

Expert Evidence:

The Road from *Daubert* to *Joiner* and *Kumho Tire*

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Experts have been used to explain specialized and scientific knowledge to laymen in legal controversies for centuries. Judge Learned Hand traced the use of experts in legal disputes to the fourteenth century.¹ In courts, experts have assisted litigants at least since the 1620s,² and their testimonial contributions have led to the development of rules governing their appearance in the courtroom.³ Since the late nineteenth century, the usefulness of experts has intensified greatly because of the rapid development of scientific methodologies and the increased credibility of experimental results. Indeed, the help of an expert became indispensable at the point when the “untrained layman” could not intelligently understand the issue in dispute,⁴ or when the layman, without bringing in scientific or technical evidence, could not satisfy the burden of proof.⁵ As a consequence, the need for scientific and technical expertise, and the heightened trust in the beneficial assistance that experts could provide for the judicial process, resulted in the liberalization of rules controlling their testimony. On the other hand, the increased ease of hiring experts willing to argue both sides of the same controversial issue alerted courts to the need to carefully check the reliability of experts’ testimony.

In the mid- and late 1990s, the United States Supreme Court provided new answers to the dilemmas of how “scientific” or how widely “accepted” the expert evidence needed to be in order to be admitted in courts and what is the appropriate scope of appellate review of the district courts’ admission of expert testimony. First, in 1993, the Court settled the principles of admission of expert testimony in *Daubert v. Merrell Dow Pharmaceuticals* (the *Daubert* test).⁶ Four years later, it established the standards of appellate review of such testimony in *General Electric Co. v. Joiner*,⁷ and, two years after that, in 1999, in *Kumho Tire Co. v. Carmichael*,⁸ it decided to subject both the scientific and nonscientific expert testimony to equal admission standards based on the *Daubert* test. The *Daubert-Joiner-Kumho* trilogy provides a set of basic principles that control expert testimony in federal courts at the beginning of the twen-

ty-first century. This framework has recently been codified by the December 2000 amendments to the Federal Rules of Evidence. Furthermore, given the importance of expert evidence to the contemporary judicial process, this framework still is likely to evolve further.

This article begins by introducing the traditional common-law “general acceptance” test (the *Frye* test) and summarizing the Federal Rules of Evidence as they existed when the trilogy cases were decided. The article then traces the major developments concerning expert evidence from *Daubert* to *Kumho Tire*. Finally, it speculates about the amendments to the Federal Rules and the proposed amendments to the state-law Uniform Rules of Evidence.

I. THE “GENERAL ACCEPTANCE” TEST AND THE FEDERAL RULES OF EVIDENCE

Before the twentieth century, courts generally did not impose greater reliability requirements on expert evidence than on testimony from other witnesses.⁹ For example, in *Spring Co. v. Edgar*,¹⁰ the Court stated that it was “a matter of discretion with the court whether to receive or exclude the [expert] evidence,”¹¹ and that “the appellate court will not reverse . . . [a lower court’s decision] unless the ruling is manifestly erroneous.”¹² Because the importance of expert evidence in trials has increased substantially in the twentieth century, courts began to demand that expert testimony be relevant and reliable.¹³ This approach resulted in the 1923 District of Columbia Court of Appeals’ decision in *Frye v. United States*,¹⁴ which created the so-called general acceptance test. Considering whether to admit polygraph evidence, the *Frye* court ruled that “the thing from which the deduction [by an expert] is made must be sufficiently established to have gained *general acceptance* in the particular field in which it belongs.”¹⁵ In practice, *Frye* provided a two-step analysis: first, the trial judge identified the scientific field of the testimony; then, the judge determined whether a specific principle was generally accepted by scientists in that field. The *Frye* test was relative-

Footnotes

1. Learned Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 HARV. L. REV. 40, 42 (1901).
2. Jonathan R. Schofield, *A Misapplication of Daubert: Compton v. Subaru of America Opens the Gate for Unreliable and Irrelevant Expert Testimony*, B.Y.U. L. REV. 498 (1997).
3. *Schultz v. United States*, 2 Ct. Cl. 364 1st page, 380-382 (1866).
4. Mason Ladd, *Expert Testimony*, 5 VAND. L. REV. 414, 418 (1952).
5. Margaret A. Berger, *Procedural Paradigms for Applying the Daubert Test*, 78 MINN. L. REV. 1345, 1348 (1994).
6. 509 U.S. 579 (1993).
7. 522 U.S. 136 (1997).
8. 526 U.S. 137 (1999).

9. Jack B. Weinstein, *Improving Expert Testimony*, 20 U. RICH. L. REV. 473, 474-75 (1986).
10. 99 U.S. 645 (1878).
11. *Id.* at 658.
12. *Id.*
13. At the turn of this century Judge Learned Hand demanded that expert evidence be reliable in order to both have “possible weight” regarding an issue and be admitted for consideration by a trier of fact. Without reliability, the evidence lacks relevance to the inquiry. Learned Hand, *supra* note 1, at 42.
14. 293 F. 1013 (D.C. Cir. 1923)
15. *Id.* at 1014 (emphasis added).

ly simple, but rigid in its all-or-nothing approach. It was praised as guaranteeing uniformity of decisions, eliminating the need for prolonged admissibility hearings, and providing an effective method to determine the admissibility of the evidence by the specialists. The test was criticized, however, for establishing too large a threshold for useful and otherwise reliable scientific testimony that was novel and not yet "generally accepted" in the field. The *Frye* test appeared to have survived the adoption by Congress of the Federal Rules 1975 and was the key element of the common law governing the admissibility of evidence in federal courts until the 1993 Court's landmark decision in *Daubert*.

The advent of the Federal Rules and of state evidence statutes, which the Federal Rules inspired, spawned the new era of admission of expert testimony. In his excitement about the Federal Rules, Albert Jenner, Chairman of the Advisory Committee on the Federal Rules, stated the following to Congress:

The . . . [Advisory] Committee is especially proud of the rules dealing with expert testimony. This area has become encrusted with a heavy and suffocating layer of technicalities wholly inconsistent with the simple facts of life and the intelligence of American jurors [W]e . . . have long known that intelligent jurors realize that an expert is only stating his opinion, that his testimony is to be treated as an opinion and is not binding upon the jurors and is to be judged in the light of all the evidence in the case, to be accepted or rejected by a juror as he sees fit.¹⁶

The Federal Rules abolished many of the common-law barriers to admissibility of expert evidence. They also affirmed Congress's confidence in the jury's ability to carry out the fact-finding function,¹⁷ and they confirmed the tradition of providing trial courts with broad discretion to make decisions concerning the admissibility of all evidence.¹⁸

Several of the Federal Rules apply to rulings on admissibil-

ity of expert testimony. First, according to Federal Rule 104,¹⁹ the district court is vested with the determination of preliminary questions concerning the admissibility of evidence. The judge controls the preliminary fact questions upon which the admissibility of evidence depends²⁰ and then decides about the relevancy of the evidence.²¹ Both inquiries employ the "preponderance of the evidence" standard, and in making determinations under this rule²² the judge is not bound by other rules of evidence.²³ Second, Federal Rule 105 allows the court to admit evidence for a limited purpose.²⁴ Third, under Federal Rules 401 and 402, the judge must check the evidence for its relevancy,²⁵ admitting "all relevant evidence not otherwise excluded" by some other rules.²⁶ Fourth, as with other types of evidence, Federal Rule 403 allows the district court to exclude expert evidence when the danger of unfair prejudice substantially outweighs its probative value by balancing a number of case-specific factors.²⁷

Finally, Federal Rules 702 through 705 deal directly with testimony by experts who are selected by the parties. Federal Rule 702²⁸ governs the admissibility of expert scientific evidence and establishes a higher standard than mere relevance for its admissibility. Procedurally, the district judge first determines whether the witness is qualified as an expert by knowledge, skill, experience, training, or education, and if so, the judge decides whether the scientific, technical, or other specialized knowledge that the expert claims to provide will assist the trier of fact to understand the evidence or to determine a fact in issue.²⁹ Further inquiry under the Federal Rule 702 focuses on helpfulness to the jury. In order to assure such helpfulness, the rule establishes the two-prong test of reliability and relevance, which was explained in *Daubert*. Expert testimony that offers scientific conclusions based upon flawed underlying research does not support the conclusions and cannot assist the trier of fact: it is mere speculation.

In addition to the relevance and reliability requirements of Federal Rule 702, trial judges need to take into account the requirements of Federal Rule 703,³⁰ which allows expert tes-

16. *Federal Rules of Evidence: Hearings Before the Special Subcommittee on Reform of Federal Criminal Laws of the House Committee on the Judiciary*, 93d Cong., 1st Sess. 87-88 (1973)[hereinafter "Hearings"].

17. E.g., *Rock v. Arkansas*, 483 U.S. 44, 61 (1987).

18. See *Hearings*, *supra* note 16. For example, Albert Jenner, Jr., Chairman of the Advisory Committee, testified: "[W]e could see that [allowing] discretion to be exercised by a judge is preferable to hardening a rule of evidence, to etching it in granite. We always operated . . . to afford the U.S. district judges wise discretion with respect to the admission or exclusion of evidence." *Id.* at 206.

19. Fed. R. Evid. 104.

20. Fed. R. Evid. 104 (a).

21. Fed. R. Evid. 104 (b).

22. 509 U.S. at 594-95 (The Court stressed the flexible character of this inquiry.)

23. A limited exception exists with respect to those rules concerning privileges.

24. Fed. R. Evid. 105.

25. Fed. R. Evid. 401-02.

26. Fed. R. Evid. 402.

27. Jack B. Weinstein, *Rule 702 of the Federal Rules of Evidence Is Sound; It Should Not Be Amended*, 138 F.R.D. 631 (1991). Judge Weinstein voiced the following opinion regarding Federal Rule 403's relation to expert evidence: "Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it. Because of this risk, the judge . . . exercises more control over experts than over lay witnesses." *Id.* at 632.

28. Federal Rule 702, as it existed at the time of the case law trilogy discussed in this article, provided:

Rule 702. Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

29. *Id.*

30. *Daubert*, 509 U.S. at 595.

timony to be based on opinion.³¹ Because the language of this rule refers to data “reasonably” relied upon, such reliance, arguably, does not have to be “common” within the scientific community. Under Federal Rules 704³² and 705,³³ expert witnesses enjoy a special status in that they neither have to testify from personal knowledge nor does the basis for their opinions have to be admissible. Furthermore, they may also, unlike other witnesses, opine on the “ultimate issues” that are to be decided by the jury.³⁴ In addition, Federal Rule 706³⁵ equips the court with its own power to appoint independent expert witnesses.

The period of liberal admission in the 1980s stemming from the spirit of the Federal Rules was followed by a short period of reaction against liberal admission in the early 1990s,³⁶ which resulted in proposed amendments to the Federal Rules that included changes in Federal Rule 702 to allow admission of expert testimony only when it would be “reasonably reliable” and “substantially assist” the trier of fact to understand the evidence or to determine a fact in issue. The changes were expected to increase the reliability of expert testimony, while limiting its use, and to preserve the principle that the courts should reject testimony that was based upon premises that lack any “significant support” and acceptance within the scientific community. The Court, however, granted certiorari in *Daubert*, and the proposed modification of Federal Rule 702 did not emerge from the rulemaking process.

II. THE COMPREHENSIVE STANDARD: DAUBERT

During the seven decades before the 1993 decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,³⁷ the federal courts followed the *Frye* “general acceptance” test to determine the admissibility of expert testimony. In *Daubert*, the Court established a more comprehensive test for the admissibility of such

evidence. First, the Court determined that the Federal Rules had “relaxed” the traditional standard of “general acceptance”³⁸ and confirmed that district courts should play a gatekeeping role to assure that the proffered evidence is both “reliable” and “relevant.”³⁹ Second, it held that expert scientific testimony can only be reliable if the judge finds its underlying methodology is sound.⁴⁰ Finally, in order to help the judge evaluate the soundness of the methodology and overall “reliability” of scientific theory advocated by an expert, the Court directed district courts to consider the following factors (which the Court labeled as its “general observations”): (1) falsifiability of the theory, (2) peer review and publication of the theory, (3) known or potential rate of error and the existence of standards controlling the research on which the theory is based, and (4) general acceptance of the methodology underlying the theory in the scientific community (a remnant of the *Frye* test).⁴¹

Daubert specifically explained that the words “scientific” and “knowledge” in the Federal Rule 702 imply that the testimony must be grounded “in the methods and procedures of science,” be more than “subjective belief or unsupported speculation,” and be supported by appropriate validation “based on what is known.”⁴² The Court explained that the distinction between “validity” and “reliability,” that is, between a scientific test or principle and its application in the particular case, approximates the methodology/conclusion distinction.⁴³ The requirement that an expert’s testimony relate to “scientific knowledge” is one of evidentiary reliability, and in the determinations as to whether the expert’s testimony relates to “scientific knowledge” the trial judge must focus “solely on principles and methodology, not on the conclusions that they generate.”⁴⁴

Procedurally, when the trial judge determines that the reasoning or methodology underlying the testimony is scientifically valid,⁴⁵ the testimony is admissible even if the witness’s con-

31. Federal Rule 703, as it existed at the time of the case law trilogy discussed in this article, provided:

Rule 703. Bases of Opinion Testimony by Experts

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence.

32. Federal Rule 704 states:

Rule 704. Opinion on Ultimate Issue

(a) Except as provided in subdivision (b), testimony in the form of an opinion or inference otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact. (b) No expert witness testifying with respect to the mental state or condition of a defendant in a criminal case may state an opinion or inference as to whether the defendant did or did not have the mental state or condition constituting an element of the crime charged or of a defense thereto. Such ultimate issues are matters for the trier of fact alone.

33. Federal Rule 705 states:

Disclosure of Facts or Data Underlying Expert Opinion

The expert may testify in terms of opinion or inference and give reasons therefor without first testifying to the underly-

ing facts or data, unless the court requires otherwise. The expert may in any event be required to disclose the underlying facts or data on cross-examination.

34. Fed. R. Evid. 704.

35. Fed. R. Evid. 706.

36. Especially in the early in cases involving issues of causation in toxic tort or drug products liability.

37. 509 U.S. 579 (1993).

38. *Id.* at 588.

39. *Id.* at 590-591.

40. *Id.*

41. The Court cautioned that the list of these four factors should not be considered definitive. *Id.* at 593-95. See also Bert Black, et al., *Science and the Law in the Wake of Daubert: A New Search for Scientific Knowledge*, 72 TEX. L. REV. 715, 782 (1994) (discussing other factors a court might consider).

42. 509 U.S. at 593-94. When an expert seeks to testify about scientific knowledge pursuant to Federal Rule 702, the inferences or assertions that the expert is making “must be derived by the scientific method.” *Id.*

43. See Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half-Century Later*, 80 COLUM. L. REV. 1197, 1201 n. 20 (1980).

44. 509 U.S. at 593.

45. *Id.* at 592-93.

clusion is novel and controversial.⁴⁶ The trial court must also decide whether the expert's testimony "fits" the facts of the case.⁴⁷ As opposed to the standard of reliability, this inquiry pertains to the standard of relevance and is significant because the expert scientific testimony can only be relevant when it assists the trier of fact to understand the evidence or to determine a fact in issue, which, in turn, happens only when the testimony relates to an issue at hand.⁴⁸

Because *Daubert* was a federal common-law clarification of Federal Rules, the decision did not result in a *per se* abrogation of the *Frye* test at the state level, even in the states that adopted rules of evidence mirroring Federal Rules. Even today, the *Frye* test is by no means extinct,⁴⁹ although there is a clear tendency to move away from it.⁵⁰

III. THE "ABUSE OF DISCRETION" STANDARD OF APPELLATE REVIEW: JOINER

Before *Daubert* there was little suggestion that courts of appeal would use any standard other than "abuse of discretion" to review the district courts' decisions on admission of expert testimony.⁵¹ Despite the fact that the court of appeals in

*Daubert*⁵² applied a *de novo* standard, the Court reversing that decision chose not to deal with the standard of appellate review at all.⁵³ Consequently, nearly all the federal courts of appeal that considered this issue after *Daubert* found no basis to alter the traditional approach.⁵⁴

The circuits adhering to the "abuse of discretion" standard⁵⁵ explained that "by loosening the strictures on scientific evidence set by *Frye*, *Daubert* reinforces . . . a presumption of admissibility of evidence,"⁵⁶ and when the district courts adhere to *Daubert*'s parameters, the courts of appeal will not disturb the district courts' findings unless they are "manifestly erroneous."⁵⁷ When the district courts took their "gatekeeping function conscientiously,"⁵⁸ the court of appeals would not replace the district court's careful decision with its own judgment because "[l]ike the . . . [Supreme Court they were] 'confident that federal judges possess the capacity to undertake this review' [and] their decisions . . . are properly reviewed under the traditional abuse of discretion standard."⁵⁹ Contrary to the mainstream cases adopting some variant of the "abuse of discretion" standard, the Sixth Circuit attempted to utilize a "multiple" standard of review by dissecting the admissibility deci-

46. Edward J. Imwinkelried, *The Daubert Decision: Frye Is Dead, Long Live the Federal Rules of Evidence*, Sept. 1993 TRIAL 60, 64.

47. 509 U.S. at 592-93.

48. *Id.* at 591.

49. Some eighteen states still adhere to the *Frye* test. These states are: Alaska, Arizona, California, Colorado, Florida, Illinois, Kansas, Maryland, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New York, North Dakota, Pennsylvania, Utah, and Washington. For a comprehensive list of states, tests, and cases, see The Revision of Uniform Rules of Evidence Act, the National Conference of Commissioners on Uniform State Laws, Feb. 1998.

50. The following twelve states adopted the *Daubert* test: Iowa, Kentucky, Louisiana, Montana, New Mexico, Oklahoma, Oregon, South Dakota, Texas, Vermont, West Virginia, and Wyoming. In other states the issue is either unsettled or the states use varying standards. *Id.*

51. Although some courts of appeal expressed their concerns about the trial courts admitting too much expert testimony in or excluding too much out. For example, in *In Re Air Crash Disaster at New Orleans*, 795 F.2d 1230 (5th Cir. 1986), the Fifth Circuit stated:

[W]e adhere to the deferential standard for review of decisions regarding the admission of testimony by experts. Nevertheless, we take this occasion to caution that the standard leaves appellate judges with a considerable task. We will turn to that task with a sharp eye, particularly in those instances, hopefully few, where the record makes it evident that the decision to receive expert testimony was simply tossed off to the jury under a 'let it all in' philosophy. Our message to our able trial colleagues: it is time to take hold of expert testimony in federal trials. *Id.* at 1234.

52. 951 F.2d 1128 (9th Cir. 1991), rev'd, 509 U.S. 579 (1993). The court treated determinations about scientific validity similar to rulings on matters of law, to which "de novo" standards usually apply. 951 F.2d at 1130.

53. *Id.* See also David L. Faigman, et al., *Check Your Crystal Ball at*

the Courthouse Door, Please: Exploring the Past, Understanding the Present, and Worrying About the Future of Scientific Evidence, 15 CARDOZO L. REV. 1799 (1994).

54. See I STEVEN ALAN CHILDRESS & MARTHA S. DAVIS, FEDERAL STANDARDS OF REVIEW, at 4.02, at n. 12 (2d ed. Supp. 1996) (With respect to application of the *Daubert* test, "it is apparent that most of the decision making is located in the trial judge, which is consistent with . . . abuse of discretion review."); G. Michael Fenner, *The Daubert Handbook: The Case, Its Essential Dilemma, and Its Progeny*, 29 CREIGHTON L. REV. 939, 1028 (1996) ("The standard of review of *Daubert* testing on appeal is pretty clear. Though the words vary, the meaning is the same: almost all of the cases say the standard is broad or deferential, it is a clearly erroneous standard, it looks for manifest or clear abuse of discretion").

55. This is called, interchangeably, a "clear error" or "manifestly erroneous" standard. See 4 JACK B. WEINSTEIN & MARGARET A. BERGER, WEINSTEIN'S FEDERAL EVIDENCE, p. 702.02[2] (2d ed. 1997). "There is no substantive difference between 'manifest error' and 'abuse of discretion.'" *Id.* at 702-7.

56. *Borawick v. Shay*, 68 F.3d 597, 610 (2d Cir. 1995).

57. *Bradley v. Brown*, 42 F.3d 434, 436-37 (7th Cir. 1994).

58. *Id.* at 438-39.

59. *Duffee by and through Thornton v. Murray Ohio Mfg. Co.*, 91 F.3d 1410, 1411 (10th Cir. 1996) (quoting *Daubert*, 509 U.S. at 593). See also *Compton v. Subaru of Am., Inc.*, 82 F.3d 1513, 1517 (10th Cir. 1996); and *United States v. Davis*, 40 F.3d 1069, 1073 n. 4 (10th Cir. 1994) (noting that *Daubert* "has replaced the historical *Frye*" standard, and observing that the new standard adopts the "liberal thrust" of the Federal Rules).

sions into isolated components.⁶⁰ The Sixth Circuit soon rejected that standard.⁶¹

Although before *Daubert*, the Third and Eleventh Circuits, like others, recognized the “abuse of discretion” standard of review, in the early and mid-1990s they expressed deep concerns about the trial courts keeping too much scientific evidence out. In *In re Paoli R.R. Yard PCB Litigation*,⁶² the Third Circuit adopted a “hard look” (also called “stringent”) standard of review of district court decisions excluding scientific evidence. Explaining its decision, the court of appeals voiced doubts about the capacity of district courts to apply properly both the *Daubert* test and the standards of Federal Rules 702 and 703.⁶³ The court also concluded that the courts of appeal are not in any worse position than the district courts to deal with expert evidence, because “evaluating the reliability of scientific methodologies and data does not generally involve assessing the truthfulness of the expert witnesses and thus is often not significantly more difficult on a cold record.”⁶⁴ The Eleventh Circuit, in its opinion in *Joiner v. General Electric*,⁶⁵ relied substantially on *Paoli*⁶⁶ in imposing its stricter standard of review.⁶⁷ Its decision added to the split among the circuits.

In *General Electric Co. v. Joiner*,⁶⁸ the Supreme Court held that the Eleventh Circuit erred by reviewing the exclusion of Joiner’s experts’ testimony under “an overly stringent” standard and not giving appropriate deference to the trial court’s decision. It stressed that neither *Daubert* nor the Federal Rules required the district court to admit opinion evidence in a case where there was “simply too great an analytical gap between the data and the opinion proffered,”⁶⁹ and when “the studies upon

which the experts relied were not sufficient, whether individually or in combination, to support their conclusions.”⁷⁰ The Court strongly reiterated that “abuse of discretion” is the proper standard of review of a district court’s evidentiary rulings, and it argued that a trial judge has wide discretion to screen expert evidence in order to ensure that it is both relevant and reliable.⁷¹ The Court insisted that after *Daubert* the Federal Rules had displaced the *Frye* “general acceptance” test, and rejected Joiner’s argument that because the granting of summary judgment was outcome-determinative it deserved “a more searching” standard of review than the “abuse of discretion” standard would provide.⁷² The Court concluded that “[a] court of appeals applying ‘abuse of discretion’ review . . . may not categorically distinguish between rulings allowing expert testimony and rulings which disallow it.”⁷³

IV. THE SCIENTIFIC - NONSCIENTIFIC DILEMMA: KUMHO TIRE

A separate set of issues arose after *Daubert* as to whether this test applies to all expert testimony or only to its scientific portion. *Daubert* failed to provide clear direction in this area, and Chief Justice Rehnquist’s worries about this uncertainty bore fruit.⁷⁴ Not only were the circuits split on the issue, but also decisions of courts of appeal within several of them were inconsistent with each other.⁷⁵ In general, the courts were applying the *Daubert* test along a continuum ranging from: (1) it applies only to novel scientific evidence (the most narrow approach), through (2) it applies to scientific, but not necessarily novel testimony (the intermediate approach), to (3) it applies to all

60. In *Cook v. American S.S. Co.*, 53 F.3d 733, 738 (6th Cir.1995), the Sixth Circuit found the traditional “abuse of discretion” standard to be an “oversimplification” and often incorrect, and applied three different standards of review explaining that:

The trial court’s preliminary fact-finding under Rule 104(a) is reviewed for clear error. These facts include, but are not limited to, whether the witness’s “knowledge, skill, experience, training, or education,” . . . are such as to qualify him or her to testify as an expert at all, and . . . may include a determination of the tests or experiments that the . . . expert conducted, if any. The court’s determination whether the [expert’s] opinion . . . is properly the subject of “scientific, technical, or other specialized knowledge” is a question of law we review de novo A comparable duty is imposed upon the trial court when the subject of the proposed opinion testimony is not “scientific” knowledge, but “technical, or other specialized knowledge.” Finally, the trial court’s determination whether the . . . expert opinion “will assist the trier of fact to understand the evidence or to determine a fact in issue,” . . . is a relevancy determination and therefore one we review for abuse of discretion.

61. *United States v. Jones*, 107 F.3d 1147 (6th Cir.1997).

62. 35 F.3d 717 (3d Cir.1994).

63. *Id.* at 750. The court stated that “because the reliability standard of Rules 702 and 703 is somewhat amorphous, there is a significant risk that district judges will set the threshold too high” *Id.*

64. 35 F.3d 717, 749 (3d Cir.1994).

65. 78 F.3d 524, 529 (11th Cir.1996).

66. This came despite the fact that in *Habecker v. Clark Equipment Co.*, 36 F.3d 278, 289 (3d Cir.1994), decided less than three weeks

after *Paoli*, another panel of the Third Circuit applied “a clear abuse of discretion” standard to affirm the trial court’s exclusion of expert testimony.

67. The most visible difference between the Third and the Eleventh Circuit’s heightened standards lay in the former applying it to review rulings resulting in summary judgment or directed verdict and the latter to review all decisions.

68. 522 U.S. 136 (1997).

69. *Id.* at 146.

70. *Id.* at 146-47.

71. *Id.* at 141-44, 146-47.

72. *Id.* at 142-43. The Court took position that because summary judgment resolves the disputed issues of fact and the question of admissibility of expert testimony is not such an issue, it was properly resolved by the district court under “abuse of discretion.”

73. *Id.* at 142 (citing *Beech Aircraft Corp. v. Rainey*, 488 U.S. 153, 172, (1988) (abuse of discretion review applied to a lower court’s decision to exclude evidence)).

74. Chief Justice Rehnquist commented in partial dissent that “countless more questions will surely arise when hundreds of district judges try to apply [the Supreme Court’s] teaching to particular offers of expert testimony. Does all of this dicta apply to an expert seeking to testify on the basis of ‘technical or other specialized knowledge’—the other types of expert knowledge to which Rule 702 applies—or are the ‘general observations’ limited only to ‘scientific knowledge?’” 509 U.S. at 600.

75. For example, several conflicting opinions were issued in the Seventh Circuit. In *Cummins v. Lyle Indus.*, 93 F.3d 362 (7th Cir. 1996), the Seventh Circuit recognized the application of the *Daubert* framework to the evaluation of technical expert testimony.

expert testimony (the most liberal approach), with numerous variations in between the three.

The first of the approaches was the most rigorous of all and required that expert testimony, in order to be subject to the *Daubert* test, be scientific and novel at the same time.⁷⁶ Two district court cases illustrate this approach. In *Lappe v. American Honda Motor Company*,⁷⁷ the court refused to apply *Daubert* to assess the reliability of a mechanical engineer's testimony on the grounds that *Daubert* would apply only to the admissibility of novel scientific evidence. The court explained that "Daubert's narrow focus is on the admissibility of 'novel scientific evidence' under [Federal Rule] 702 . . . [and that] *Daubert* only prescribes judicial intervention for expert testimony approaching the outer boundaries of traditional scientific and technological knowledge."⁷⁸ In *Smith v. Ford Motor Co.*,⁷⁹ the court held that "[i]n cases where a novel scientific theory or technique is presented, these four [*Daubert*] factors are effective means of determining whether such a theory or technique 'will assist the trier of fact to understand or determine a fact in issue.'"⁸⁰ The court decided that the *Daubert* factors were "not readily applicable" in the case at hand because the expert's testimony was based not on novel scientific evidence, but on "facts . . . and traditional automobile body repair and fire and accident investigation expertise."⁸¹

The intermediate approach subjected only scientific, but not necessarily novel, testimony to the *Daubert* test. The Second, Fourth, Ninth, Tenth, and Eleventh circuits followed it most of the time.⁸² Indeed, one of the first courts that did so was the court of appeals in the *Daubert* case on remand,⁸³ which recognized that the Court in *Daubert* addressed only the "scientific knowledge" aspect of Federal Rule 702. A typical explanation of this approach was given by the Second Circuit in *Iacobelli*

Construction, Inc. v. Monroe,⁸⁴ when the court concluded that: "*Daubert* sought to clarify the standard for evaluating 'scientific knowledge' for purposes of admission under [Federal Rules] 702," and the technical expert opinion did "not present the kind of 'junk science' problem that *Daubert* meant to address."⁸⁵ Some courts even attempted to list the types of scientific matters for which the *Daubert* test can be applied.⁸⁶ Ironically, the second approach frequently resulted in admitting nonscientific (often purely technical) expert testimony without any *Daubert*-like scrutiny on the grounds that the test is designed to analyze only scientific expert evidence and does not apply in other contexts. Some courts created a variant of the intermediate approach by limiting the nonscientific type of expert testimony to the testimony based exclusively on experience or training and enlarging the pool of scientific testimony by testimony that is based upon specific methodology or technique. For example, in *Compton v. Subaru of America, Inc.*,⁸⁷ the Tenth Circuit reasoned that:

[T]he application of the *Daubert* factors is unwarranted in cases where expert testimony is based solely upon experience or training . . . [and] was not based on any particular methodology or technique. Rather, [the expert] reached his . . . conclusions by drawing upon general engineering principles and his twenty-two years of experience as an automotive engineer. Without some particular methodology or technique, *Daubert* simply has little bearing on [expert's] testimony.⁸⁸

Finally, the third approach, which submitted all expert testimony to the *Daubert* test, was probably the majority approach. The courts that followed it based their reasoning upon the

ny and specifically recognized that in the nonscientific context some of the *Daubert* factors would not apply. But, in *Tyus v. Urban Search Management*, 102 F.3d 256 (7th Cir. 1996), the court held that *Daubert* established the framework to assess all expert testimony. See also *Deimer v. Cincinnati Sub-Zero Products*, 58 F.3d 341 (7th Cir. 1995) (using the *Daubert* factors to exclude nonscientific expert). However, in a criminal case, *U.S. v. Sinclair*, 74 F.3d 753 (7th Cir. 1996), it held again that *Daubert* "provided a method for evaluating the reliability of witnesses who claim scientific expertise" but not for all expert testimony. See also *Smith v. Ford*, 882 F. Supp. 770 (N.D. Ind. 1995), and *Roback v. VIP Transportation, Inc.*, 90 F.3d 1207 (7th Cir. 1996).

76. Some courts applied *Daubert* only to evidence that met the strict definition of "scientific knowledge." For example, in *United States v. Starzeczyzel*, 880 F. Supp. 1027 (S.D.N.Y. 1995) the court held that forensic document analysis did not qualify as scientific knowledge under *Daubert* because there was a lack of systematic empirical validation of the assumptions upon which this theory is based. *Id.* at 1030-44

77. 857 F. Supp. 222, 228 (N.D.N.Y.1994), *aff'd without opinion*, 101 F.3d 682 (2d Cir.1996).

78. See *Golod v. Hoffman La Roche*, 964 F.Supp. 841, 848 (S.D.N.Y.1997) (quoting *Lappe*).

79. 882 F.Supp. 770 (N.D. Ind.1995).

80. *Id.* at 774. See also *Edwards v. ATRO Spa*, 891 F. Supp. 1074, 1082-84 (E.D.N.C. 1995).

81. 882 F. Supp. at 774.

82. For example, in *Southland Sod Farms v. Stover Seed Co.*, 108 F.3d 1134, 1143 n.8. (9th Cir. 1997), the court stated that "Daubert's holding applies to all expert testimony, not just testimony based on novel scientific methods." In reaching this conclusion, it relied upon footnote 11 in the *Daubert* majority opinion, where the Court stated that "[a]lthough the Frye decision itself focused exclusively on 'novel' scientific techniques, we do not read the requirements of Rule 702 to apply specially or exclusively to unconventional evidence." See *Daubert*, 509 U.S. at 593 n.11. A similar conclusion was reached by the Ninth Circuit in *Clara v. Burlington Northern R. Co.*, 29 F.3d 499, 501 (9th Cir. 1994), where it held that the *Daubert* test applies "to all proffered expert testimony—not just testimony based on novel scientific methods or evidence." *Id.* at n.2.

83. *Daubert v. Merrell Dow Pharmaceuticals*, 43 F.3d 1311, 1316 (9th Cir.1995).

84. 32 F.2d at 25.

85. *Id.*

86. For example, in *Benedi v. McNil-PPC, Inc.*, 66 F.3d 1378 (4th Cir.1995), the court listed 33 cases applying the *Daubert* test to such scientific matters as DNA analysis, chromatography, economic testimony, and psychological syndromes. *Id.* at 1383.

87. 82 F.3d 1513 (10th Cir. 1996).

88. *Id.* at 1519.

assumption that although the Court's opinion in *Daubert* was limited to the scientific context, it was only because that was the nature of the expertise offered there,⁸⁹ and that by acknowledging that Federal Rule 702 also applies to technical and other specialized knowledge in footnote 11 in the opinion,⁹⁰ the Court implied that its holding should control all types of expert testimony. The First, Third, Fifth, Sixth, Seventh, and Eighth circuits adopted this approach, with some courts expressing their reservations from time to time. The first example of such reservations is the Fifth Circuit Court of Appeals' decision in *Watkins v. Telsmith, Inc.*,⁹¹ where the court explicitly extended *Daubert* scrutiny to all kinds of expert testimony but made clear that the *Daubert* factors are not necessarily applicable to all kinds of expertise. A second example is the Sixth Circuit's decision in *United States v. Jones*,⁹² where the court recognized that the "gatekeeper" requirements of relevance and reliability imposed by *Daubert* apply to all expert evidence, while the *Daubert* factors are only limited to scientific evidence.⁹³ The court was afraid that by extending the *Daubert* test to all types of expert evidence, many kinds of reliable nonscientific evidence would not be accepted. The court explained:

Daubert provides a flexible framework to aid district courts in determining whether expert scientific testimony is reliable. If that framework were to be extended to outside the scientific realm, many types of relevant and reliable expert testimony—that derived substantially from practical experience—would be excluded. Such a result truly would turn *Daubert*, a case intended to relax the admissibility requirements for expert scientific evidence, on its head.⁹⁴

As an addendum to the scientific-nonscientific controversy, we can observe that as a means of escaping the necessity to conduct a comprehensive *Daubert* analysis of expert evidence, many courts simply relied on the expert's credentials and abstained from any analysis of the expert's reasoning. Sometimes, they simply relied on an expert's assurances that he or she followed an appropriate methodology and admitted the testimony. For example, in *McCulloch v. H.B. Fuller Co.*,⁹⁵ the Second Circuit held that an expert's extensive practical experience and background qualified him because he gained "specialized knowledge" through experience, training, or education, and ruled that the expert's testimony met the requirements of *Daubert* largely based on his credentials and qualifications. Similarly, in *Carroll v. Morgan*,⁹⁶ where the plaintiff claimed that the defendant's expert did not base his testimony on a well-founded methodology or on "generally accepted principles within the medical pro-

fession,"⁹⁷ the Fifth Circuit held that although the expert did not present any "objectionable or unconventional scientific theory or methodology," he based the testimony on 30 years of experience and on his review of medical records.⁹⁸ Therefore, the testimony was "[grounded] in the methods and procedures of science" and was not mere "unsupported" speculation.⁹⁹

In order to reconcile the conflicting approaches among the circuits, the Court granted certiorari in *Carmichael v. Samyang Tire, Inc.*,¹⁰⁰ which is now known as *Kunho Tire Co. v. Carmichael*,¹⁰¹ and clarified the controversy. In that case, Carmichael, the plaintiff, had an accident caused by a blowout of one of the tires on his minivan, which made the vehicle overturn, killing one passenger and seriously injuring several others. He filed a products liability claim against the manufacturers of the tire in federal court and produced a tire failure expert who testified that the blowout was a result of a design or manufacturing defect of the tire rather than its "overdeflection."¹⁰² The manufacturers moved for summary judgment and requested a *Daubert* hearing under Federal Rule 104(a) in order to challenge the competency and qualifications of Carmichael's expert. The district court applied the *Daubert* test.¹⁰³ It reasoned that the Eleventh Circuit had impliedly rejected distinction between scientific and nonscientific testimony for the purposes of the *Daubert* scrutiny and concluded that even though the plaintiff expert's opinion was "technical" rather than "scientific," the *Daubert* test should govern its admissibility.¹⁰⁴ Although the court found that the expert by virtue of his credentials was qualified to testify on the issue, it held that his testimony did not meet any of the *Daubert* factors, and was not reliable enough to be admissible. Therefore, the court granted a summary judgment for the manufacturers.¹⁰⁵ The Eleventh Circuit reviewed de novo the trial court's decision of whether to apply the *Daubert* test, and it decided that because the tire expert's testimony was based on "experience," not "science," the testimony should not have been subjected to the *Daubert* scrutiny at all and reversed the trial court's decision.¹⁰⁶

The Supreme Court reversed the court of appeals' decision and held that Rule 702 "makes no relevant distinction between 'scientific' knowledge and 'technical' or 'other specialized' knowledge"¹⁰⁷ in expert testimony and that to acknowledge such a distinction would make it unnecessarily difficult for judges to administer rules that "depended upon a distinction between 'scientific' knowledge and 'technical' or 'other specialized' knowledge."¹⁰⁸ The Court concluded that the *Daubert* factors do not have to apply to all experts in every case and that a trial court may consider one or more of the *Daubert* factors in determining the reliability of the proposed expert testimony

89. 509 U.S. at 590 n.8.

90. See *supra* note 82.

91. 121 F3d 984 (5th Cir. 1997).

92. 107 F3d 1147 (6th Cir. 1997).

93. *Id.* at 1158.

94. *Id.*

95. 61 F3d 1038 (2d Cir. 1995).

96. 17 F3d 787 (5th Cir. 1994).

97. *Id.* at 789.

98. *Id.* at 789-90.

99. *Id.* at 790.

100. 131 F3d 1433 (11th Cir. 1997).

101. 526 U.S. 137 (1999).

102. *Id.* at 142-44.

103. *Id.* at 145-46.

104. *Id.* at 146.

105. *Id.*

106. *Id.*

107. *Id.* at 147-48.

108. *Id.*

when such factors are helpful.¹⁰⁹ The Court also repeated the already well-established standard that the trial court should enjoy significant discretion in its determination of the reliability of expert testimony.

V. AMENDMENTS TO THE FEDERAL RULES OF EVIDENCE AND PROPOSED AMENDMENTS TO THE UNIFORM RULES OF EVIDENCE

Proposals for revision of the Uniform Rules and the Federal Rules have come forward following the *Daubert* decision. At the time of this publication, amendments to the Federal Rules had just taken effect, while revisions to the state-law Uniform Rules of Evidence, though drafted, had not yet been adopted. Changes to the Federal Rules, which became effective December 1, 2000, were: (1) Federal Rule 701 now mandates that opinions offered by lay witnesses cannot be based on scientific, technical, or other specialized knowledge,¹¹⁰ (2) Federal Rule 702 now incorporates the *Daubert* test,¹¹¹ but does not fully codify it (i.e., the rule does not include all of the specific factors listed in the *Daubert* opinion),¹¹² (3) Federal Rule

703 prevents inadmissible hearsay from blanket admission via an expert's opinion,¹¹³ and (4) all expert testimony will be subject to the same level of scrutiny (i.e., the *Daubert* test). The proposal also makes clear that Federal Rule 702 will take precedence over Federal Rule 703 in any determinations of the adequacy of an expert's testimony.

The Drafting Committee of the National Conference of Commissioners on Uniform State Laws took an interesting approach to adapt the Uniform Rules to the recent federal, common-law developments. The proposed changes would drastically change rules 701 and 702.¹¹⁴ Contrary to the Federal Advisory Committee's approach to amending Federal Rule 702, the state Drafting Committee did not attempt to rigorously follow *Daubert*, but rather suggested incorporating the "general acceptance" test of *Frye* into the Uniform Rules. It did so in order to establish a presumption of the reliability of the expert evidence, which could be rebutted by the adverse party by subjecting the evidence to the *Daubert* test. The new approach would allow the judges to rely on acceptance "within community" in simple cases, and in more difficult cases to

109. *Id.* at 150-51.

110. New Rule 701 reads as follows:

Rule 701. Opinion Testimony by Lay Witnesses.

If the witness is not testifying as an expert, the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness, (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue, and (c) not based on scientific, technical or other specialized knowledge within the scope of Rule 702.

111. The Advisory Committee recognized the inadaptability of many of the specific *Daubert* factors outside the hard sciences (e.g., peer review and rate of error) but stressed its intention to subject to Federal Rule 702 all types of expert testimony and to vest the trial judge with a broad discretion in making the Federal Rule 702 determinations.

112. New Rule 702 reads as follows:

Rule 702. Testimony by Experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

113. New Rule 703 reads as follows:

Rule 703. Bases of Opinion Testimony by Experts

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissi-

ble shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.

114. *The Revision of Uniform Rules of Evidence Act*, The National Conference of Commissioners on Uniform State Laws, February 1998. The proposed Rules 701-702 read as follows:

Rule 701. Opinion Testimony by Lay Witnesses.

If a witness' testimony is not based on scientific, technical, or other specialized knowledge the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences that are rationally based on the perception of the witness, and helpful to a clear understanding of the witness' testimony or the determination of a fact in issue.

Rule 702. Testimony by Experts.

(a) General rule. If a witness' testimony is based on scientific, technical, or other specialized knowledge, the witness may testify in the form of opinion or otherwise if the court determines the following are satisfied:

- (1) the testimony will assist the trier of fact to understand evidence or determine a fact in issue.
- (2) the witness is qualified by knowledge, skill, experience, training, or education as an expert in the scientific, technical, or other specialized field.
- (3) the testimony is based upon principles or methods which are reasonably reliable as established under subdivision (b), (c), or (e), and
- (4) the witness has applied the principles or methods reliably to the facts of the case.

(b) Reliability deemed to exist. A principle or method is reasonably reliable if its reliability has been established by controlling legislation or judicial decision.

(c) Presumption of reliability. A principle or methodology is presumed to be reasonably reliable if it has

establish a presumption of reliability to which the adversely affected party could object by subjecting the evidence to the *Daubert* test. In similar fashion to the enacted amendment to Federal Rule 702, the proposed Uniform Rule 702 does not distinguish between “scientific” and “non-scientific” expert testimony.

VI. COMMENT

In the mid-1990s, the Federal Judicial Center's *Reference Manual on Scientific Evidence* presented a grim picture of the federal law governing expert evidence when it concluded that “[c]oherence is at first glance difficult to discern when one surveys the case law on expert testimony. The disagreement among circuits, compounded by the great discretion afforded trial judges, results in a seeming lack of uniformity and consistency that surfaces whenever any two opinions on expert testimony are compared.”¹¹⁵ Not only were the decisions themselves inconsistent, but also the procedures governing their applications had been diverse.

These landmark cases of *Daubert*, *Joiner*, and *Kumho* strongly reiterate the dominant role of trial courts in determining admissibility of expert evidence, and they conveniently equip district courts with flexible admission standards to scrutinize expert evidence. The regulatory framework governing expert evidence in federal courts is not yet settled, however, and it will not be settled until the federal case law and the new Federal Rules match and reinforce each other.

There are still several intriguing queries about the current status of expert evidence law. First, the regulatory framework to scrutinize expert evidence will not be complete without clear standards for admission of nonscientific testimony given by the Supreme Court. Because the *Daubert* test is flexible, the Court has repeatedly advised district courts to use only as much of the test as needed and has invited them to come up with their own criteria compatible with *Daubert*. However, the courts are by design much more likely to faithfully follow the patterned test than to invent their own variations of it. In the absence of the Court's specific ruling on how to apply the *Daubert* test to non-scientific expert evidence, the district and appellate courts are likely to search ad hoc for convenient but not necessarily consistent holdings among the circuits. Second, the *Daubert-Joiner-*

Kumho trilogy so momentarily empowers the district courts with discretionary determinations about science and technology that dilemmas will develop as to whether such responsibilities are not beyond the scope of the expertise of the judges. Currently, besides Federal Rule 706, which allows courts to employ their own experts, there are very few ways to ease this formidable burden placed on the district judges. Finally, the continuous, substantial adherence to the *Frye* test among many states¹¹⁶ indicates that the courts welcome the simple all-or-nothing solutions to expert evidence. Although the *Frye* test cannot be revitalized in its original form, it still holds the appeal of producing uniform and predictable results, and it should not be discarded easily. Rather, the test should be creatively incorporated into the expert evidence admissibility framework (including the Federal Rules) as a very useful tool that helps to evaluate the reliability of most of such evidence. The *Frye* test, however, needs to be given more weight than it enjoys now as just one of the *Daubert* factors. One step in this direction that is worthy of careful attention is the state-rule Drafting Committee's proposal to elevate this test to the level of a rebuttable presumption.

Arguably, there are no more contentious issues pertaining to the admission of expert testimony after the *Daubert-Joiner-Kumho* trilogy. Given the importance of this area to the judicial system today and the ingenuity of the lawyers who put the experts on the stand in pointing to the shortcomings of the existing law, however, the law of expert evidence will certainly undergo additional adjustments in the near future.

substantial acceptance within the relevant scientific, technical, or specialized community. A party may rebut the presumption by proving as provided in subdivision (e) that it is more probable than not that the principle or methodology is not reasonably reliable.

- (d) Presumption of unreliability. A principle or methodology is presumed not to be reasonably reliable if it does not have substantial acceptance within the relevant scientific, technical, or specialized community. A party may rebut the presumption by proving as provided in subdivision (e) that it is more probable than not that the principle or methodology is reasonably reliable.
- (e) Other reliability factors. When determining the reliability of a principle or method, the court shall consider all relevant additional factors, which may include:

- (1) the extent to which the principle or methodology has been tested;
- (2) the adequacy of research methods employed in testing the principle or methodology;
- (3) the extent to which the principle or methodology has been published and subjected to peer review;
- (4) the rate of error in the application of the principle or methodology;
- (5) the experience of the witness in the application of the principle or methodology; and
- (6) the extent to which the field of knowledge has substantial acceptance within the relevant scientific, technical, or specialized community.

115. FEDERAL JUDICIAL CENTER, *REFERENCE MANUAL ON SCIENTIFIC EVIDENCE* 44 (1994).

116. See *supra* text at note 49.