluding that "courts should, wherever possible, adopt admissibility criteria that encourage expert communities to develop the best possible information on legally relevant issues").

²² 509 U.S. 579 (1993).

portedly scientific testimony.²³ The Court ruled that under the new statutory scheme, the pivotal question is whether the proffered testimony qualifies as reliable “scientific . . . knowledge” within the meaning of that expression in Federal Rule of Evidence 702. The Court adopted an essentially methodological definition of science.²⁴ Simply stated, the Court defined science as the process of formulating hypotheses about phenomena in the corporeal world and then engaging in experimentation or observation to falsify or validate the hypothesis.²⁵ The Court decreed that to qualify his or her proffered testimony as “scientific . . . knowledge,” the proponent must lay a foundation establishing the empirical validation of the expert’s underlying hypothesis.²⁶

Given the frequent use of expert testimony,²⁷ it was to be expected that a large number of lower courts have had occasion to apply the *Daubert* decision.²⁸ In both their original text and their new 1999 supplement, Professor Faigman and his co-authors survey and critique this growing body of case law.

Some of their observations in the 1999 supplement are non-controversial. For example, they point out that the new *Daubert* test will sometimes yield outcomes different from the more traditional common-law, general acceptance standard.²⁹ The authors add that the lower courts are struggling with the question of how much validation is “enough” to satisfy the now controlling statutory standards.³⁰ Those observations are unquestionably accurate.

There are, however, other passages in the 1999 supplement which are both a bit vague and potentially troublesome—passages which suggest a proposal to incorporate a best evidence principle into admissibility analysis under *Daubert*. In one passage, the authors argue that the proponent’s characterization of the proffered testimony

²³ See generally *id.*

²⁴ See Bert Black et al., *Science and the Law in the Wake of Daubert: A New Search for Scientific Knowledge*, 72 TEX. L. REV. 715, 751 (1994) (arguing that the Court in *Daubert* adopted a “scientific” framework for determining the admissibility of “scientific” evidence).

²⁵ See Edward J. Imwinkelried, *Evidence Law Visits Jurassic Park: The Far-Reaching Implication of the Daubert Court’s Recognition of the Uncertainty of the Scientific Enterprise*, 81 IOWA L. REV. 55, 58 (1995) (“[The *Daubert* Court] described the scientific methodology in classical Newtonian terms—the process of formulating hypotheses and then engaging in experimentation or observation to verify or falsify the hypothesis.”) (citations omitted).

²⁶ See Edward J. Imwinkelried, *The Daubert Decision: Frye Is Dead, Long Live the Federal Rules of Evidence*, TRIAL, Sept. 1993 at 60, 62-64 (summarizing the holding in *Daubert*).

²⁷ See, e.g., Samuel R. Gross, *Expert Evidence*, 1991 WIS. L. REV. 1114, 1119 (finding that experts testified in more than 80% of civil trials studied for the article).

²⁸ See G. Michael Fenner, *The Daubert Handbook: The Case, Its Essential Dilemma, and Its Progeny*, 29 CREIGHTON L. REV. 939, 1035-89 (1996) (providing a case digest of significant decisions applying *Daubert* prior to its publication).

²⁹ See 1 FAIGMAN ET AL., *supra* note 21, § 1-3.3, at 1.

³⁰ See *id.* § 1-3.4[3], at 13-14 (discussing the difficulties presented to courts in evaluating scientific evidence under the various current statutory admissibility standards).

should not be dispositive of the issue of which evidentiary restrictions apply to the testimony.³¹ Rather, in two other passages, the authors state that the trial judge should focus on “the nature of the legal question to be answered,”³² or the “legally relevant issues.”³³ These passages are reminiscent of the language in Holt, Gilbert, and Blackstone that the trial judge should look to the nature of the issue to be resolved.³⁴ After the judge has focused on that question, Professor Faigman and his colleagues urge that “courts should, wherever possible, adopt admissibility criteria that encourage expert communities to develop the best possible information on legally relevant issues.”³⁵ Employing a market metaphor, the authors state that like “a good consumer, [the judge] can demand and receive a quality product.”³⁶ These passages echo the insistence by Holt, Gilbert, and Blackstone that the proponent tender the best evidence.³⁷

I have enormous respect for Professor Faigman and his colleagues, and I may simply be reading too much into these passages in their 1999 supplement.³⁸ However, my fear is that these passages in their 1999 supplement, suggesting the extension of a best evidence

³¹ See *id.* § 1-3.4[3], at 12.

³² *Id.* § 1-3.4[3], at 13.

³³ *Id.* § 1-3.4[4], at 17.

³⁴ See *Ford v. Hopkins*, 91 Eng. Rep. 250, 250 (K.B. 1700) (referring to a requirement for the “best proof that the nature of the thing will afford . . .”); 3 BLACKSTONE, *supra* note 7, at *268 (“[T]he best evidence the nature of the case will admit of shall always be required, if possible to be had . . .”); GILBERT, *supra* note 5, at 3 (“The first . . . and most signal Rule, in Relation to Evidence, is this, That a Man must have the utmost Evidence, the Nature of the Fact is capable of . . .”).

³⁵ 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[4], at 17.

³⁶ *Id.* § 1-3.4[4], at 15.

³⁷ See *supra* note 34 and accompanying text.

³⁸ Shortly after the release of the 1999 supplement, I e-mailed Professor Faigman to ask whether these passages were intended to advocate a best evidence principle in the context of the analysis of the admissibility of scientific testimony. He kindly responded:

As for your question, I think we were not consciously intending to draw the parallel to the best evidence rule, but our views are certainly in line with something like that. You might say that we believe in a “best evidence rule, with a vengeance.” Basically, we believe that courts should expect various professionals to use the tools that are available to them. But this is actually a little more ambitious than simply saying that bitemark people should use the best methods available to forensic specialists who do bitemark identifications. If the scientific method would allow the entire profession to do better work, then the law should expect them to take advantage of that methodology. This . . . is the wonder of Daubert. It may be that handwriting people are insular enough that they can self-validate one another and thus get through the Frye door. But anyone who has even one semester of training in research methods knows that what the handwriting identification folks are doing has not been validated – but it could be. I think the law should not only ask what are the best methods that handwriting experts use, but what methods might they use to evaluate their expertise. Otherwise, an entire profession could insulate themselves from serious Daubert scrutiny by remaining in the dark ages before the scientific method was discovered.

(Copy of Professor Faigman’s e-mail message on file with the *Case Western Reserve Law Review* office).

principle to the analysis of the admissibility of expert testimony, might produce mischief. The thesis of this article is that it would be unwise to incorporate a best evidence requirement into the legal standards controlling the introduction of expert testimony at trial.

The first part of this article describes both the Court's 1993 *Daubert* decision and the passages in the authors' 1999 supplement commenting on the decision. This part of the article goes into greater detail about the relevant passages in the 1999 supplement. Part I describes both the apparent proposal and the reasons which the authors advance for the proposal.

Part II forecasts the impact of the adoption of the proposal. This part explains that if implemented, this proposal would revolutionize American evidence law.

Parts III and IV evaluate two versions of the proposal and argue that it would be ill-advised to implement either version. Part III assesses a version of the proposal as a mandate for an order of preference among the proffered types of evidence. Part IV turns to another, more modest version of the proposal as a guideline for evaluating the sufficiency of the foundation for proffered scientific evidence. The rhetoric of a best evidence principle might be alluring, but these parts demonstrate that both versions of the proposal are unsound as a matter of evidentiary policy and the statutory interpretation of the Federal Rules of Evidence. Both versions would blur the distinction between the admissibility of expert testimony on the one hand and its legal sufficiency and weight on the other hand. Moreover, the second version misconceives the basic conception of a foundation or predicate for an item of evidence. The Conclusion adds that the adoption of the proposal would also have unfortunate consequences in terms of broader legal and social policies.

I. A DESCRIPTION OF *DAUBERT* AND THE APPARENT PROPOSAL TO ADD A BEST EVIDENCE GLOSS TO *DAUBERT*

The apparent proposal by Professor Faigman and his co-authors is a recommendation as to the proper manner of applying the Supreme Court's teaching in *Daubert*. To appreciate the proposal, it must be understood against the backdrop of the *Daubert* decision.

Prior to *Daubert*, the vast majority of federal and state courts followed the *Frye* test for the admissibility of scientific evidence.³⁹ The test not only enjoyed a widespread judicial following; it also had a long lineage, dating back 70 years to the decision in *Frye v. United*

³⁹ See 1 PAUL C. GIANNELLI & EDWARD J. IMWINKELRIED, SCIENTIFIC EVIDENCE §§ 1-5 (2d ed. 1993) (concluding that *Frye* was the controlling standard in the majority of federal and state courts).

States.⁴⁰ The *Frye* court announced that in order to be admissible, scientific testimony had to rest on a hypothesis that has gained "general acceptance."⁴¹ In the majority opinion in *Daubert*, Justice Blackmun acknowledged that the general test "has been the dominant standard for determining the admissibility of novel scientific evidence at trial."⁴² However, he concluded that *Frye* was no longer good law because it had not survived the enactment of the Federal Rules of Evidence. The Justice quoted Federal Rule of Evidence 402: "All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority."⁴³

The rule makes no mention of case or decisional law. The Justice then quoted a 1978 article by the late Professor Edward Cleary, the Reporter for the Federal Rules of Evidence Advisory Committee for the proposition that "[i]n principle, under the Federal Rules no common law of evidence remains."⁴⁴ The rub was that the *Frye* test was purely a creature of case law. There was no statutory text which could reasonably bear the interpretation that it codified a general acceptance standard. As an uncodified standard, *Frye* had been impliedly overturned by the adoption of Federal Rule 402.

Justice Blackmun quickly added, however: "That the *Frye* test was displaced by the Rules of Evidence does not mean . . . that the Rules themselves place no limits on the admissibility of purportedly scientific evidence."⁴⁵ In the textualist tradition of statutory interpretation,⁴⁶ Justice Blackmun attempted to derive the limits from the text of the Federal Rules. He pointed to the expression "scientific . . . knowledge" in Federal Rule of Evidence 702.⁴⁷ Drawing heavily on the amicus briefs submitted by scientific organizations,⁴⁸ Justice

⁴⁰ 293 F. 1013 (D.C. Cir. 1923).

⁴¹ See *id.* at 1012 ("[T]he thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.").

⁴² *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 585 (1993).

⁴³ *Id.* at 587.

⁴⁴ *Id.* at 588.

⁴⁵ *Id.* at 589.

⁴⁶ See Edward R. Becker & Aviva Orenstein, *The Federal Rules of Evidence After Sixteen Years—The Effect of "Plain Meaning" Jurisprudence, the Need for an Advisory Committee on the Rules of Evidence, and Suggestions for Selective Revision of the Rules*, 60 GEO. WASH. L. REV. 857, 864-68 (1992) (discussing the Supreme Court's movement toward a plain meaning interpretation of the Federal Rules of Evidence); Randolph N. Jonakait, *The Supreme Court, Plain Meaning, and the Changed Rules of Evidence*, 68 TEX. L. REV. 745, 749-62 (1990) (discussing the Court's application of the plain meaning standard to the Federal Rules of Evidence). But see Glen Weissenberger, *The Supreme Court and the Interpretation of the Federal Rules of Evidence*, 53 Ohio St. L.J. 1307, 1307-11 (1992) (arguing that the Federal Rules of Evidence should not be construed by traditional means of statutory construction).

⁴⁷ See *Daubert*, 509 U.S. at 589.

⁴⁸ See *id.* at 590.

Blackmun stated that “[t]he adjective ‘scientific’ implies a grounding in the methods and procedures of science.”⁴⁹ The Justice quoted the amicus brief of the American Association for the Advancement of Science to the effect that science “represents a *process* for proposing and refining theoretical explanations about the world that are subject to further testing”⁵⁰ This line of reasoning led the Justice to conclude that “in order to qualify as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method.”⁵¹ That method requires that the expert’s hypothesis be “supported by appropriate [empirical] validation.”⁵²

Justice Blackmun tried to give lower courts some guidance for assessing the adequacy of the validation supporting a hypothesis. He listed the following factors: whether the hypothesis is testable,⁵³ whether it has been tested;⁵⁴ whether the hypothesis has been subjected to peer review and publication,⁵⁵ the known or potential error rate,⁵⁶ “the existence and maintenance of standards controlling the technique’s operation”,⁵⁷ and “general acceptance.”⁵⁸ Although these factors were intended to furnish some guidance to lower courts, Justice Blackmun cautioned that his list of factors was not “definitive.”⁵⁹ Moreover, the Justice emphasized that the trial judge’s inquiry must be “flexible.”⁶⁰

As Professor Faigman and his colleagues quite correctly note, the *Daubert* opinion does not give lower courts any specific direction as to how demanding they should be in evaluating the empirical validation underpinning a scientific hypothesis.⁶¹ The result has been a

⁴⁹ *Id.*

⁵⁰ *Id.* (emphasis in original).

⁵¹ *Id.*

⁵² *Id.*

⁵³ *See id.* at 593.

⁵⁴ *See id.*

⁵⁵ *See id.* This factor can be circumstantial evidence that a hypothesis rests on sound scientific methodology. As Justice Blackmun elaborated in *Daubert*, extensive publicity for the hypothesis “increases the likelihood that substantive flaws in methodology will be detected.” *Id.*

⁵⁶ *See id.* at 594.

⁵⁷ *Id.*

⁵⁸ *Id.* As in the case of publication, this can be relevant circumstantial proof that the hypothesis is supported by reliable scientific methodology. If the hypothesis has been current long enough to gain widespread acceptance, presumably a large number of scientists have scrutinized the underlying research and failed to find serious deficiencies in the methodology.

⁵⁹ *See id.* at 593.

⁶⁰ *See id.* at 594; *see also* *Kumho Tire Co. v. Carmichael*, 119 S. Ct. 1167 (1999) (reaffirming the flexibility of the reliability test and stating that *Daubert*’s list of factors is not limited to scientific expert testimony).

⁶¹ *See* 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[3], at 14 (“[U]nderlying the admissibility determination [of the trial court] lies the policy judgment of how demanding courts should be regarding the level of experience or the amount of research that is necessary before testimony will be allowed.”).

good deal of controversy.⁶² To begin with, the courts often differ over the question of how high the bar should be for admitting scientific testimony. For example, the courts are split over the issue of whether polygraph readings constitute sufficiently reliable “scientific . . . knowledge” under Rule 702.⁶³ Likewise, the commentators are at odds over the question of whether questioned document examination meets the threshold for admission under *Daubert*.⁶⁴

Professor Faigman and his colleagues waded into this controversy in their 1999 supplement. The supplement makes several salient points that strongly suggest that they are advocating the incorporation of a best evidence principle into admissibility analysis under *Daubert*. Doing so would at least partially resolve the controversy. The answer to the question of when there is “enough” validation would be only when the validation is the best which science has to offer.

To begin with, the authors make the negative point that the judge should not accept the witness’ or proponent’s characterization of the proffered testimony in deciding which evidentiary restrictions are applicable.⁶⁵ They expressly criticize a decision of the Court of Appeals for the Eleventh Circuit for the stated reason that the court accepted that characterization rather than considering “the nature of the legal question to be answered.”⁶⁶ Next, as the last paragraph indicates, the authors affirmatively urge trial judges to begin their analysis by focusing on the nature of the question to be answered or, as they write

⁶² See Fenner, *supra* note 28, at 939 (discussing the interpretations and misunderstandings arising out of the *Daubert* decision).

⁶³ See James R. McCall, *Misconceptions and Reevaluation—Polygraph Admissibility After Rock and Daubert*, 1996 U. ILL. L. REV. 363 (examining past and present polygraph admissibility law under both *Daubert* and other appellate decisions).

⁶⁴ See, e.g., D. Michael Risinger et al., *Brave New “Post-Daubert World”—A Reply to Professor Moenssens*, 29 SETON HALL L. REV. 405 (1998); D. Michael Risinger & Michael J. Saks, *Science and Nonscience in the Courts: Daubert Meets Handwriting Identification Expertise*, 82 IOWA L. REV. 21 (1996) (examining the history of handwriting analysis, the nature and dependability of the identification process, and recent court decisions concerning the admissibility of evidence using these techniques); D. Michael Risinger et al., *Exorcism of Ignorance as a Proxy for Rational Knowledge: The Lessons of Handwriting Identification Expertise*, 137 U. PA. L. REV. 731 (1989) (questioning the validity of handwriting expertise and discussing the importance of empirical testing on the results of handwriting analysis). *But cf.* Andre A. Moenssens, *Handwriting Identification Evidence in the Post-Daubert World*, 66 UMKC L. REV. 251 (1997) (suggesting several different factors for determining reliability under *Daubert* but urging the continual admissibility of handwriting testimony).

⁶⁵ See 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[3], at 12-13 (discussing the need for an evaluation of testimonial evidence separate from the assurances of the testifying witness).

⁶⁶ *Id.* § 1-3.4[3], at 13 (criticizing *Carmichael v. Samyang Tire, Inc.*, 131 F.3d 1433 (11th Cir. 1997), *rev’d sub nom.* *Kumho Tire Co. v. Carmichael*, 119 S. Ct. 1167 (1999)). The Supreme Court’s 1999 decision in *Kumho* lends support to this portion of the authors’ analysis. The Court ruled that regardless of whether expert testimony is scientific or nonscientific in character, the trial judge must conduct a *Daubert*-style inquiry into the reliability of the testimony. See *Kumho*, 119 S. Ct. at 1179. Thus, the proponent cannot escape the requirement of a showing of reliability by simply labeling his or her testimony “nonscientific.”

in another passage, the “legally relevant issues.”⁶⁷ Lastly, the authors state that judges should demand the “best possible [scientific] information”⁶⁸ available on the legally relevant issue. Cumulatively, these passages strongly imply a proposal that a best evidence principle should be an integral part of admissibility analysis under *Daubert*.

The authors advance two arguments favoring this apparent proposal. One is that the proposal will increase the accuracy of judicial fact-finding:

The law is itself a marketplace for experts—scientific, technical, specialized and pseudo. As in most markets, if the law proves to be a bad consumer, it is more likely to get a bad product. But, [if it] is a good consumer, it can demand and receive a quality product.⁶⁹

The authors conclude that the “justice system will be better for [this approach].”⁷⁰ A further argument is that this approach is calculated to enhance the state of scientific research. The authors opine that the rigor of “[a]dmissibility rules [can] have a significant impact on the way, and whether, research is done.”⁷¹ The authors fear that a contrary approach might create an incentive for scientific witnesses “to refrain from conducting any research at all”⁷² If the courts are uncritical and act as “passive consumers of whatever opinions expert communities decide to produce,”⁷³ scientists will feel little pressure to support their claims with “credible research.”⁷⁴

II. THE REVOLUTIONARY IMPACT OF THE ADOPTION OF THE APPARENT PROPOSAL TO INCORPORATE A BEST EVIDENCE RULE INTO THE ADMISSIBILITY STANDARD UNDER *DAUBERT*

At first blush, there is an immediate attraction to any proposal that promises to make available to the courts the best possible scientific information relevant to the factual disputes the courts are called upon to resolve. However, before rushing to embrace the proposal, we should appreciate its impact. Simply stated, the adoption of the proposal would work a revolution. Aside from the formal best evidence rule confined to documentary evidence,⁷⁵ modern American evidence law does not recognize anything approaching the proposed

⁶⁷ See 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[4], at 17.

⁶⁸ *Id.*

⁶⁹ *Id.* § 1-3.4[3], at 15.

⁷⁰ *Id.* § 1-3.4[4], at 17.

⁷¹ *Id.* § 1-3.4[3], at 15.

⁷² *Id.*

⁷³ *Id.* § 1.3-4[4], at 17.

⁷⁴ *Id.* § 1-3.4[3], at 14.

⁷⁵ See FED. R. EVID. 1002 (“To prove the content of a writing, recording, or photograph, the original writing, recording, or photograph is required . . .”).

best evidence rule preferring the optimal scientific testimony. Today scientific evidence is at least theoretically available to help a court resolve virtually any factual issue; if the court was insistent, the proponent might be able to produce scientific evidence on almost any issue. Yet, the courts routinely accept seemingly inferior types of proof on litigated issue. There is not even a judicial inkling that the availability of superior scientific testimony renders alternatives types of evidence inadmissible.

At present, there is certainly no order of preference among the types of proffered testimony. To begin with, there is no preference for such testimony over lay factual testimony. For example, as a matter of course the courts admit lay eyewitness testimony.⁷⁶ The courts are receptive to eyewitness testimony even though there is a massive amount of research indicating that lay eyewitnesses are frequently mistaken.⁷⁷ To be sure, there are some constitutional restrictions on the introduction of such testimony; and in extreme cases, those restrictions might mandate the exclusion of the testimony.⁷⁸ However, those constitutional restrictions rarely come into play to render eyewitness testimony inadmissible. In most cases, so long as the proponent lays a foundation demonstrating that the witness satisfies the statutory foundational requirement for personal knowledge,⁷⁹ the courts receive the testimony without hesitation. In a given case, if the eyewitness had limited perceptual ability and the conditions for observation were less than ideal, it might be evident that a scientific analysis of available genetic markers was a far more reliable method of determining the identity of the participants in the relevant event.⁸⁰

⁷⁶ See, e.g., PATRICK M. WALL, *EYEWITNESS IDENTIFICATION IN CRIMINAL CASES* (1965) (examining the use of lay witness testimony in criminal trials, despite the problem of false identification of suspected criminals).

⁷⁷ See, e.g., H. E. Egeth & M. McCloskey, *Expert Testimony About Eyewitness Behavior: Is It Safe and Effective?*, in *EYEWITNESS TESTIMONY* 283, 292 (Gary L. Wells & Elizabeth F. Loftus eds. 1984) ("Accurate identification of the criminal was made by 33%, 50%, and 74% of the witnesses in the poor, moderate, and good viewing conditions, respectively."); ELIZABETH F. LOFTUS, *EYEWITNESS TESTIMONY* 135-37 (1979) (presenting evidence that approximately 85% of the 2,145 eyewitnesses incorrectly selected an assailant from a simulated six-person lineup); A. DANIEL YARMEY, *THE PSYCHOLOGY OF EYEWITNESS TESTIMONY* 156 (1979) (citing a study in which only 14 of 52 witnesses accurately identified a suspect in a lineup; 19% of witnesses failed to make any identification; and 44% of the witnesses identified an innocent person); Felice J. Levine & June L. Tapp, *The Psychology of Criminal Identification: The Gap from Wade to Kirby*, 121 U. PA. L. REV. 1079, 1101 (1973) (providing statistics concerning the accuracy of recognition of pictures after fixed intervals of time).

⁷⁸ See *United States v. Wade*, 388 U.S. 218 (1967) (holding that an in-court identification violated the Sixth Amendment since the identification would not have been possible but for an out-of-court lineup that occurred outside the presence of counsel); *Gilbert v. California*, 388 U.S. 263 (1967) (holding that an out-of-court identification from a lineup outside the presence of counsel violated the Sixth Amendment).

⁷⁹ See FED. R. EVID. 602.

⁸⁰ See 1 GIANNELLI & IMWINKELRIED, *supra* note 39, § 17, at 529 (discussing genetic marker analysis in general); 2 GIANNELLI & IMWINKELRIED, *SCIENTIFIC EVIDENCE* § 18, 1 (2d ed. 1993) (discussing DNA testing in particular).

A 1996 Department of Justice report⁸¹ documented 28 cases of defendants who had been wrongfully convicted—usually on the basis of eyewitness testimony⁸²—but later secured post-conviction relief on the basis of exculpatory DNA test results. As in these cases, expert testimony can be used to attack the weight of lay factual testimony; and in some cases, reasonable persons would probably agree that scientific testimony is better evidence, if not the best evidence, on the issue of identity. However, to borrow Blackstone's description of the best evidence rule, there is no authority excluding the lay factual testimony on the ground that it is not "the best evidence the nature of the case will admit of"⁸³

At the next level, there is no enforceable preference for scientific opinion over lay opinion. Consider, for example, the question of a person's sanity. It is well settled that a witness acquainted with the person in question may express an opinion about the person's sanity.⁸⁴ For example, California Evidence Code § 870(a) provides: "A [lay] witness may state his opinion as to the sanity of a person when . . . [t]he witness is an intimate acquaintance of the person whose sanity is in question" ⁸⁵ If the witness knows the person's baseline behavior, the witness may opine whether the person's behavior on a particular occasion departed from the baseline so markedly that the person was acting in an aberrant, insane manner. However, expert testimony is also admissible on the topic of insanity.⁸⁶ When the expert relies on diagnostic criteria that have been empirically validated,⁸⁷ a strong case can be made that the expert opinion is more

⁸¹ See generally EDWARD CONNORS ET AL., U.S. DEP'T. OF JUSTICE, CONVICTED BY JURIES, EXONERATED BY SCIENCE: CASE STUDIES IN THE USE OF DNA EVIDENCE TO ESTABLISH INNOCENCE AFTER TRIAL (1996).

⁸² See Robert E. Wenk, *Review of: Connors et al. Convicted by Juries, Exonerated by Science: Cases Studies in the Use of DNA Evidence to Establish Innocence After Trial*, 42 J. FORENSIC SCI. 750, 750 (1997) ("I attempted to quantify the reasons for the initial miscarriage of justice in the cases. About 75% involved identity errors by eyewitnesses.").

⁸³ 3 BLACKSTONE, *supra* note 7, at *268.

⁸⁴ See, e.g., *Estate of Clegg v. Wiebe*, 151 Cal. Rptr. 158 (Cal. Ct. App. 1978) (upholding admission of a doctor's testimony as evidence of competence); *Spillman v. Estate of Spillman*, 587 S.W.2d 170 (Tex. Ct. App. 1979) (holding that the trial court correctly allowed lay witness testimony about the testatrix's mental competence).

⁸⁵ CAL. EVID. CODE § 870(a) (West 1995).

⁸⁶ See FED. R. EVID. 704(b) (An expert witness may testify to the mental state or condition of a defendant in a criminal case, but may not opine directly on the elements of the crime or defense).

⁸⁷ Many of the diagnostic criteria included in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders IV ("DSM IV") (4th ed. 1994) have been validated in that manner. In the late 1960's and 1970's, mental health researchers strove to develop a harder, more medical, model for diagnosis. See John P. Feighner et al., *Diagnostic Criteria for Use in Psychiatric Research*, 26 ARCHIVES GEN. PSYCHIATRY 57 (1972) (stressing the need for scientific criteria to aid in diagnosis and for providing a framework by which to compare data in the treatment of mental illness); Jules B. Gerard, *The Usefulness of the Medical Model to the Legal System*, 39 RUTGERS L. REV. 377 (1987) (theorizing that the problems associated with the insanity defense and civil commitment could be resolved through the use of a

likely to be accurate than a mere lay opinion. Yet, in this setting as well, there is no authority for the proposition that the availability of expert mental health testimony renders arguably inferior lay opinion evidence absolutely inadmissible. The only admissibility hurdles for such lay opinions are the specific statutory restrictions applicable to that type of evidence.⁸⁸

At still another level, there is no preference for scientific expert testimony over non-scientific expert testimony. Assume, for example, that the question is the chemical identity of a substance seized from an accused. There is a growing body of case law allowing experienced police officers to testify to an opinion about a substance's identity, based upon the visual appearance of the substance.⁸⁹ In many of these cases, the courts permitted the testimony on the theory that the officer qualified as a non-scientific expert.⁹⁰ However, an opinion based solely on the substance's superficial appearance is suspect, since there are many "look-a-like" drugs.⁹¹ Objectively, the reliability of that type of "expert" opinion pales in comparison to an opinion based on an analysis of the substance by gas chromatography/mass spectrometry (GC/MS).⁹² The Supreme Court itself has

medical model of mental illness). There was a concerted effort to implement a medical model in DSM IV. The preparation of the fourth edition included:

One hundred fifty reviews of the scientific literature were accomplished by the end of 1989 to obtain an empirical data base for decision making. Individuals of each work group . . . focused on specific issues unanswered by the literature reviews and drew upon the resources of unpublished data sets. The re-analysis of 50 separate sets of data were used The Field Trials took place from 1991 through 1993. This project was carried out at a total of 88 universities and research institutions . . . involving more than 7,000 subjects . . .

William D. Weitzel, *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV)*, THE ADVOCATE, Aug. 1994, at 25-26.

There are indications that the use of empirically validated criteria has improved the reliability of psychiatric diagnosis. See Richard Rogers, *Assessment of Criminal Responsibility: Empirical Advances and Unanswered Questions*, 15 J. PSYCHIATRY & L. 73, 78 (1987) ("[T]he data suggests that forensic psychiatrists and psychologists may be slightly more reliable with the volitional than cognitive prong . . .").

⁸⁸ See FED. R. EVID. 701 (stating that lay witnesses may testify as to their opinion only when the opinion is rationally based on the perception of the witness and is helpful to develop a clear understanding of the witness' testimony).

⁸⁹ See, e.g., *United States v. Robinson*, 144 F.3d 104 (1st Cir. 1998) (holding that a detective's testimony identifying a substance as cocaine was properly admitted as evidence despite the fact that the detective lacked formal scientific training). But see Michael D. Blanchard & Gabriel J. Chin, *Identifying the Enemy in the War on Drugs: A Critique of the Developing Rule Permitting Visual Identification of Indescript White Powder in Narcotics Prosecutions*, 47 AM. U. L. REV. 557 (1998) (criticizing the growing number of cases which allow visual identification of narcotics).

⁹⁰ See Blanchard & Chin, *supra* note 89, at 563-65 (citing several cases in which courts failed to apply the *Daubert* test to "non-scientific" experts meeting the statutory requirements for admissible opinion testimony).

⁹¹ See *id.* at 569.

⁹² See 2 GIANNELLI & IWINKELRIED, *supra* note 80, at § 23-3(C) (discussing GC/MS testing generally).

recognized the accuracy of GC/MS analysis.⁹³ GC/MS is the “gold standard,”⁹⁴ widely regarded as the “most accurate”⁹⁵ and “most reliable”⁹⁶ analytic technique. Yet, once again the possibility of obtaining a superior scientific opinion does not preclude the introduction of the non-scientific expert opinion. If the opinion satisfies the statutory requirements—the witness has extensive experience and the witness’s inference is more likely to be reliable than the trier’s conclusion on the issue⁹⁷—the non-scientific expert opinion qualifies for admission.

Further, as a matter of admissibility analysis, there is no enforceable preference for superior scientific opinions over other scientific opinions. As previously stated, it is clear that in most instances, GC/MS analysis is the most reliable test which an unknown substance can be subjected to in order to determine whether the substance is a contraband drug. However, the cases are legion, admitting opinions based on other scientific tests such as thin layer chromatography, high pressure liquid chromatography, gas chromatography, and radioimmunoassay.⁹⁸ All these other tests are nonspecific; that is, they can yield false positive results with substances other than contraband drugs.⁹⁹ The reliability of opinions, based on these nonspecific tests, is markedly inferior to the trustworthiness of an opinion, resting on a properly conducted GC/MS analysis. Yet, in this setting as well, the availability of a superior scientific mode of analysis does not foreclose the admission of other scientific evidence. If the court is other-

⁹³ See *Nat’l Treasury Employees Union v. Von Raab*, 489 U.S. 656, 673 n.2 (1989) (“GC/MS tests [are] highly accurate, assuming proper storage, handling, and measurement techniques.”).

⁹⁴ See David J. Greenblatt, *Urine Drug Testing: What Does It Test?*, 23 NEW ENG. L. REV. 651, 655 (1988) (examining the use of GC-MS testing on urine to detect drug usage); Tamara L. Riley, *Toward a Drug Free Military*, 5 CRIM. JUST. 10, 13 (1991) (discussing the use of drug testing to eliminate drug abuse in the military).

⁹⁵ See *Taylor v. O’Grady*, 888 F.2d 1189, 1192 n.4 (7th Cir. 1989) (describing the accuracy of GC/MS testing as “nearly infallable”).

⁹⁶ See L. Diane Baugh et al., *Simultaneous Gas Chromatography/Mass Spectrometry Assay of Methadone and 2-Ethyl-1,5-Dimethyl-3,3-Diphenylpyrrolidine (EDDP) in Urine*, 36 J. FORENSIC SCI. 548, 548 (1991) (“GC/MS procedures are considered the most reliable and are the preferred confirmatory method.”).

⁹⁷ See FED. R. EVID. 702 (allowing expert testimony when it will “assist the trier of fact to understand the evidence or to determine a fact in issue”).

⁹⁸ See 2 GIANNELLI & IMWINKELRIED, *supra* note 80, § 23-4, at 321-22 (collecting cases).

⁹⁹ See *id.* § 23-2, at 273-304 (describing several testing procedures that may provide false positive results); see also Peter Donnelly & Richard D. Friedman, *DNA Database Searches and the Legal Consumption of Scientific Evidence*, 97 MICH. L. REV. 931, 965 (1999). The authors state that:

courts should be wary of excluding DNA evidence on the grounds that better evidence would be possible. There is no limit to that logic If using twelve markers is good, using thirteen is better – and fourteen better yet. [T]he evidence should not be excluded on the grounds that the prosecution might have produced better evidence yet. The defense can, if it wishes, point out limitations of the evidence and opportunities the prosecution did not explore.

Id.

wise convinced that the proffered mode of analysis satisfies Rule 702 and *Daubert*, an opinion resting on that analytic technique is admissible over objection.

The above paragraphs demonstrate that outside the confines of the best evidence rule proper, there is no enforceable order of preference among the various types of evidence. Of course, a best evidence principle could operate at a different level, namely, as a guideline for assessing the sufficiency of the foundation for proffered evidence. However, with one exception, there does not appear to be a general requirement that the foundation for a scientific opinion include the best type of proof. In applying *Daubert*, one federal district court commented: "For his testimony to be reliable, and, thus, admissible under *Daubert*, [the expert] need not have used the best method available, only a reasonable one."¹⁰⁰ To date, only one notable exception has emerged:

Courts after *Daubert* appear to be taking a type of "best evidence" approach to animal studies. That is, if reliable epidemiological studies are extant, then an expert's use of contrary animal studies is considered inconsistent with the scientific method. On the other hand, if there are no epidemiological studies on the subject, then a reliably conducted animal study can be used as part of the basis of an expert's opinion.¹⁰¹

Even this so-called exception is narrow in scope; while the cases in this line of authority require that the expert rely on epidemiological studies when they are available, even these cases do not purport to announce a sweeping requirement that the proponent have epidemiological studies conducted. Thus, as a general proposition, contemporary expert testimony law does not embody a best evidence principle either as an order of preference among the types of proffered evidence or as guideline for gauging the adequacy of a foundation for an item of expert testimony.

III. A CRITICAL EVALUATION OF ONE VERSION OF THE PROPOSAL TO INCORPORATE A BEST EVIDENCE RULE INTO THE ADMISSIBILITY STANDARD UNDER *DAUBERT*, NAMELY, A MANDATE FOR AN ORDER OF PREFERENCE AMONG THE TYPES OF PROFFERED SCIENTIFIC EVIDENCE

Part II pointed out that the implementation of this best evidence proposal would drastically change the current state of the law. The Introduction noted that the modern cases and statutes confine the op-

¹⁰⁰ *Lentz v. Mason*, 32 F. Supp.2d 733, 746 (D.N.J. 1999).

¹⁰¹ Daniel J. Capra, *The Daubert Puzzle*, 32 GA. L. REV. 699, 716 (1998).

eration of the formal best evidence rule to documentary evidence. Part II added that there certainly is no best evidence principle operative in the context of lay or expert opinion evidence.

The fact that the adoption of a proposal would work a revolution should give us pause. However, standing alone that fact should not be dispositive. There have been recent “revolutions” in evidence law.¹⁰² Moreover, as Professor Faigman and his co-authors quite correctly point out, in federal practice the admissibility of scientific evidence turns on the statutory construction of Federal Rule 702;¹⁰³ and the expression, “scientific knowledge,” in Rule 702 is hardly self-defining.¹⁰⁴ The statutory language itself is arguably expansive enough to bear the interpretation that it incorporates a best evidence principle. The proposal should not be dismissed out of hand. Quite to the contrary, the proposal should be evaluated on its merits.

As Part II explained, the proposal could take two forms. One form would be a mandate for an order of preference among the proffered types of evidence. However, on balance, it would be wrongminded to read such an order of preference into Rule 702. Reading Rule 702 in that fashion would be a misconstruction of the Federal Rules.¹⁰⁵ The Federal Rules were not intended to work such a “seachange [in] federal evidence law.”¹⁰⁶ The text and history of the Rules foreclose any attempt to extend the reach of the best evidence rule without a more express statutory mandate. Further, prescribing an order of preference in Rule 702 admissibility analysis would blur the line between admissibility on the one hand and legal sufficiency and weight on the other.

A. Reading a Best Evidence Requirement into Rule 702 Would Represent a Misconstruction of the Federal Rules of Evidence.

In *Daubert*, Justice Blackmun characterized the Federal Rules of Evidence as a “permissive” statutory scheme with a “liberal thrust.”¹⁰⁷

¹⁰² See Faust Rossi, *The Silent Revolution*, LITIG., Winter 1983, at 13 (noting various “revolutions” in evidence law).

¹⁰³ See 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4, at 29-30 (noting that *Daubert* is expressly limited to “scientific knowledge” and that the Court “did not comment on whether the validity standard extends to technical or specialized knowledge”).

¹⁰⁴ See Paul C. Giannelli, *Daubert: Interpreting the Federal Rules of Evidence*, 15 CARDOZO L. REV. 1999, 2001-02 (1994) (describing the difficulties with defining “scientific knowledge” under *Daubert* and suggesting a “flexible” approach to applying the *Daubert* standard).

¹⁰⁵ See, e.g., *Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 152-53 (3d Cir. 1999) (stating that a judge may admit an opinion “even if the judge believes there are better grounds for some alternative conclusion”) (internal quotations omitted).

¹⁰⁶ Capra, *supra* note 101, at 735 (quoting *United States v. 14.38 Acres of Land*, 80 F.3d 1074, 1078 (5th Cir. 1996)).

¹⁰⁷ See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 588-89 (quoting *Beech Aircraft Corp. v. Rainey*, 488 U.S. 153, 169 (1988)).

It would be inconsistent with that thrust to impose a new, unprecedented restriction on the admission of scientific evidence. Furthermore, the legislative history of the Rules indicates that the drafters intended to relax the best evidence rule proper. Even more to the point, the history manifests the drafters' intent that there would not be any best evidence principle operative in admissibility analysis under Article VII.

1. The Drafters' Intent to Relax the Best Evidence Rule Proper in Article X

The intent to liberalize the best evidence rule is evident in several Notes accompanying provisions in Article X, setting out the best evidence doctrine. One pertinent Note accompanies Rule 1001. That Note begins with the following observation:

In an earlier day, when discovery and other related procedures were strictly limited, the misleading named "best evidence rule" afforded substantial guarantees against inaccuracies and fraud by its insistence upon production of original documents. The great enlargement of the scope of discovery and related procedures in recent times has measurably reduced the need for the rule.¹⁰⁸

Rather than abolishing the rule, the drafters undertook to cut back on its scope. In part, they did so by expanding the types of writings which are deemed "duplicates" and therefore presumptively admissible. At common law, the courts generally limited the scope of that term to documents prepared at the very same time as the original.¹⁰⁹ However, the drafters opted to expand the definition under Rule 1001(4) to include any document prepared by reliable mechanical or electronic means of reproduction even if the document comes into existence well after the creation of the original.¹¹⁰ The Note explains that the narrow, common-law definition had the effect of excluding "'copies' produced by methods possessing an accuracy which virtually eliminates the possibility of error."¹¹¹

The Note to Rule 1004 is even more revealing. At common law, many jurisdictions recognized degrees of secondary evidence, preferring one type of secondary evidence (such as a written copy) over

¹⁰³ FED. R. EVID. 1001 advisory committee's note.

¹⁰⁹ See 2 MCCORMICK, *supra* note 13, § 236, at 74 (stating that "simultaneous creation" explains the more favorable treatment of carbon copies relative to photographic and xerographic reproductions at common law).

¹¹⁰ See FED. R. EVID. 1001(4).

¹¹¹ FED. R. EVID. 1001 advisory committee's note.

another (such as oral testimony about the writing's contents).¹¹² The drafter repudiated that view and stated flatly in their Note that Rule 1004 "recognizes no 'degrees' of secondary evidence."¹¹³ As in the case of the expansion of the definition of "duplicate," the drafters elaborated to explain their decision:

While strict logic might call for extending the principle of preference beyond simply preferring the original, the formulation of a hierarchy of preferences and a procedure for making it effective is believed to involve unwarranted complexities. Most, if not all, that would be accomplished by an extended scheme of preferences will, in any event, be achieved through the normal motivation of a party to present the most convincing evidence possible and the arguments and procedures available to his opponent if he does not.¹¹⁴

In short, rather than regulating the problem by a formal admissibility standard, the drafters relegated the issue to a consideration affecting the argument over the proper weight to be given the evidence.

2. *The Drafters' Rejection of any Best Evidence Principle in Article VII*

As we have seen, the text and Notes accompanying Article X evidence a general intent to relax the best evidence rule in federal practice. Even more specifically, the corresponding text and Notes for Article VII manifest an intent that there would be no best evidence principle operative under that article regulating the admissibility of opinion testimony.

Article VII contains Rules 701-06. Rule 701 governs the admissibility of lay opinion while Rule 702 controls the introduction of expert opinions. Although Rules 1002-03 state a preference among certain types of evidence of a document's content, the text of Article VII does not contain even a faint suggestion that as a matter of admissibility, there is a preference as between lay and expert opinion.

Moreover, like the Note to Rule 1004, the Note to Rule 701 indicates that the drafters contemplated treating the problem as an issue of weight rather than formal admissibility regulation. The text of Rule 701 states that the judge may admit lay opinions which are "helpful" to the trier of fact.¹¹⁵ The drafters point out that this standard differs

¹¹² See 2 MCCORMICK, *supra* note 13, § 241, at 84-85 (concluding that at common law, the majority of courts that have considered the question have recognized degrees of secondary evidence).

¹¹³ FED. R. EVID. 1004 advisory committee's note.

¹¹⁴ *Id.*

¹¹⁵ See FED. R. EVID. 701.

from the "necessity" test often applied at common law.¹¹⁶ The drafters defended their choice of a helpfulness standard in the following manner:

The rule assumes that the natural characteristics of the adversary system will generally lead to an acceptable result, since the detailed account carries more conviction than the broad assertion, and a lawyer can be expected to display his witness to the best advantage. If he fails to do so, cross-examination and argument will point up the weakness.¹¹⁷

Rule 702 and its Note confirm this interpretation of Article VII. On its face, Rule 702 permits the introduction of expert opinions by witnesses possessing "scientific, technical, or other specialized knowledge."¹¹⁸ Just as there is no provision in Article VII which purports to create a preference as between lay and expert opinion, there is no language in Rule 702 indicating a preference among the various types of expert opinion.

The third paragraph of the Note to Rule 702 says in effect that there is no statutory requirement that the witness be a specialist. The drafters state that "[w]hether the situation is a proper one for the use of expert testimony is to be determined on the basis of assisting the trier."¹¹⁹ The issue is not how well the witness fares in comparison to other experts in the same field; the question is not whether this witness is the "best" possible expert. Rather, under the statute and Note, the question is whether the witness is better qualified than the trier of fact to draw the inference in question.

The fourth paragraph of the same Note sanctions the admission of clearly inferior types of opinion testimony. For example, the Note states that without more, a landowner may opine about the value of his or her own land.¹²⁰ The landowner may testify on that subject even though he or she has no formal training or experience in land valuation other than ownership of the property in question. If there were any best evidence principle operative under Article VII, that species of testimony would unquestionably be deemed inadmissible.

¹¹⁶ See FED. R. EVID. 701 advisory committee's note ("While the courts have made concessions in certain recurring situations, necessity as a standard for permitting opinions and conclusions has proved to be too elusive and too unadaptable to particular situations for purposes of satisfactory judicial administration.").

¹¹⁷ *Id.*

¹¹⁸ FED. R. EVID. 702.

¹¹⁹ FED. R. EVID. 702 advisory committee's note.

¹²⁰ See *id.* ("[W]ithin the scope of the rule are not only experts in the strictest sense of the word . . . but also the large group sometimes called "skilled" witnesses, such as bankers or landowners testifying to land values.").

B. Enforcing a Best Evidence Requirement under Rule 702 Would Confuse the Admissibility of Scientific Testimony with its Legal Sufficiency and Weight.

In *Daubert*, Justice Blackmun emphasized that there are techniques other than admissibility standards for preventing wrongful verdicts based on scientific testimony. The Justice noted that in some cases in which the proponent can satisfy the *Daubert* admissibility test, the judge will nevertheless be entitled to rule the proponent's case legally insufficient: "[I]n the event the trial court concludes that the scintilla of evidence presented supporting a position is insufficient to allow a reasonable juror to conclude that the position more likely than not is true, the court remains free to direct a judgment . . . and likewise to grant summary judgment . . ." ¹²¹ The Justice then cited several cases in which appellate courts had ruled as a matter of law that a proponent's case was insufficient to make out a submissible case. ¹²²

Justice Blackmun added that even when a proponent's scientific testimony is both admissible and legally sufficient to sustain the initial burden of production, the opponent may attack the weight of the testimony. The Justice specifically acknowledged the possibility that proffered scientific testimony could be "shaky but admissible." ¹²³ The Justice noted that the opponent may conduct "[v]igorous cross-examination" of the proponent's experts and call experts to "present[] . . . contrary evidence" to the trier. ¹²⁴ The Justice described "[t]hese conventional devices" as "the appropriate safeguards" for accurate verdicts rather than "uncompromising" admissibility standards. ¹²⁵

In a fervor to prevent wrongful verdicts based on "junk science," it is easy to overlook the distinction among the concepts of the admissibility, legal sufficiency, and weight of scientific testimony. ¹²⁶ However, Justice Blackmun underscored these distinctions, and the availability of legal sufficiency and weight attacks provide another reason why the courts should not incorporate a best evidence principle into the admissibility standards for scientific testimony. ¹²⁷ The argument

¹²¹ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 596 (1993).

¹²² *See id.* (citing *Turpin v. Merrell Dow Pharm., Inc.*, 959 F.2d 1349 (6th Cir. 1992), *cert. denied*, 506 U.S. 826 (1992) and *Brock v. Merrell Dow Pharm., Inc.*, 874 F.2d 307 (5th Cir. 1989), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990)).

¹²³ *See id.*

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *See* Thomas J. Mack, *Scientific Testimony After Daubert: Some Early Returns from Lower Courts*, TRIAL, Aug. 1994, at 23, 28-30 (warning against a tendency to conflate the admissibility and legal sufficiency standards).

¹²⁷ *See* *Heller v. Shaw Indus.*, 167 F.3d 146, 152 (3d Cir. 1999) (stating that to qualify for admission, an expert opinion "need not be so persuasive as to meet a party's burden of proof or even necessarily its burden of production").

that a proponent's proffered testimony is not the "best" scientific evidence sounds in legal sufficiency and weight rather than in admissibility.

1. Legal Sufficiency Attacks

In some cases, a proponent's failure to present any expert testimony is fatal to the legal sufficiency of the proponent's case. Professional malpractice cases are illustrative. In those cases, the substantive tort law standard explicitly refers to the standards of practice recognized by the discipline: The plaintiff must demonstrate that the defendant practitioner deviated from an accepted standard.¹²⁸ The very phrasing of the substantive liability test requires proof of the professional standard. Consequently, as a general proposition, in legal¹²⁹ and medical¹³⁰ cases, an utter failure to present expert testimony mandates a directed verdict or nonsuit in the defendant's favor.

In other cases, a proponent's failure to present a better variety of scientific testimony can render the proponent's case legally insufficient. As previously stated, there is a substantial body of case law upholding the admissibility of drug identification testimony based on the visual identification of an unknown substance.¹³¹ However, some of the same courts admitting such testimony caution that, "[w]e sus-

¹²⁸ See W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 32, at 187 (5th ed. 1984) (stating that the practitioner is required to "have and use the knowledge, skill, and care ordinarily possessed and employed by members of the profession in good standing").

¹²⁹ See, e.g., *Focus Inv. Assoc. v. Am. Title Ins.*, 992 F.2d 1231, 1239 (1st Cir. 1993) ("[T]he most widely accepted rule is that a legal malpractice plaintiff must present expert testimony establishing the appropriate standard of care . . ."); *Geiserman v. MacDonald*, 893 F.2d 787, 793 (5th Cir. 1990) (holding that expert testimony is generally necessary to establish the standard of care in legal malpractice cases); *Briggs v. Cochran*, 17 F. Supp.2d 453, 461 (D. Md. 1998) (same); *Goebel v. Lauderdale*, 263 Cal. Rptr. 275, 278 (Cal. Ct. App. 1989) ("Only a person knowledgeable in the specialty can define the applicable duty of care and render an opinion on whether it was met."); *Beattie v. Firmschild*, 394 N.W.2d 107 (Mich. Ct. App. 1986) (holding that since a violation of the code of ethics is not malpractice per se, expert testimony is still required to establish the standard of care).

¹³⁰ See, e.g., *Rolon-Alvarado v. Mun. of San Juan*, 1 F.3d 74, 78 (1st Cir. 1993) (holding that the standard of care in medical malpractice cases must "ordinarily be established by expert testimony"); *Howard v. TMW Enter., Inc.*, 32 F. Supp.2d 1244, 1252 (D. Kan. 1998) (same); *Blaz v. Galen Hosp. Ill., Inc.*, 20 F. Supp.2d 1231, 1232 (N.D. Ill. 1998) ("Under Illinois law, [the plaintiff] must present expert testimony to establish within a reasonable degree of medical certainty that an act of the defendants caused his injury."); *Morlan v. Harrington*, 658 F. Supp. 24, 25 (D.N.D. 1986) (holding that "competent expert testimony is required under North Dakota law to make out a prima facie case of medical malpractice"); *Kennis v. Mercy Hosp. Medical Ctr.*, 491 N.W.2d 161, 165 (Iowa 1992) ("Generally, when the ordinary care of a physician is an issue, only experts can testify and establish the standard of care and skill required."). There is a strong argument that as a general proposition, expert testimony should also be required in cases involving alleged laboratory malpractice. See, e.g., *Cooper v. Lab. Corp. of Am. Holdings*, 150 F.3d 376, 379 (4th Cir. 1998) (holding that a negligence action against a laboratory was an action for professional malpractice, and that expert testimony was therefore usually required to establish the requisite standard of care).

¹³¹ See *Blanchard & Chin*, *supra* note 89, at 562-65 (describing the "disintegration" of the general rule against visual identification of controlled substances).

pect it would be a rare case in which a witness's statement that a particular substance looked like a controlled substance would alone be sufficient to support a conviction."¹³² In a number of additional cases, the courts have held that although admissible, testimony about non-specific drug identification tests is legally insufficient to establish the identity of the substance.¹³³

2. *Weight Attacks*

Assume that the judge rules that the proponent's scientific testimony is legally sufficient as well as admissible. Even at this point, the opponent has available arguments, namely, attacks on the weight or believability of the testimony. The opinions recognize that during summation, the opponent may argue that the trier should attach little or no weight to the testimony proffered by the proponent precisely because the proponent has neglected to present "available," "stronger" evidence.¹³⁴ In many jurisdictions, on the opponent's request, the judge will even instruct the jury that, "[i]f a party offers weaker or less satisfactory evidence when stronger and more satisfactory evidence could have been produced at trial, you may, but are not required to consider this fact in your deliberations."¹³⁵

This principle has been applied to scientific testimony.¹³⁶ Suppose, for instance, that the question is the accused's identity as the perpetrator of the charged offense. If the prosecution relies on lay eyewitness testimony, during closing argument the defense may highlight the prosecution's failure to present blood typing¹³⁷ or fin-

¹³² *Id.* at 562 (citing *Commonwealth v. Dawson*, 504 N.E.2d 1056, 1057-58 (Mass. 1987)).

¹³³ See *People v. Hagberg*, 703 N.E.2d 973, 976 (Ill. App. Ct. 1998) (holding that a field test was not conclusive in establishing the presence of a controlled substance), *appeal granted*, 712 N.E.2d 820 (Ill. 1999). See also 2 GIANNELLI & IMWINKELRIED, *supra* note 80, § 23-5, at 326-27 (collecting cases).

¹³⁴ See *Jones v. Otis Elevator Co.*, 861 F.2d 655, 659 n.4 (11th Cir. 1988) (recognizing "the general rule that failure to produce available evidence which is stronger than relied on at trial justifies an inference that the stronger evidence would be unfavorable").

¹³⁵ 1 EDWARD J. DEVITT ET AL., *FEDERAL JURY PRACTICE AND INSTRUCTIONS: CIVIL AND CRIMINAL* § 14.14, at 458 (4th ed. 1992).

¹³⁶ See *Sample v. State*, 550 A.2d 661 (Md. 1988) (holding that it was reversible error for a trial court to prohibit a criminal defendant from commenting on the unexplained lack of fingerprint evidence); *State v. Eley*, 419 A.2d 384 (Md. 1980) (same); *People v. Carter*, 392 N.E.2d 188, 191 (Ill. App. Ct. 1979) ("[D]ifferences in identification procedures are proper matters for the jury to consider, and a defendant has the right to argue the issue."); see also EDWARD J. IMWINKELRIED, *THE METHODS OF ATTACKING SCIENTIFIC EVIDENCE* § 10-8, at 305-06 (3d ed. 1997) (suggesting a method of cross examining an expert witness who offers evidence derived from an inferior test); F. LEE BAILEY & HENRY B. ROTHBLATT, *CROSS-EXAMINATION IN CRIMINAL TRIALS* 488-89 (1978) (same).

¹³⁷ Cf. *Fluellen v. Campbell*, 683 F. Supp. 186 (M.D. Tenn. 1987) (denying appeal on the grounds that prosecutor's reference to the fact that defendant failed to take a blood test was harmless given the fact that defendant first made reference to the fact that the prosecutors had not presented any blood evidence which implicated the defendant).

gerprint¹³⁸ evidence. The defense may argue that the missing scientific evidence would be superior proof of identity and that the jury should discount the proffered testimony due to the failure to present "better" evidence.

In short, the opponent is certainly within his or her rights to point out that the proponent has failed to submit the "best" scientific evidence. That point is relevant at a trial, but it is far more appropriate to make that point as a legal sufficiency or weight attack rather than as a basis for constructing an order of preference among the various types of proffered evidence.

IV. A CRITICAL EVALUATION OF ANOTHER VERSION OF THE PROPOSAL, NAMELY, AS A STANDARD FOR EVALUATING THE SUFFICIENCY OF THE FOUNDATION FOR PROFFERED SCIENTIFIC EVIDENCE

Part III dealt with one version of a best evidence principle for admissibility analysis under Article VII. That version of the principle would operate on the proffered evidence itself.¹³⁹ If the proponent proffered a type of scientific evidence that was "inferior" to another type of scientific evidence that might be offered, the proffered item would be inadmissible. By way of example, assume that in a case in which a key issue is the chemical composition of an unknown drug, the proponent proffers a nonspecific gas chromatography (GC) test. The proponent contemplates directly submitting the GC chart to the jurors for their inspection. If the court enforced a best evidence principle as an order of preference, when the proponent proffers a nonspecific test but it clearly would have been feasible to conduct a specific gas chromatography/mass spectrometry (GC/MS) test, testimony about the TLC test would be inadmissible.

However, a best evidence principle could operate at another level under Article VII. Rather than focusing on the proffered item of evidence, the principle could regulate the sufficiency of the foundation for the proffered item of evidence.¹⁴⁰ Assume, for instance, that the

¹³⁸ See 2 GIANNELLI & IMWINKELRIED, *supra* note 80, § 16-11, at 524-27 (collecting cases).

¹³⁹ California Evidence Code §§ 400-01 codify the distinction between the proffered evidence and its foundation. § 400 reads in pertinent part:

As used in this article, "preliminary [or foundational] fact" means a fact upon the existence or nonexistence of which depends the admissibility or inadmissibility of evidence.

For its part, Evidence Code § 401 provides:

As used in this article, "proffered evidence" means evidence, the admissibility or inadmissibility of which is dependent upon the existence or nonexistence of a preliminary [or foundational] fact.

CAL. EVID. CODE §§ 400-01 (West 1995).

¹⁴⁰ See *id.* (recognizing the distinction between an item of proffered evidence and the foundation for the item).

proffered item of evidence is simply an expert's opinion that the unknown sample is an organophosphate pesticide. In this variation of the hypothetical, the proponent does not intend to submit the GC chart directly to the jury. Rather, the proponent would be content to have the expert mention the GC test as the foundation or predicate for the proffered opinion. The opponent might argue that as a matter of law, the foundation is inadequate because a GC/MS test would be a better, preferable basis for the proffered opinion. Since the passages suggesting a best evidence proposal appear in their supplement's discussion of *Daubert's* foundational requirement, it seems more likely that Professor Faigman and his co-authors favor this version of the best evidence principle. Hence, the question arises: Even if there should not be an order of preference among the kinds of proffered scientific testimony, should the judge incorporate a species of best evidence reasoning into his or her evaluation of the adequacy of the foundation? It is submitted that once again, the answer should be no.

A. When the Question Posed is the Sufficiency of a Foundation, the Issue is Whether the Foundation is Adequate to Support the Specific Opinion Proffered, Not Whether the Expert has Relied on the Best Scientific Technique Available

As a general proposition, the adequacy of a "foundation" for a proffered item of evidence must be judged relative to the terms of the proffer. Suppose, for example, that in a homicide case, the defendant claims self-defense. At trial, the defense proffers the defendant's testimony that before the fatal encounter, he received a threatening letter purportedly written by the alleged victim. When the defense proffers the testimony solely on the question of the defendant's state of mind, it would be a sufficient foundation for the defendant to testify from personal knowledge that he in fact received a menacing letter which bore the alleged victim's purported signature. Even if the defendant were mistaken about the authorship of the letter, the contents of the letter could make the defendant more fearful of the alleged victim.

Assume, however, that the defense proffered the testimony in order to establish that the alleged victim had an animus toward the defendant to support a further inference that on the occasion in question, the alleged victim struck the first blow.¹⁴¹ That proffer is radi-

¹⁴¹ The character evidence prohibition would not bar the evidence of the alleged victim's threat even if the threat amounted to a crime. The first sentence of Federal Rule of Evidence 404(b) codifies the prohibition and precludes a proponent from offering evidence of a person's uncharged misdeeds on the simplistic theory that "He did it once, ergo he did it again." However, the second sentence of the statute legitimates noncharacter theories of logical relevance. The second specifically lists "motive" as a proper noncharacter theory. The cases are legion holding that if a hatred or animus might have motivated an alleged act, other misdeeds evidencing the misdeed are admissible over a character evidence objection. See 1 EDWARD J. IMWINKELRIED, UNCHARGED MISCONDUCT EVIDENCE § 3:18 (rev. 1999).

cally different. By the terms of that proffer, the defense is not only alleging that the defendant received a threatening letter purportedly written by the alleged victim; the defense is also claiming that the alleged victim actually wrote the letter. Unless the defendant can add that he is familiar with the alleged victim's handwriting style,¹⁴² without more the defendant's testimony would be an inadequate foundation.¹⁴³ The foundation is adequate relative to the claim about the defendant's state of mind but insufficient relative to the claim about the alleged victim's state of mind and conduct. These examples illustrate the generalization that the judge must gauge the sufficiency of a foundation relative to the terms or tenor of the proffer.

The generalization applies to expert opinion testimony. The Supreme Court honored the generalization in its 1997 opinion, *General Electric Co. v. Joiner*,¹⁴⁴ applying *Daubert*. There the plaintiff proffered doctors' testimony that the plaintiff's exposure to polychlorinated biphenyls (PCBs) "more likely than not" caused his lung cancer.¹⁴⁵ The doctors based their opinions in part on animal studies.¹⁴⁶ The trial judge excluded the opinions, and on appeal the Supreme Court affirmed the trial judge's ruling. The Court did not announce a sweeping, best evidence ruling that an opinion must always be based on epidemiological research rather than animal studies.¹⁴⁷ Rather, the Court emphasized that the narrow question presented was "was whether *these* experts' opinions were sufficiently supported by the animal studies on which they purported to rely."¹⁴⁸ The Court concluded that there was "simply too great an analytical gap between the [animal] data and the opinion[s] proffered."¹⁴⁹ The Court did not inquire whether the plaintiffs' experts rested their opinion on the best possible type of scientific evidence. Instead, the Court assessed the adequacy of the foundation in light of the specific terms of the proffer.

To reinforce the point, consider two hypotheticals in which the proponent offers a police officer's opinion that an unknown sample either definitely was or might have been cocaine.

In the first version of the hypothetical, the proceeding is a drug prosecution. The proponent is the prosecutor. The prosecutor calls

¹⁴² See FED. R. EVID. 901(b)(2) (stating that non-expert testimony on genuineness of handwriting is admissible if based upon familiarity not acquired for purposes of litigation).

¹⁴³ See EDWARD J. IMWINKELRIED, *EVIDENTIARY FOUNDATIONS* 44-45 (4th ed. 1998) (outlining the proper evidentiary foundation for a letter).

¹⁴⁴ 522 U.S. 136 (1997).

¹⁴⁵ See *id.* at 518.

¹⁴⁶ See *id.*

¹⁴⁷ *Id.* ("[W]hether animal studies can ever be a proper foundation for an expert's opinion was not the issue . . .").

¹⁴⁸ *Id.* (emphasis in original).

¹⁴⁹ *Id.* at 519.

the police officer who arrested the defendant. The officer testifies that before the arrest, she observed the defendant swallow a substance. The officer adds that at the police academy, she received training in the visual recognition of contraband substances. Based on that foundation, the prosecutor attempts to adduce the officer's opinion that the substance was "definitely" crack cocaine. If the prosecution has no other evidence of the substance's identity, as a practical matter the prosecutor must proffer an opinion that purports to be that definite. Otherwise, the prosecutor will not have a submissible case and, consequently, would suffer a directed verdict or judgment as a matter of law at the close of the government's case-in-chief.¹⁵⁰ In *Robinson v. State*,¹⁵¹ a recent case in point, the Maryland court held that this foundation is insufficient to support that opinion.¹⁵² The court stressed that the prosecution had not been content to adduce the officer's opinion that the substance looked like crack cocaine or might have been crack cocaine. The prosecutor had attempted to proffer a much more definite opinion; and the foundation did not measure up to the terms of the proffer. The opinion was consequently inadmissible.

Now turn to a second variation of the hypothetical. In this variation, the proceeding is a homicide prosecution. The proponent is the defense. The defense is endeavoring to use voluntary intoxication to negate a specific mens rea element of the charged offense such as the premeditation element of first-degree murder. In some jurisdictions, a defendant's voluntary drug or alcohol intoxication can serve to negate a special mens rea element of the alleged offense.¹⁵³ However, precisely because the special mens rea is an element of the charged offense rather than of a true affirmative defense, the defense may prevail by simply "rais[ing] a reasonable doubt as to the existence of the [element]."¹⁵⁴ In Judge Weinstein's classic survey, most judges questioned indicated that there is a reasonable doubt when the probability of guilt falls short of 85% or 90%.¹⁵⁵ Thus, as a practical matter an accused can gain an acquittal by presenting evidence that raises a 10% or 15% probability of innocence. In that light, the de-

¹⁵⁰ See 2 EDWARD J. IMWINKELRIED ET AL., COURTROOM CRIMINAL EVIDENCE § 2918 (3d ed. 1998).

¹⁵¹ 702 A.2d 741 (Md. 1997).

¹⁵² See *id.*

¹⁵³ See *United States v. Abeyta*, 27 F.3d 470, 473 (10th Cir. 1994) (recognizing that voluntary intoxication may negate specific intent). Cf. *United States v. Jim*, 865 F.2d 211 (9th Cir. 1989) (affirming an assault conviction of an intoxicated defendant on the grounds that assault was not a specific intent crime). But cf. *United States v. Landau*, 956 F. Supp. 1160, 1163 (S.D.N.Y. 1997) (holding that the responsible person statute in the Internal Revenue Code is not a specific intent crime and thus voluntary intoxication is not an available defense).

¹⁵⁴ CAL. EVID. CODE § 607 (West 1995).

¹⁵⁵ See *United States v. Fatico*, 458 F.Supp. 388, 410 (E.D.N.Y. 1978) (surveying District Court judges in the Eastern District of New York).

fense calls the same police officer who testified in the initial variation of the hypothetical. Again, the officer observed the defendant ingest a substance that looked suspiciously like crack cocaine. Suppose that the officer made the observation two hours before the fatal encounter. The defense proffers the officer's opinion that the substance looked like and "might" have been crack cocaine—the very type of opinion that the Maryland court distinguished in *Robinson*. The defendant's ingestion of crack cocaine shortly before the encounter with the alleged victim might have rendered the defendant drug intoxicated.

It is submitted that in this variation of the hypothetical, the opinion qualifies for admission. To be sure, opinions, based on the superficial appearance of the substance, might be error prone. These opinions are subject to such a substantial margin of error that even given the officer's police academy training, the officer's visual observation would be an inadequate basis for an opinion that the substance was "definitely" crack cocaine. It is true that in the second variation of the hypothetical, the defense is calling the same officer as a witness and the officer is again relying on her training and visual observation. The defense, however, is proffering a very different opinion; the defense is tendering the weaker opinion that the substance "might" have been crack cocaine. It is immaterial that opinions based on an officer's visual assessment of a substance might be wrong 40% of the time. As a practical matter, to raise a reasonable doubt, the defense need establish only a 10% or 15% probability of voluntary intoxication. Interestingly enough, in a similar context, although at trial most courts bar inculpatory results of passive alcohol screening (P.A.S.) devices that test a defendant's breath alcohol concentration,¹⁵⁶ there is authority that exculpatory results yielded by the same devices are admissible.¹⁵⁷ The margin of error in such testing is so significant that an inculpatory P.A.S. result will not support an opinion that the defendant was intoxicated. Despite the error margin, however, as a matter of logic an exculpatory result could be probative enough to create a reasonable doubt about the defendant's intoxication.

¹⁵⁶ See EDWARD J. IMWINKELRIED & NORMAN M. GARLAND, EXCULPATORY EVIDENCE: THE ACCUSED'S CONSTITUTIONAL RIGHT TO INTRODUCE FAVORABLE EVIDENCE § 6-5b, at 183-84 (2d ed. 1996) (summarizing the limited use of passive alcohol screening devices by prosecutors).

¹⁵⁷ See *id.* § 6-5b, at 184 (citing *Patrick v. State*, 750 S.W.2d 391 (Ark. 1988) which reversed a drunk driving conviction after the trial court failed to admit breathalyzer test results that indicated that the defendant was not intoxicated).

*B. The Administration of this Version of a Best Evidence Principle
under Article VII Would Require Trial Judges to Become
"Meta-scientists"*

In his opinion in *Daubert*,¹⁵⁸ Chief Justice Rehnquist expressed some misgivings about the majority's decision to require federal trial judges to directly assess the reliability of proffered scientific evidence. Under the prior *Frye* test, judges focused on a surrogate for reliability, namely, general acceptance.¹⁵⁹ However, the *Daubert* majority decided to abandon that surrogate and task trial judges to pass on the merit of proposed scientific testimony. On the one hand, the Chief Justice insisted that he "defer[red] to no one in [his] confidence in federal judges"¹⁶⁰ On the other hand, he feared that trial judges would have to "become amateur scientists" to shoulder the responsibilities the majority assigned them.¹⁶¹ Many lower court judges have echoed the Chief Justice's sentiment. On remand in *Daubert*, Judge Alex Kozinski described the task of conducting a *Daubert* reliability inquiry as "daunting."¹⁶² More recently, the Court of Appeals for the First Circuit observed: "[C]horeographing the *Daubert* pavane remains an exceedingly difficult task. Few federal judges are scientists, and none are trained in even a fraction of the many scientific fields in which experts may seek to testify."¹⁶³

If *Daubert* strains the institutional competence of the trial judiciary, incorporating a best evidence principle into *Daubert* analysis will compound the problem. It is one thing to expect a trial judge with little scientific training to master enough of the rudiments of a particular scientific technique to determine how it should be properly applied and how probative it is when correctly utilized. When the proponent's expert relies on an epidemiological study as the sole support for an opinion about medical causation, the judge may have to become enough of an "amateur"¹⁶⁴ epidemiologist to determine whether the findings in the study are "appropriate validation" for the ultimate opinion.¹⁶⁵ It is certainly understandable that a generalist judge would use the adjective "daunting"¹⁶⁶ or "difficult"¹⁶⁷ to de-

¹⁵⁸ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 598 (1993) (Rehnquist, C.J., concurring in part, dissenting in part).

¹⁵⁹ Bert Black et al., *supra* note 24, at 722-35 (reviewing the general acceptance test of *Frye* as a substitute for determining the validity of the science at issue in a particular case).

¹⁶⁰ *Daubert*, 509 U.S. at 600.

¹⁶¹ *See id.* at 601.

¹⁶² *See Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1315 (9th Cir.), *cert. denied*, 516 U.S. 869 (1995).

¹⁶³ *Ruiz-Troche v. Pepsi Cola of Puerto Rico Bottling*, 161 F.3d 77, 81 (1st Cir. 1998).

¹⁶⁴ *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 601 (1993) (Rehnquist, C.J., concurring in part, dissenting in part).

¹⁶⁵ *See id.* at 590.

¹⁶⁶ *See Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1315 (9th Cir.), *cert. denied*, 516 U.S. 869 (1995).

scribe the prospect of immersing himself or herself in the science of epidemiology to that extent.

Incorporating a best evidence principle into *Daubert* analysis would introduce a whole new layer of difficulty into the judicial task. It would no longer be sufficient for the judge to learn enough about epidemiology to ask whether the expert had properly utilized the technique and whether the expert's finding was sufficiently probative to support the proffered opinion. In addition, the judge would have to make a further inquiry whether an epidemiological analysis was the "best" scientific approach to resolving the question presented in the case. To conduct that inquiry, the judge would have to become an amateur meta-scientist, identifying the optimal scientific technique for answering the question. The problem arises because several different scientific disciplines could conceivably bear on the question posed in a given case. As Judge Robert Jones remarked in *Hall v. Baxter Healthcare Corp.*,¹⁶⁸ a number of scientific fields can be relevant to a single question in a case. *Hall* was a civil tort action against breast implant manufacturers. In Judge Jones' words, Hall's theory of causation brought "four . . . areas of science into play: epidemiology; rheumatology; immunology/toxicology; and polymer chemistry."¹⁶⁹ Judge Jones described the case as "complicated."¹⁷⁰ He went to the length of appointing four technical advisors—one for each of the distinct scientific disciplines involved.¹⁷¹ After reviewing their reports, Judge Jones painstakingly scrutinized the plaintiff's evidence in each field.¹⁷² He worked through the disciplines one by one; in each field, he addressed two questions, namely, whether the plaintiff's expert had properly applied the pertinent techniques to reach a finding and, if so, how probative the finding was.¹⁷³

Judge Jones' mode of analysis is sound and tailored to resolve the question of whether the scientific reasoning the expert relies on as the basis for his or her ultimate opinion is adequate. Faced with a foundational objection, the trial judge must determine whether the proponent's predicate has enough probative worth to justify the proffered opinion. The judge can make that determination if he or she decides whether the expert has properly applied the scientific methodologies and, if so, how significant the expert's findings are. There is no need for the judge to inquire further whether another expert from another scientific discipline might have used a different, "better" technique to arrive at an opinion. The opponent can always point to the existence

¹⁶⁷ See *Ruiz-Troche*, 161 F.3d at 81.

¹⁶⁸ 947 F. Supp. 1387 (D. Or. 1996).

¹⁶⁹ *Id.* at 1402.

¹⁷⁰ See *id.* at 1392.

¹⁷¹ See *id.* at 1392-93.

¹⁷² See *id.* at 1393-1415.

¹⁷³ See *id.*

of that other, allegedly “better” technique in order to attack the weight of the proponent’s evidence. However, there is no need for the trial judge to reach that issue at the admissibility stage when the only question presented is whether *this* specific foundation is sufficient for *this* specific item of proffered evidence. The relevant comparison is the probative worth of the foundation and the terms of the proffer—not whether it would be possible or feasible for the proponent to lay a different foundation for the proffered item.

V. CONCLUSION

As previously stated, I have the highest regard for Professor Faigman and his co-authors. I may simply be reading too much into a few, isolated passages in their 1999 supplement. However, those passages strike me as lending themselves to the interpretation that the authors support the incorporation of some sort of best evidence principle into admissibility analysis under *Daubert*. Given the authors’ stature in the field, other readers, including judges, are likely to pay close attention to the new supplement.¹⁷⁴ My fear is that if those readers interpret these passages in the same manner as I have, the passages will be productive of mischief.

If anything, “mischief” is an understatement. As Part II explained, the incorporation of a best evidence principle into the standards governing the admissibility of opinion evidence would represent a dramatic change. With the exception of the best evidence rule confined to documentary evidence,¹⁷⁵ neither common-law nor statutory admissibility standards recognize a preference for: scientific testimony over lay factual testimony, expert opinion over lay opinion, scientific opinion over non-scientific expert testimony, or certain, supposedly superior types of scientific evidence over other types of scientific testimony. Recognizing a best evidence principle operative in Article VII of the Federal Rules would fly in the face of the text and legislative history of that article. The drafters of the Federal Rules had their doubts about the wisdom of even the best evidence rule proper, and there are affirmative indications that they rejected the extension of the best evidence principle to the admissibility norms set out in Article VII.

At trial, it is certainly relevant for the opponent to point out that the proponent has neglected to present the “best” scientific evidence. However, the point is relevant to the legal sufficiency and weight of scientific testimony, not its admissibility. Justice Blackmun high-

¹⁷⁴ The Supreme Court repeatedly cited the authors’ text in *United States v. Scheffer*, 523 U.S. 303 (1998).

¹⁷⁵ See FED. R. EVID. 1001-02.

lighted that distinction in the majority opinion in *Daubert*.¹⁷⁶ Incorporating a best evidence principle into Article VII admissibility analysis would blur the distinction that Justice Blackmun went to some length to draw in *Daubert*. Thus, any proposal to extend the principle to this context—either an order of preference among types of proffered scientific evidence or a regulation of the sufficiency of the foundation for proffered scientific testimony—is undesirable as a matter of evidentiary policy.

The apparent proposal raises other concerns as well. At one point in their supplement, the authors suggest that the courts should shape their admissibility standards to encourage certain types of scientific research. In the authors' words, "[a]dmissibility rules have a significant impact on the way, and whether, research is done."¹⁷⁷ The question is whether the courts have the institutional competence to make decisions as to how the scientific community should spend its research resources. It is one thing for the courts to decide which types of scientific testimony are reliable enough to serve as a basis for a verdict adjudicating civil liability or criminal responsibility. It is quite another matter to factor into the courts' decision a consideration of the preferable directions in scientific research. An assessment of reliability properly falls within the courts' bailiwick. In contrast, a judicial attempt to influence the course of scientific research would be presumptuous and misguided.

Finally, incorporating a best evidence principle into admissibility analysis under *Daubert* has implications for social justice.¹⁷⁸ The authors' "marketplace" metaphor is apt.¹⁷⁹ In this "marketplace for experts,"¹⁸⁰ relatively few experts provide their services free of charge. Litigants must ordinarily pay for the services, and those services can be quite expensive.¹⁸¹ Wealthy litigants already enjoy a marked advantage in access to expert witness resources. An indigent plaintiff may call a lay witness to corroborate the plaintiff's version of a traffic accident, but a wealthy corporate defendant can up the ante by presenting an expert in accident reconstruction to contradict the

¹⁷⁶ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

¹⁷⁷ 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[3], at 15.

¹⁷⁸ The poet Oliver Goldsmith once wrote: "Laws grind the poor, and rich men rule the law." *The Traveller*, Line 386.

¹⁷⁹ See 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[3], at 15 ("As in most markets, if the law proves to be a bad consumer, it is more likely to get a bad product. But, [if it] is a good consumer, it can demand and receive a quality product.").

¹⁸⁰ *Id.*

¹⁸¹ See, e.g., Note, Robyn L. Thieman, *Property Devaluation Caused by Fear of Electromagnetic Fields: Using Damages to Encourage Utilities to Act Efficiently*, 71 N.Y.U. L. REV. 1386, 1406 (1996) (discussing the expense of litigating the question of whether electromagnetic fields can cause cancer and noting that the expert witness fees "can be staggering").

lay witnesses' testimony.¹⁸² Under the present state of the law, "disparity in resources" can cause differential access to experts and produce miscarriages of justice.¹⁸³ The poor cannot obtain the same "measure" of justice that is "available to those who can afford to retain experts in the kinds of cases in which expert testimony is either essential or necessary to the best and most effective presentation of the litigant's case."¹⁸⁴ The less affluent are already handicapped in litigation regardless of the legal merit of their position.¹⁸⁵

Incorporating a best evidence principle into admissibility analysis under *Daubert* will only compound the handicap facing less affluent litigants. In the status quo, the poorer party can often reach the trial stage. Even though he or she may not have the "best," most expensive scientific testimony, their testimony may be admissible enough and sufficient to make out a submissible case. If the status quo were modified by factoring a best evidence principle into admissibility analysis, as a practical matter it would raise the bar for even reaching trial. The "best" scientific evidence could be "prohibitively expensive"¹⁸⁶ for a litigant of modest means. Lacking the means to afford costly scientific testimony, less affluent litigants would be more vulnerable to summary judgment motions.¹⁸⁷ The poor will be less likely to obtain a day in court. At the very least, the extension of the best evidence principle to this context would weaken the settlement position of less wealthy litigants.

As Professor Faigman and his colleagues note, the pivotal issue is how much validating research is "enough" to satisfy *Daubert*.¹⁸⁸ In another article, I have advanced the tentative thesis that there is "enough" validation when the proponent's foundation establishes that an hypothesis has been verified by an empirical study which: (1) is based on a large, representative database; (2) was conducted under conditions approximating those in the instant case; and (3) yielded a validity rate justifying the definiteness of the tendered opinion.¹⁸⁹

¹⁸² See 2 GIANNELLI & IMWINKELRIED, *supra* note 80, § 27 (summarizing theory of accident reconstruction and admissibility of expert testimony).

¹⁸³ See MICHAEL J. SAKS & RICHARD VAN DUIZEND, *THE USE OF SCIENTIFIC EVIDENCE IN LITIGATION* 60 (1983) (discussing how external factors to litigation, including economic disparity, can affect the use of available resources).

¹⁸⁴ *Person v. Ass'n of the Bar of New York*, 414 F. Supp. 144, 145 (E.D.N.Y. 1976), *rev'd*, 554 F.2d 534 (2d Cir.), *cert. denied*, 434 U.S. 924 (1977) (holding that a disciplinary rule forbidding attorneys from paying witnesses on a contingency basis, while inherently unfair to less affluent litigants, was not invalid).

¹⁸⁵ See *id.* at 146.

¹⁸⁶ See Capra, *supra* note 101, at 728.

¹⁸⁷ See FED. R. CIV. P. 56.

¹⁸⁸ See 1 FAIGMAN ET AL., *supra* note 21, § 1-3.4[3], at 13-14 (noting that in some instances testimony based on experience alone may be sufficient, while in others it may not).

¹⁸⁹ Edward J. Imwinkelried, *The Judge as Daubert Gatekeeper: Adapting Old Maps to the Unfamiliar Terrain of the "Brave New World,"* PROCEEDINGS OF THE 1999 NATIONAL CONFERENCE ON SCIENCE AND THE LAW (forthcoming).

When that is the state of the proponent's evidentiary foundation, it can be said that the hypothesis has been "derived by the scientific method"¹⁹⁰ and is "supported by [enough] appropriate validation."¹⁹¹ Enough should be deemed enough even when the proponent has not presented the very best which science has to offer. To borrow Shakespeare's phrase, if the courts lash out at "junk science" by insisting that the proponent of scientific evidence always tender the best, we may "mar what's well" in the law governing the admissibility of expert testimony.

¹⁹⁰ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590 (1993).

¹⁹¹ *Id.*

