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Expert Testimony: Frye is Dead, Long Live Frye - Daubert v. Merrell Dow Pharmaceuticals, Inc.

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EXPERT TESTIMONY: *Frye* IS DEAD, LONG LIVE *Frye*

Daubert v. Merrell Dow Pharmaceuticals, Inc.
113 S. Ct. 2786 (1993)

Kari L. Foster

I. INTRODUCTION

The Court of Appeals for the District of Columbia Circuit set a precedent in 1923[1] that overshadowed the treatment of scientific evidence for over fifty years.[2] The District of Columbia Circuit held that the admissibility of expert testimony concerning novel scientific techniques hinged on whether the principle underlying the technique was generally accepted by the relevant scientific community.[3] When Congress enacted the Federal Rules of Evidence [hereinafter the Rules] in 1975, the Rules did not mention the *Frye* standard.[4] Consequently, the circuits split sharply on its continued viability.[5] Most courts read *Frye*'s "general acceptance" standard into the Rules.[6] However, a few circuits adhered strictly to the Rules, which favor admissibility.[7] Still other circuits articulated the *Frye* standard, but admitted or excluded evidence according to a "reliability" standard they interpreted from the Rules.[8]

The Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*[9] held that the Rules, not *Frye*, set the standard by which to gauge admissibility of expert testimony.[10] The Court went on to offer what it described as some "general observations" which district judges should consider to determine whether proffered expert testimony is admissible under the Rules.[11] This Note addresses whether the district courts' application of *Daubert* and the Rules will produce any more uniformity of results than did the different applications of *Frye*. In the process of analyzing this issue, the Note discusses the different applications in the civil and criminal contexts. Finally, the Note concludes with an analysis of whether *Daubert*, by

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1. Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

2. Paul C. Gianelli, *The Admissibility of Novel Scientific Evidence:* Frye v. United States, *A Half-Century Later*, 80 COLUM. L. REV. 1197, 1205 & n.47 (1980).

3. *Frye*, 293 F. at 1014.

4. See generally FED. R. EVID. 403, 702, 703, and the Advisory Committee Notes thereto.

5. Edward R. Becker & Aviva Orenstein, *The Federal Rules of Evidence After 16 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, 877 (1992).

6. *Id.* at 877 & n.101.

7. *See, e.g.*, United States v. Downing, 753 F.2d 1224, 1237 (3d Cir. 1985) (holding that the conservative approach of the general acceptance standard conflicted with the spirit of the Rules).

8. *See, e.g.*, United States v. Solomon, 753 F.2d 1522 (9th Cir. 1985).

9. 113 S. Ct. 2786 (1993).

10. *Id.* at 2793.

11. *Id.* at 2796-98.

holding that the Rules superseded *Frye*, actually changes the admissibility determination and the extent of the problems—those left over from *Frye* or created afresh by *Daubert*—which still face trial judges.

II. FACTS

Petitioners Eric Schuller and Jason Daubert [hereinafter the *Daubert* plaintiffs] were born with severe limb-reduction birth defects.[12] They and their guardians filed separate suits in state court in California against Merrell Dow Pharmaceuticals, Inc. [hereinafter Merrell].[13] Physicians had often prescribed Bendectin, manufactured by Merrell, for "morning sickness" during a woman's first trimester of pregnancy.[14] Merrell took the drug off the market in 1983 due to rising litigation and insurance costs.[15] The *Daubert* plaintiffs alleged that their mothers' ingestion of the anti-nausea drug during the period of pregnancy where the children's limbs were forming caused the birth defects.[16]

The *Daubert* plaintiffs sued under state law alleging negligence, breach of warranty, and strict liability.[17] The United States District Court for the Southern District of California consolidated the cases when Merrell removed its case based on diversity of citizenship.[18] Merrell conducted exhaustive discovery and moved for summary judgment, claiming that the *Daubert* plaintiffs could not prove that Bendectin caused birth defects.[19] The district court held that the evidence the *Daubert* plaintiffs offered to prove causation was inadmissible and granted the motion.[20]

At the time of the district court trial, the circuits were divided among two schools of thought concerning the admission of expert testimony in Bendectin cases.[21] The district court relied on one school, exemplified in *Brock v. Merrell Dow Pharmaceuticals, Inc.*,[22] to dismiss the case.[23] The *Brock* Court held that "statistically significant epidemiological proof" was essential to prove that the mother's ingestion of Bendectin caused her child's limb-reduction defects.[24] That court concluded that the absence of such proof demanded dismissal.[25]

Epidemiology, to which the *Brock* Court referred, is "the study of the relationships of the various factors determining the frequency and distribution of diseases

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12. Petitioner's Brief at 2, *Daubert* (No. 92-102).
13. *Id.*
14. *Id.*
15. Respondent's Brief at 2, *Daubert* (No. 92-102).
16. *Id.*
17. Petitioner's Brief at 2, *Daubert* (No. 92-102).
18. *Id.*
19. *Id.*
20. Daubert v. Merrell Dow Pharmaceuticals, Inc., 727 F. Supp. 570, 576 (S.D. Cal. 1989), *aff'd*, 951 F.2d 1128 (9th Cir. 1991), *vacated*, 113 S. Ct. 2786 (1993).
21. *Daubert*, 727 F. Supp. at 572.
22. 874 F.2d 307 (5th Cir.), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990).
23. *Daubert*, 727 F. Supp. at 572.
24. *Brock*, 884 F.2d at 167.
25. *Id.*

in a human community," or "the field of medicine concerned with the determination of the specific causes of localized outbreaks of infection."[26] Epidemiologists conducted extensive studies when concerns about Bendectin's alleged link with birth defects surfaced in the form of lawsuits.[27] These scientists looked first at data to determine if a significant proportion of women using the drug had children with birth defects.[28] These studies evidenced no causal relation between maternal ingestion of Bendectin and children's birth defects.[29] Conversely, epidemiologists also examined data on babies born with birth defects to determine if a disproportionate number of their mothers used Bendectin.[30] Again, the studies demonstrated no causal connection between any defect and the use of Bendectin.[31] Not a single published epidemiological study – there were over thirty[32] – concluded that there was any statistically relevant connection between Bendectin and limb-reduction defects.[33]

The *Daubert* plaintiffs, however, relied on *Oxendine v. Merrell Dow Pharmaceuticals, Inc.*,[34] which represented the view of a minority of the circuits – the second school of thought.[35] The *Oxendine* Court refused to affirm a judgment notwithstanding the verdict for the defendants, granted solely because the plaintiffs did not provide any epidemiological proof to link Bendectin with the defects in issue.[36] The *Oxendine* plaintiffs provided a qualified expert who based his opinion unfavorable to Merrell on other studies and analyses similar to the ones the *Daubert* plaintiffs sought to introduce at trial.[37] The *Oxendine* Court considered the plaintiffs' expert's opinion sufficient to allow the jury to decide who won the " 'battle of the experts.' "[38] The trial court in *Oxendine* deemed the testimony admissible and the appellate court held it sufficient to support a jury verdict.[39]

The *Daubert* plaintiffs, at trial, offered the opinions of eight qualified experts to prove that Bendectin was a teratogen – a substance that causes limb-reduction birth defects – and that it caused the limb-reduction defects in issue.[40] These experts founded their causation conclusions on four sources of scientific

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26. THE SLOANE-DORLAND ANNOTATED MEDICAL-LEGAL DICTIONARY 256 (1987).

27. Respondent's Brief at 2, Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786 (1993) (No. 92-102).

28. *Id.*

29. *Id.* at 3.

30. *Id.*

31. *Id.*

32. *Id.* at 4.

33. Daubert v. Merrell Dow Pharmaceuticals, Inc., 727 F. Supp. 570, 572 (S.D. Cal. 1989), *aff'd*, 951 F.2d 1128 (9th Cir. 1991), *vacated*, 113 S. Ct. 2786 (1993).

34. 506 A.2d 1100 (D.C. 1986).

35. *Daubert*, 727 F. Supp. at 572.

36. *Oxendine*, 506 A.2d at 1104.

37. *Id.* at 1110.

38. *Id.* (quoting Ferebee v. Chevron Chem. Co., 736 F.2d 1529 (D.C. Cir.), *cert. denied*, 469 U.S. 1062 (1984)).

39. *Daubert*, 727 F. Supp. at 573-75.

40. Petitioner's Brief at 4, Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786 (1993) (No. 92-102).

information:[41] (1) "in vivo" animal studies, which compared the offspring of animals not subjected to Bendectin during pregnancy with those that were;[42] (2) "in vitro" studies, which examined animal cells exposed to dosages of Bendectin to ascertain if unnatural cell development, usually linked with limb birth defects, occurred;[43] (3) pharmacological studies, which compared Bendectin's chemical components with the components of comparable drugs known to cause similar human birth defects;[44] and (4) epidemiological studies, where the experts conducted a "reanalysis" of epidemiological data which had previously not supported a causal connection between use of Bendectin and birth defects.[45] They concluded from all four studies that Bendectin was a teratogen and caused the birth defects suffered by the *Daubert* plaintiffs.[46] The *Daubert* plaintiffs urged the court to consider all four sources of information and not merely rely on the epidemiological data.[47]

Contrary to those wishes, the district court only considered the epidemiological evidence.[48] Relying on *Brock v. Merrell Dow Pharmaceuticals, Inc.*,[49] the court excluded expert testimony based on in vivo studies, in vitro studies, and pharmocological analyses,[50] and then held that the *Daubert* plaintiffs' epidemiological evidence alone was not sufficient to meet the burden of going forward.[51] The court stated that no epidemiological study ever conducted found any causal relation such as the *Daubert* plaintiffs alleged.[52]

The experts for the *Daubert* plaintiffs did not perform a new study, but a reanalysis – a recalculation of the data of a previous study – to demonstrate the causation relation between Bendectin and the defects.[53] After the court held such evidence to be insufficient, emphasizing that the evidence was "never published or subjected to peer review," it granted the motion for summary judgment.[54]

The Ninth Circuit's *Daubert* opinion relied on *United States v. Solomon*,[55] which in turn had drawn from the *Frye* standard,[56] to affirm the lower court's decision.[57]

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41. *Id.*

42. *Id.*

43. *Id.*

44. *Id.* at 4-5.

45. *Id.* at 5.

46. *Id.*

47. Daubert v. Merrell Dow Pharmaceuticals, Inc., 727 F. Supp. 570, 575 (S.D. Cal. 1989), *aff'd*, 951 F.2d 1128 (9th Cir. 1991), *vacated*, 113 S. Ct. 2786 (1993).

48. *Daubert*, 727 F. Supp. at 575.

49. 874 F.2d 307 (5th Cir.), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990).

50. *Daubert*, 727 F. Supp. at 575.

51. *Id.* at 575-76.

52. *Id.* at 575.

53. *Id.*

54. *Id.*

55. 753 F.2d 1522 (9th Cir. 1985).

56. Expert opinion "based on a novel scientific technique is admissible if it is generally accepted as a reliable technique among the scientific community." *Id.* at 1526 (citing Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923)).

57. Daubert v. Merrell Dow Pharmaceuticals, Inc., 951 F.2d 1128, 1129 (9th Cir. 1991), *vacated*, 113 S. Ct. 2786 (1993).

Four other circuits had decided similar Bendectin cases;[58] three of those circuits held that only published epidemiological evidence was sufficient to establish causation between use of Bendectin and birth defects.[59] The Ninth Circuit placed great weight, as the three other circuits previously had, on the fact that the *Daubert* plaintiffs' experts' reanalysis of epidemiological data had "neither been published nor subjected to the rigors of peer review."[60] Because of this, the court held that the reanalysis was not generally accepted by the relevant scientific community—general acceptance being the admissibility standard—and, hence, not admissible as evidence.[61]

Exemplifying the contrary approach, the Third Circuit, in *DeLuca v. Merrell Dow Pharmaceuticals, Inc.*,[62] did not hold per se inadmissible that particular plaintiff's evidence on causation, even though such evidence was not generally accepted.[63] Instead, the *DeLuca* Court remanded for the lower court to determine the admissibility of such evidence if it were shown to be reliable and did not mislead the jury.[64] The Ninth Circuit in *Daubert* declined to follow the Third Circuit's analysis in *Deluca*[65] since the Third Circuit had specifically rejected the *Frye* standard, which the Ninth Circuit still honored.[66]

At the United States Supreme Court level, the *Daubert* Court's analysis focused on whether the Rules incorporated the *Frye* standard or superseded it when a trial judge determined the admissibility of expert testimony predicated on a novel scientific technique.[67] The Court held that the Rules displaced *Frye*,[68] and described general acceptance of the scientific technique as merely one of several factors bearing on admissibility trial judges may take into consideration.[69] The Court

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58. DeLuca v. Merrell Dow Pharmaceuticals, Inc., 911 F.2d 941 (3d Cir. 1990); Brock v. Merrell Dow Pharmaceuticals, Inc., 874 F.2d 307 (5th Cir.), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990); Richardson v. Richardson-Merrell, Inc., 857 F.2d 823 (D.C. Cir. 1988), *cert. denied*, 493 U.S. 882 (1989); Lynch v. Merrell-Nat'l Lab., 830 F.2d 1190 (1st Cir. 1987) (opinion by Noonan, J., sitting by designation).

59. The *DeLuca* Court was the odd one out. The Fifth, First, and District of Columbia Circuits (and with *Daubert*, the Ninth Circuit) all applied the general acceptance standard and held that in vivo, in vitro, and pharmocological studies were not admissible as evidence. Unpublished epidemiological studies, including reanalysis (also not generally accepted in the relevant scientific field), were held inadmissible. *Brock*, 874 F.2d at 313-14; *Richardson*, 857 F.2d at 830-31; *Lynch*, 830 F.2d at 1194- 95 (opinion by Noonan, J., sitting by designation).

60. *Daubert*, 951 F.2d at 1130.

61. *Id.* at 1132.

62. 911 F.2d 941 (3d Cir. 1990).

63. *Id.* at 954.

64. *Id.* at 955. On remand, the lower court found the evidence to be unreliable, and that it was outweighed by its likelihood to mislead the jury. DeLuca v. Merrell Dow Pharmaceuticals, Inc., 791 F. Supp. 1042, 1058 (D.N.J. 1992), *aff'd*, 6 F.3d 778 (1993), *cert. denied*, 114 S. Ct. 691 (1994). The analysis used by the Third Circuit is discussed *infra* notes 217-46 and accompanying text.

65. Daubert v. Merrell Dow Pharmaceuticals, Inc., 951 F.2d 1128, 1130-31 (9th Cir. 1991), *vacated*, 113 S. Ct. 2786 (1993).

66. United States v. Downing, 753 F.2d 1224, 1236-37 (3d Cir. 1985) (holding that the Rules superseded *Frye*).

67. Daubert v. Merrell Dow Pharmecuticals, Inc., 113 S. Ct. 2786, 2793-94 (1993).

68. *Id.* at 2794 & n.6.

69. *Id.* at 2797.

stated that its list of factors was not meant to be exhaustive, nor was any single factor meant to be dispositive,[70] and it remanded the case to the district court.[71]

III. Background and History of the Law

A. Before the Federal Rules of Evidence

Prior to the District of Columbia Court of Appeal's decision in *Frye v. United States*,[72] the lower court convicted James Alphonzo Frye of second degree murder.[73] On appeal, Frye argued that the court erred by holding inadmissible certain evidence he offered.[74] The evidence excluded was Frye's results from a "systolic blood pressure deception test,"[75] a crude forerunner to the modern-day polygraph test.[76] The theory underlying the test was that a conscious effort at deception, coupled with the anxiety about detection, would cause a change in the witness' emotions,[77] which would raise the systolic blood pressure so that the examiner could distinguish between the pattern produced by the truth and that produced by a falsehood.[78] Frye offered the testimony of the expert who conducted the deception test and also offered to have the expert perform the test in front of the jury.[79] The appellate court affirmed the trial court's rejection of such evidence.[80]

The *Frye* Court acknowledged the general standard at that time for admitting expert opinions: such testimony was admissible when the issue involved required special knowledge or experience.[81] The court then established, without citing any authority, its standard for the admissibility of expert opinions based on novel scientific techniques:

> Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained *general acceptance* in the particular field in which it belongs.[82]

The *Frye* Court held that since the systolic blood pressure deception test had not gained such acceptance, the district court properly excluded the evidence.[83]

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70. *Id.* at 2796.
71. *Id.* at 2796, 2799.
72. 293 F. 1013 (D.C. Cir. 1923).
73. *Id.*
74. *Id.* at 1014.
75. *Id.* at 1013.
76. *See* State v. Sims, 369 N.E.2d 24, 33 (C.P. Ohio 1977).
77. Frye v. United States, 293 F. 1013, 1013-14 (D.C. Cir. 1923).
78. *Id.* at 1013.
79. *Id.* at 1013-14.
80. *Id.* at 1014.
81. *Id.*
82. *Id.* (emphasis added).
83. *Id.*

Despite the absence of authority for the *Frye* standard, many courts adopted the general acceptance standard.[84] The principal reason these courts articulated for such adoption was that the test established "a *method* for ensuring the reliability of scientific evidence."[85] Courts which adhered to the general acceptance standard argued that such a standard would provide a degree of decisional uniformity,[86] would establish a minimal number of experts who could determine scientific validity in particular cases,[87] and would reduce the number of hearings necessary for validation of novel techniques.[88]

Critics of *Frye* nevertheless vigorously debated the merits and application of the *Frye* standard.[89] Such dissenters voiced concerns over the problems involved in applying the standard.[90] One concern arose from the difficulty of identifying the appropriate scientific field in which the technique belonged,[91] since many fields overlap.[92] Once the court identified the appropriate field, it still had to identify the persons in that field who must accept the technique and the proportion of members needed for general acceptance.[93]

Another unresolved question was whether the underlying theory, the laboratory technique applying that theory, or both had to be generally accepted.[94] Some courts only required acceptance of the theory underlying the laboratory technique.[95] Others required acceptance of both the theory and the technique designed to apply it.[96]

Trial courts also differed on the evidence they would receive to establish general acceptance.[97] They normally utilized three types of proof: judicial opinions, scientific literature, and expert testimony.[98] Not only were courts split over which of the three types to use, they were also divided over how to utilize them.[99] For example, some courts accepted the testimony of one expert to establish general acceptance, while others did not consider one sufficient.[100]

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84. Gianelli, *supra* note 2, at 1204.

85. Gianelli, *supra* note 2, at 1207.

86. People v. Kelly, 549 P.2d 1240, 1244-45 (Cal. 1976).

87. United States v. Addison, 498 F.2d 741, 744 (D.C. Cir. 1974).

88. Reed v. State, 391 A.2d 364, 371-72 (Md. 1978).

89. *See, e.g.*, Gianelli, *supra* note 2; Michael D. Green, *Expert Witnesses and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy of Agent Orange and Bendectin Litigation*, 86 NW. U. L. REV. 643 (1992).

90. Gianelli, *supra* note 2, at 1208-23.

91. Gianelli, *supra* note 2, at 1208-10.

92. Gianelli, *supra* note 2, at 1208-10.

93. Gianelli, *supra* note 2, at 1208, 1210-11.

94. Gianelli, *supra* note 2, at 1211-13.

95. *See* United States v. Addison, 498 F.2d 741, 743 (D.C. Cir. 1974).

96. See *infra* notes 123-41 and accompanying text dealing with a forward-looking infrared system in United States v. Kilgus, 571 F.2d 508 (9th Cir. 1978) (per curiam).

97. Gianelli, *supra* note 2, at 1215-19.

98. Gianelli, *supra* note 2, at 1215.

99. Gianelli, *supra* note 2, at 1215-19.

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

The main argument against use of the *Frye* test was that it would exclude reliable evidence derived from a novel technique not yet generally accepted.[101] Many commentators argued that a scientific technique could be proved reliable without being generally accepted in the relevant scientific field.[102] Critics of *Frye* feared that courts would have to await the passage of time until a technique was sufficiently established in the scientific discipline before employing it.[103] During this passage of time, courts (and advocates) would accordingly be deprived of reliable evidence.[104]

The *Frye* test's vagueness led courts to adopt several variations of it.[105] Some adhered to a stricter, more conservative interpretation of the standard.[106] Others only required general acceptance of experts who were familiar with the actual use and application of the scientific technique in question.[107] Still other courts cited *Frye* while they tacitly ignored it, not actually requiring general acceptance.[108] Even before the Rules were enacted, courts diverged, sometimes significantly, on the effect of the general acceptance standard.

B. After the Adoption of the Federal Rules of Evidence

The Rules, adopted in 1975,[109] made no reference to the *Frye* standard.[110] Consequently, the circuits were sharply divided over this issue;[111] many courts held that the Rules adopted the general acceptance standard, while others held that the Rules rejected it.[112] Instead of resolving the confusion prior to 1975 over the proper standard of admissibility, the Rules simply added to it.[113]

Those who argued for the survival of the *Frye* test claimed that since the Rules did not expressly repudiate the established general acceptance standard, and the

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101. Gianelli, *supra* note 2, at 1223. The converse was also feared: admitting unreliable evidence because it was generally accepted. Gianelli, *supra* note 2, at 1224.

102. Gianelli, *supra* note 2, at 1220-21.

103. Gianelli, *supra* note 2, at 1223 & n.200.

104. Gianelli, *supra* note 2, at 1223 & n.202.

105. Gianelli, *supra* note 2, at 1228.

106. Gianelli, *supra* note 2, at 1228. *See, e.g.*, United States v. Addison, 498 F.2d 741, 743, 745 (D.C. Cir. 1974) (holding spectrographic identification inadmissible because it was not sufficiently accepted by the scientific community "as a whole," and conceding that requiring general acceptance "retards somewhat the admission of proof based on new methods of scientific investigation," but that such a cost is not unwarranted).

107. Gianelli, *supra* note 2, at 1228. *See, e.g.*, People v. Williams, 331 P.2d 251 (Cal. App. Dep't Super. Ct. 1958).

108. Gianelli, *supra* note 2, at 1228 (citing CHARLES MCCORMICK, EVIDENCE § 210, at 490 (2d ed. 1972)).

109. 28 U.S.C. app. (1988).

110. Gianelli, *supra* note 2, at 1229 (citations omitted).

111. Becker & Orenstein, *supra* note 5, at 877. *Compare* Clinchfield R.R. v. Lynch, 784 F.2d 545, 553-54 (4th Cir. 1986) (rejecting the general acceptance standard) *and* United States v. Downing, 753 F.2d 1224, 1237 (3d Cir. 1985) (rejecting *Frye* in particular) *and* United States v. Williams, 583 F.2d 1194, 1197-98 (2d Cir. 1978) (same), *cert. denied*, 439 U.S. 1117 (1979) *with* Christophersen v. Allied-Signal Corp., 939 F.2d 1106, 1110 (5th Cir. 1991) (en banc) (per curiam) (adopting the *Frye* standard), *cert. denied*, 112 S. Ct. 1280 (1992) *and* United States v. Tranowski, 659 F.2d 750, 755-56 (7th Cir. 1981) (same).

112. Gianelli, *supra* note 2, at 1229 (citations omitted). The different standards these courts adopted, along with their reasoning, are discussed *infra* at notes 123-246 and accompanying text.

113. Gianelli, *supra* note 2, at 1228-29.

Rules were not intended as a complete codification, *Frye* still applied.[114] These advocates contended that *Frye* was necessary "to produce uniform rulings with precedential effect, counter the possibility that jurors may view science as having mystic infallibility, and make sure that experts [would] be available to both sides."[115]

Those who argued that the Rules superseded *Frye* urged that its restrictive approach conflicted with the spirit of admissibility of the Rules.[116] They also argued that the Supreme Court's "plain meaning" standard[117] forbade imposition of restrictions not stated in the Rules.[118]

Courts of appeals' published opinions exemplified the confusion in this evidential area. In one post-Rules-adoption *Frye* application, the court applied *Frye* not only to the underlying theory, but also to the technique applying that theory.[119] Another court construed *Frye* to the advantage of the criminal defendant – requiring that any novel evidence offered against the defendant meet the strict general acceptance standard, while holding any novel evidence offered by the defendant admissible if it complied with the Rules.[120] Courts also differed about the application of *Frye* in the civil arena[121] – most courts which clung to *Frye* after the Rules were adopted only did so in the criminal context. Finally, some courts, after the Rules were adopted, completely rejected the use of *Frye* even in criminal cases and evolved their own standards for admissibility.[122]

1. *Frye* Applied to the Underlying Theory and the Applying Technique

An example of the confusion with which the Rules infected judicial decisions is *United States v. Kilgus*,[123] in which the Ninth Circuit applied the *Frye* standard without mentioning the Rules which had been adopted three years earlier.[124] The *Kilgus* Court focused on whether the use of a forward-looking infrared system [hereinafter FLIR] for *unique* identification was "sufficiently reliable and accepted in the scientific community,"[125] even though it was generally accepted for

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114. Gianelli, *supra* note 2, at 1229.

115. Randolph N. Jonakait, *The Supreme Court, Plain Meaning, and the Changed Rules of Evidence*, 68 TEX. L. REV. 745, 766 (1990) (citing Mark McCormick, *Scientific Evidence: Defining a New Approach to Admissibility*, 67 IOWA L. REV. 879, 888 (1982)). *See supra* notes 86-88 and accompanying text.

116. Becker & Orenstein, *supra* note 5, at 878 (citations omitted).

117. *See, e.g.*, Huddleston v. United States, 485 U.S. 681 (1988); United States v. Bourjaily, 483 U.S. 171 (1987) (not requiring outside confirmation of meaning of Rule 104 when it is plain on its face).

118. Jonakait, *supra* note 115, at 766.

119. United States v. Kilgus, 571 F.2d 508, 510 (9th Cir. 1978) (per curiam).

120. United States v. Brown, 557 F.2d 541, 556 (6th Cir. 1977). See *infra* notes 146-68 and accompanying text for an in-depth discussion of the *Brown* decision.

121. *See* Christophersen v. Allied-Signal Corp., 939 F.2d 1106 (5th Cir. 1991) (en banc) (per curiam), *cert. denied*, 112 S. Ct. 1280 (1992).

122. *See* United States v. Williams, 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

123. 571 F.2d 508 (9th Cir. 1978) (per curiam).

124. *Id.*

125. *Id.* at 509.

generic identification.[126] The *Kilgus* Court held that the evidence based on the FLIR was inadmissible.[127]

The FLIR was a newly developed system the military implemented for tracking targets.[128] Generally, it was used to distinguish between different types of objects, such as boats as opposed to planes.[129] In order to identify the defendant, the government offered testimony based on the FLIR for "unique" identification: distinguishing a DC-3 aircraft from another DC-3 aircraft based on a unique pattern earlier observed.[130]

In deciding whether to admit the evidence, the *Kilgus* Court first observed that the Customs Officer whose testimony was offered against the defendant had no training in unique identification and did not understand the theory behind the FLIR system.[131] In addition, the *Kilgus* Court found that differences in humidity and temperature between the two points of identification could have affected the results of the FLIR.[132] Finally, a shroud of military secrecy foreclosed the defendant from adequately impeaching the Customs Officer's testimony because the relevant information was classified.[133]

In addition to those flaws in the government's evidence, the *Kilgus* Court held most important the fact that the use of the FLIR system for unique identification was not generally accepted in the relevant scientific field.[134] The Ninth Circuit implied that the *Frye* standard was dispositive;[135] for example, even if the evidence was found to be reliable by testing it or by other methods, the *Kilgus* Court might have still held the evidence inadmissible if it was not generally accepted.

Kilgus was one of the several variations[136] of *Frye* and also exemplified one of *Frye*'s problems. The *Kilgus* Court expanded the necessary general acceptance not to only the underlying theory, but also to the technique applying that theory.[137] Use of the FLIR was generally accepted for *generic* identification,[138] which meant the underlying principle also was generally accepted.[139] However, the *Kilgus* Court

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126. *Id.*

127. *Id.* at 509-10.

128. *Id.* at 509.

129. *Id.*

130. *Id.* at 509-10.

131. *Id.* at 510.

132. *Id.*

133. *Id.*

134. *Id.* "Finally, *and most importantly*, the unrebutted testimony of the defense's expert was that the FLIR is *not* a generally accepted technique among the scientific community for the unique identification of remote objects." *Id.* (emphasis added).

135. *Id.*

136. The *Kilgus* Court required general acceptance of the underlying theory and the technique applying it. *Id.* Other courts only required general acceptance of the underlying theory, and still other courts required acceptance of only those members familiar with the application of the technique. *See supra* notes 84-108 and accompanying text.

137. United States v. Kilgus, 571 F.2d 508, 510 (9th Cir. 1978) (per curiam).

138. *Id.* at 509.

139. *Id.*

found the use of the FLIR not to be generally accepted for *unique* identification.[140] Thus, although the underlying principle was generally accepted, the court did not admit the evidence because the laboratory technique itself which applied the principle was not generally accepted.[141] The vagueness of the *Frye* standard enabled the Ninth Circuit to employ a stricter application, which kept the government's evidence out.

2. *Frye* Applied to the Advantage of the Defendant[142]

Courts applied different standards within criminal trials depending on which side offered the evidence. Some courts that applied the general acceptance standard to the prosecution's evidence did not apply that standard when the *defendant* offered to introduce as evidence a questionable scientific theory.[143] In refusing to apply *Frye* to the defendant's evidence, the courts reasoned that the general acceptance standard violated the defendant's constitutional right to present evidence, or that such an application would deny due process protections.[144]

The *Kilgus* Court employed a strict version of the *Frye* test, in part because the case was a criminal one and the disputed evidence was offered against the defendant.[145] *United States v. Brown*[146] evidenced a similar application of *Frye*. Along with several other charges, the defendant was convicted of fire bombing a planned parenthood clinic.[147] One of the issues taken up on appeal[148] concerned the admissibility of testimony based on an ion microprobic analysis of human hair.[149] The Sixth Circuit, along with the Ninth Circuit as discussed previously, adhered to the *Frye* standard and required a showing of general acceptance before admission of scientific evidence.[150]

The Sixth Circuit stated that it required only that the *principle* upon which the scientific evidence was based be generally accepted.[151] However, as in *Kilgus*, the *Brown* Court not only applied *Frye* to the underlying theory, but also to the laboratory technique which relied on that theory.[152] The principle of ion microprobic

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140. *Id.* at 510.

141. *Id.*

142. It is interesting to note that in Frye v. United States, 293 F. 1013 (D.C. Cir. 1923), the circuit court applied the general acceptance standard *against* the defendant. The *Frye* Court held that since the systolic blood pressure test, *offered by the defendant*, was not generally accepted, the court could not admit it. *Id.* at 1014.

143. *See, e.g.*, Chambers v. Mississippi, 410 U.S. 284 (1973); Brady v. Maryland, 373 U.S. 83 (1963) (involving a defendant's confession); State v. Sims, 369 N.E.2d 24 (C.P. Ohio 1977).

144. Gianelli, *supra* note 2, at 1230-31.

145. United States v. Kilgus, 571 F.2d 508, 510 (9th Cir. 1978) (per curiam).

146. 557 F.2d 541 (6th Cir. 1977).

147. *Id.* at 544.

148. A second issue concerned whether the defendant's confession was voluntary. *Id.* at 545-49.

149. *Id.* at 554-55. The police found three hairs on broken bottles outside the bombed clinic and compared them to samples of the defendant's hair. *Id.* at 554.

150. *Id.* at 556.

151. *Id.*

152. *Id.* at 557.

analysis was generally accepted.[153] However, the technique of applying ion microprobic analysis to compare hair samples was not.[154]

The *Brown* Court justified this double requirement because the defendant's life and liberty were at stake.[155] The *Brown* Court found it vital in the criminal context that any scientific evidence offered against the defendant be generally accepted and not be based on an unproven hypothesis.[156] Believing that an aura of infallibility surrounds scientific evidence, the court feared testimony predicated on unreliable theories tended to mislead the jury and "thus [to] defeat a defendant's right to a fair trial."[157] The Sixth Circuit held that general acceptance was necessary to protect the defendant's constitutional rights.[158]

The Sixth Circuit in *Brown* specified four factors for trial courts to weigh when deciding whether to sustain the holding of admissibility of expert testimony:[159] (1) the expert must be properly qualified; (2) the subject must be proper; (3) the testimony must conform to a "generally accepted explanatory theory;" and (4) the probative value must outweigh the prejudicial effect.[160] Except for the third requirement of general acceptance, the Rules include these same criteria. Rule 702 requires that the expert be qualified before testifying.[161] Rules 402 and 702 impose a requirement of a proper subject: Rule 402 provides that irrelevant evidence is inadmissible[162] while Rule 702 limits admissible opinion evidence to those opinions based on technical, scientific, or other specialized knowledge.[163] The fourth factor is also included in the Rules; Rule 403 provides that even relevant evidence be

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153. *Id.* The court noted that the technique was not new and that it was sufficiently accepted in the mass spectrometry field. *Id.*

154. *Id.*

155. *Id.* at 556. "The fate of a defendant in a criminal prosecution should not hang on his ability to successfully rebut scientific evidence which bears an 'aura of special reliability and trustworthiness,' although, in reality the witness is testifying on the basis of an unproved hypothesis in an isolated experiment." *Id.* (citations omitted).

156. *Id.*

157. *Id.*

158. *Id.*

159. *Id.*

160. *Id. See* United States v. Green, 548 F.2d 1261, 1268 (6th Cir. 1977) (citing United States v. Amaral, 488 F.2d 1148, 1152 (9th Cir. 1973)).

161. Rule 702: Testimony by Experts states: "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." FED. R. EVID. 702.

162. Rule 402: Relevant Evidence Generally Admissible; Irrelevant Evidence Inadmissible states: "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. Evidence which is not relevant is not admissible." FED. R. EVID. 402.

163. FED. R. EVID. 702. *See supra* note 161.

excluded if the risk of unfair prejudice substantially outweighs the probative value of the evidence.[164]

Even though the *Brown* Court noted that "[t]he clear trend in federal court [was] toward the admission of expert testimony whenever it [would] aid the trier of fact,"[165] the court held the ion microprobic analysis evidence inadmissible because such evidence did not meet its third factor: general acceptance.[166] The *Brown* Court opined that, because the analysis constituted scientific evidence, the likelihood that the jury would place excessive weight on it demanded that it be generally accepted.[167] The *Brown* Court interpreted the *Frye* standard as part of the Rules' requirements, adding one more hurdle to admissibility.[168]

3. Application of *Frye* in the Civil Arena

The Fifth Circuit's application of *Frye* went even further than the cases previously discussed. Instead of limiting *Frye*'s application to criminal cases as it had previously done,[169] the Fifth Circuit, in *Christophersen v. Allied-Signal Corp.*,[170] embraced the general acceptance standard even in civil litigation. Christophersen died of a rare cancer which the plaintiffs attributed to his dangerous work environment.[171] They filed suit, but lost on a summary judgment motion because the district court excluded the plaintiffs' expert witness' opinion testimony, which left the plaintiffs with no causation proof.[172] Sitting en banc, the Fifth Circuit upheld the district court's ruling.[173]

The Fifth Circuit began its discussion by stating that "[t]he Federal Rules of Evidence, *combined with Frye v. United States*, provide a framework for trial judges struggling with proffered expert testimony."[174] Rules 702 (whether the expert is qualified to render an opinion on the subject) and 703 (whether the facts and

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164. Rule 403: Exclusion of Relevant Evidence on Grounds of Prejudice, Confusion, or Waste of Time states: "Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." FED. R. EVID. 403. Although the *Brown* Court stated its fourth factor as "probative value compared to prejudicial effect," United States v. Brown, 557 F.2d 541, 556 (6th Cir. 1977), it is assumed in this Note the court meant that the prejudicial effect must not outweigh the probative value.

165. *Brown*, 557 F.2d at 556 (referencing FED. R. EVID. 702).

166. *Id.* at 557.

167. *Id.* at 556. However, commentators have argued and courts have held that the fear of undue weight is included in Rule 403 as part of the danger of unfair prejudice. *See, e.g.*, United States v. Williams, 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

168. *Brown*, 557 F.2d at 556-59.

169. Christophersen v. Allied-Signal Corp., 939 F.2d 1106, 1120 (5th Cir. 1991) (en banc) (per curiam) (Clark, C.J., concurring in result), *cert. denied*, 112 S. Ct. 1280 (1992).

170. 939 F.2d 1106 (5th Cir. 1991) (en banc) (per curiam), *cert. denied*, 112 S. Ct. 1280 (1992).

171. *Christophersen*, 939 F.2d at 1108. Christophersen worked in a nickel/cadmium battery plant. *Id.* The plaintiffs alleged that the manufacturing process of the batteries emitted fumes to which the decedent was exposed and which caused his fatal cancer. *Id.*

172. *Id.* at 1109.

173. *Id.* at 1116. The first time the Fifth Circuit considered the case, the three-judge panel reversed the trial court's exclusion of the expert's opinion. *Id.* at 1109. *See also* Christophersen v. Allied-Signal Corp., 902 F.2d 362 (5th Cir. 1990) (panel decision).

174. *Christophersen*, 939 F.2d at 1110 (emphasis added) (citation omitted).

data relied on by the expert are of a type reasonably relied upon by other experts in the same field) were included in the test as prerequisites for admissibility, along with the *Frye* standard ("whether in reaching his conclusion the expert used a well-founded methodology").[175]

The appellate court equated a "well-founded" methodology with one that had attained general acceptance.[176] Once a party established his expert's methodology or mode of reasoning as meeting that admissibility requirement, the court held that the "nature" of the subsequent opinion became essentially irrelevant:[177] " 'An expert's *opinion* need not be generally accepted in the scientific community before it can be sufficiently reliable and probative in support of a jury finding.' "[178] In other words, once the expert's methodology was proven to be generally accepted in the relevant scientific field, the Fifth Circuit would presume that the expert used the data in a given case to reach a conclusion in a "scientifically valid way."[179]

In *Christophersen*, the Fifth Circuit upheld the lower court's reliance on the defense's expert witnesses to exclude the plaintiffs' expert witness.[180] The defense witnesses testified that the plaintiffs' expert's causation conclusion was not supported by any scientific methodology.[181] The Fifth Circuit called the expert's reasoning a "hunch, which as far as the record shows, no one else shares."[182] Because his conclusion concerning causation of the decedent's cancer by battery fumes was wholly original,[183] the plaintiffs' expert's opinion failed the *Frye* test in the Fifth Circuit.[184]

4. Complete Rejection of *Frye*

In contrast to the variations on *Frye* in other courts, the Second Circuit, in *United States v. Williams*,[185] rejected the use of *Frye* to determine admissibility of scientific evidence.[186] The *Williams* Court distinguished between the standard for admissibility and the standard for taking judicial notice, suggesting that *Frye*

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175. *Id.* Those three steps (Rules 702, 703, and *Frye*) were explicit "threshold requirements" to which all expert testimony had to be subjected for a determination of admissibility. *Id.* (citing Slaughter v. Southern Talc Co., 919 F.2d 304, 306-07 (5th Cir. 1990); Gideon v. Johns-Manville Sales Corp., 761 F.2d 1129, 1135 (5th Cir. 1985)).

176. *Id.* at 1111.

177. *Id.* (citing Peteet v. Dow Chem. Co., 868 F.2d 1428 (5th Cir.), *cert. denied*, 493 U.S. 935 (1989); Osburn v. Anchor Lab., Inc., 825 F.2d 908 (5th Cir. 1987), *cert. denied*, 485 U.S. 1009 (1988)).

178. *Id.* (quoting *Osburn*, 825 F.2d at 915). The Fifth Circuit also cited Bert Black, *A Unified Theory of Scientific Evidence*, 56 FORDHAM L. REV. 595 (1988), for an interesting discussion of this issue. *Id.* at n.9. Mr. Black evaluates an expert's methodology based on its "scientific validity" and an expert's conclusion or opinion according to its "legal reliability." *Id.*

179. *Id.* at 1115.

180. *Id.* The question of which expert witness trial judges should rely on in determining admissibility is a problem that has faced judges since the adoption of *Frye* (*see supra* note 93 and accompanying text), and will continue to be faced with the application of *Daubert* (*see infra* Part V).

181. *Id.*

182. *Id.*

183. *Id.* at 1116 (citing district court's comments).

184. *Id.*

185. 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

186. *Williams*, 583 F.2d at 1198.

applied only to the latter.[187] The *Williams* Court articulated a balancing test to govern admissibility decisions, weighing the reliability of the evidence against its tendency to mislead the jury.[188] The specific factors in this balance were very similar to those offered by the Court in *Daubert*.[189]

Williams is notable not only for rejection of the *Frye* standard and substitution of its own unique admissibility standard, but also for the context in which it applied that standard: a criminal case in which the novel scientific evidence was offered *against* the defendant.[190] Most courts molded the general acceptance standard to the advantage of the criminal defendant.[191] Those courts held they could not restrict the defendant's constitutional right to present evidence[192] by applying *Frye* and excluding evidence offered by the defendant; but, on the other hand, to protect the defendant's right to a fair trial, they strictly applied *Frye* when the prosecution offered novel scientific evidence against the defendant.[193] The *Williams* Court took a different route when it did not require that the prosecution's evidence be generally accepted.[194]

The *Williams* defendants were convicted on drug charges.[195] The investigating undercover officers taped their phone conversations with the defendant Williams, during which the officers and Williams discussed the sale of heroin.[196] After the defendants were arrested, the police instructed Williams to speak into a phone while they taped his voice because the investigating officer was unable to visually identify Williams.[197] The trial court allowed the witnesses to make a voice identification of Williams by comparing the previously taped conversations with the exemplars.[198] The prosecution accomplished this through spectrographic voice analysis.[199]

In its balancing test, which resembled that of Rule 403, the *Williams* Court determined that general acceptance was not a prerequisite to admissibility.[200] The Second Circuit held that the principle upon which an expert based his opinion

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187. *Id.* *See also* McCormick, *supra* note 108, at 491.

188. *Williams*, 583 F.2d at 1198-1200.

189. Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786 (1993). *See infra* notes 266-69 and accompanying text.

190. *Williams*, 583 F.2d at 1196.

191. Gianelli, *supra* note 2, at 1230.

192. Gianelli, *supra* note 2, at 1230-31.

193. *See, e.g.*, United States v. Brown, 557 F.2d 541 (6th Cir. 1977). *See also supra* notes 120, 146-68 and accompanying text.

194. *Williams*, 583 F.2d at 1195.

195. *Id.*

196. *Id.*

197. *Id.* at 1195-96. Williams had drastically changed his appearance. *Id.* at 1195.

198. *Id.* at 1196.

199. *Id.* at 1197. The spectrograph analyzed the voice sound and charted it according to its frequency, time, and intensity components. *Id.* "The unique speech characteristics of the individual whose voice is being analyzed produce unique spectrogram patterns of vocal energy at the various frequency levels." *Id.* The spectrogram charts produced, though not necessarily identical, were sufficiently similar to infer that the voice belonged to the same person. *Id.*

200. *Id.* at 1198.

could be proven reliable without being generally accepted.[201] The *Williams* Court set out five factors which it considered in determining if there was a sufficient level of reliability for admissibility purposes.[202]

The "potential rate of error" was first considered as an indicator of reliability.[203] The court regarded an error rate of 2.4% as reliable: The spectrogram falsely identified voices only 2.4% of the time.[204] The Second Circuit also considered what the relevant scientific field was and whether there were any standards set up in the field.[205] In the field of spectrographic voice analysis, an international organization required ten voice matches of the exemplar before an expert could make a positive identification.[206]

The *Williams* Court's third concern was the care with which the technique had been applied.[207] Any reliability inherent in the technique, according to the court, counted for naught if the technique itself was not performed correctly.[208] *Williams* also compared the new scientific technique with analogous techniques which were routinely accepted.[209] The last factor which the Second Circuit considered included "fail-safe" characteristics of the technique.[210] These encompassed the physical aspects, such as whether the original voice tapes were of poor quality, the tapes' age, and whether the recorder worked properly at the time of the taping.[211]

The court balanced the evidence's reliability against its tendency to mislead[212] – whether the jury afforded the evidence undue weight because of its scientific, technical nature.[213] This tendency was reduced somewhat in *Williams* because the jury visually compared the voice charts and saw the matches for themselves.[214] Further, the *Williams* Court believed that cross-examination was an adequate safeguard, coupled with a jury instruction that the jury could reject the expert's opinion because its sole use was to help them.[215] The court stated that the test could be

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201. *Id.*

202. *Id.* at 1198-99.

203. *Id.* at 1198.

204. *Id.*

205. *Id.*

206. *Id.*

207. *Id.* at 1199.

208. *Id.* This concern is similar to concerns raised in United States v. Kilgus, 571 F.2d 508 (9th Cir. 1978) (per curiam). Even if the FLIR system was generally used for unique identification, the fact that the officer did not take into account different factors which affect performance of the FLIR, such as the temperature, barometric pressures, and humidity, rendered his testimony unreliable. *Id.* at 510. He did not perform the techniques correctly. *Id. See supra* note 132 and accompanying text.

209. United States v. Williams, 583 F.2d 1194, 1199 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

210. *Williams*, 583 F.2d at 1199.

211. *Id.*

212. *Id.*

213. *Id.*

214. *Id.*

215. *Id.* at 1200. The Supreme Court suggested the same thing in Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786, 2798 (1993).

relatively lenient because the court was only considering the evidence for admissibility purposes, not for sufficiency purposes.[216]

After *Williams*, the Third Circuit advanced a similar balancing test in *United States v. Downing*.[217] In *Downing*, the district court held that testimony of a psychologist offered to cast doubt on eyewitness identifications did not meet the "helpfulness" standard espoused by Rule 702.[218] The *Downing* Court held that the balancing test espoused in *Williams*,[219] comparing the reliability of the evidence to its tendency to mislead the jury, derived from Rule 702.[220] In addition to these two factors, the court also contemplated the "fit"—whether it would make sense to apply the evidence to the facts in issue.[221]

The *Downing* Court first addressed the concern that the offered expert opinion invaded the province of the jury.[222] Other circuit courts that had confronted the same issue upheld the exclusion of such testimony because they decided that problems with perception and memory were not beyond the ken of the jurors, and cross-examination would expose frailties in eyewitness identification.[223] The *Downing* Court first held that specialized knowledge on memory and perception was not within the ken of the ordinary juror.[224] Even if it was not completely beyond the jury's understanding, the *Downing* Court reasoned that "the liberal standard of admissibility mandated by Rule 702"[225] required admission if the testimony would be "helpful" to the juror.[226] The advisory committee's notes on opinion testimony state that *helpfulness* is the basic approach to such testimony,[227] whether opinion testimony invades the province of the jury or not.[228] The court found that such eyewitness expert testimony met the helpfulness standard of Rule 702.[229]

After that general finding, the Third Circuit set out three factors the lower courts should use to determine if the *specific* testimony proffered was admissible:[230] the soundness of the technique used to develop the evidence, the potential that the evidence would mislead or overwhelm the jury, and the fit—"the proffered

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216. United States v. Williams, 583 F.2d 1194, 1199 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

217. 753 F.2d 1224 (3d Cir. 1985).

218. *Downing*, 753 F.2d at 1226.

219. *Williams*, 583 F.2d at 1194. *See supra* notes 185-216 and accompanying text.

220. *Downing*, 753 F.2d at 1226.

221. *Id.*

222. *Id.* at 1229.

223. *See, e.g.*, United States v. Thevis, 665 F.2d 616 (5th Cir. Unit B), *cert. denied*, 459 U.S. 825 (1982); United States v. Fosher, 590 F.2d 381 (1st Cir. 1979); United States v. Brown, 540 F.2d 1048 (10th Cir. 1976), *cert. denied*, 429 U.S. 1100 (1977); United States v. Amaral, 488 F.2d 1148 (9th Cir. 1973).

224. *Downing*, 753 F.2d at 1230-31.

225. *Id.* at 1230.

226. *Id.* at 1229.

227. FED. R. EVID. 704 advisory committee's notes.

228. *Downing*, 753 F.2d at 1229. *See generally* 7 JOHN H. WIGMORE, A TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 1920, at 17 (3d ed. 1940).

229. *Downing*, 753 F.2d at 1232.

230. *Id.* at 1237.

connection between the scientific research or test result to be presented, and particular disputed factual issues in the case."[231]

The Third Circuit rejected the application of *Frye* to determine the soundness of the novel technique.[232] The *Downing* Court instead held that lower courts could use the acceptance factor as one of several factors when deciding admissibility of novel evidence,[233] and compare the new technique to established methods of scientific analysis.[234] Specialized literature which dealt with the technique was another suggested factor.[235] Finally, the *Downing* Court noted that a low rate of error probably indicated a technique's soundness and could be taken into account.[236]

Downing required the district judge, after assessing the soundness of the evidence, to balance that soundness against the evidence's potential to mislead the jury.[237] The *Downing* Court opined that lay persons often assumed a technique to be infallible simply because it was scientific.[238] The court suggested that assumption might be less likely where the parties or the district judge presented the jury with the data on which the expert relied, instead of requesting that the jury "accept the expert's assertions as to the accuracy of his conclusions."[239] The Third Circuit did not mandate a minimal level of likelihood of accuracy in this determination of admissibility, but did suggest that trial courts conduct *in limine* proceedings to dispose of the issue.[240]

The third factor which *Downing* set out for district judges to consider was the fit of the proffered expert testimony to the facts of the case.[241] If the testimony was not sufficiently tied to the case for which it was offered and if it would not help the jury resolve a factual dispute, *Downing* held such testimony or evidence must be excluded.[242]

Downing reminded the trial courts of the final criterion for admissibility: Even if the lower court found the proffered evidence's potential to mislead to be less than its soundness and fit, the evidence still was excludable by the invocation of Rule

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231. *Id.*

232. *Id.* at 1238.

233. *Id.*

234. *Id.*

235. *Id.*

236. *Id.* at 1239. The Third Circuit went on to say that its list of factors was not meant to be exclusive. *Id.* Many of the factors suggested by the Third Circuit are similar to the "observations" made in Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786, 2796-97 (1993).

237. United States v. Downing, 753 F.2d 1224, 1239-40 (3d Cir. 1985).

238. *Id.* at 1239.

239. *Id.* As discussed *infra* Part V of this Note, this reasoning exemplifies the education model of scientific evidence. The education model espouses that the court admit into evidence all facts relied upon by the expert. Ronald J. Allen & Joseph S. Miller, *The Common Law Theory of Experts: Deference or Education?*, 87 NW. U. L. REV. 1131, 1142 & n.40 (1993). The expert will explain the evidence and give his opinion as to it, but the jury has the evidence in front of them and they can reach their own opinions. *Id.* This is an opposite approach from the deference model where the expert only gives his opinion without the court admitting the evidence upon which he relied; the jury simply defers to the expert's opinion. *Id. See infra* Part V.

240. *Downing*, 753 F.2d at 1241.

241. *Id.* at 1242.

242. *Id.*

403.[243] Although similar to balancing soundness with tendency to mislead, Rule 403's prejudicial dangers are more expansive. They include cumulative evidence, waste of time, and confusion.[244] Yet, instead of just tipping the scales, the dangers under Rule 403 must *substantially* outweigh the probative effect of the evidence.[245]

Downing represented a break with tradition – an outright rejection of the *Frye* standard, coupled with a unique approach to admissibility drawn from elements of the Rules. The Supreme Court finally resolved the split in the circuits over the application of the general acceptance standard in its *Daubert v. Merrell Dow Pharmaceuticals, Inc.*[246] opinion.

IV. INSTANT CASE

The *Daubert* Court, in an opinion authored by Justice Blackmun, agreed unanimously that the Rules superseded the *Frye* test.[247] The Court stated that it interpreted the Rules as it would any other legislatively-enacted statute:[248] If the common law remained consistent with the relevant rule, the rule was held to incorporate it;[249] if not, then the plain meaning of the rule superseded the common law.[250] The Court held that *Frye*'s austere general acceptance standard was at odds with the "Federal Rules and their 'general approach of relaxing the traditional barriers to [expert] testimony,' "[251] and, thus, that the plain meaning of the Rules superseded *Frye*.[252] The Court recognized, however, that "the common law nevertheless could serve as an aid to their application."[253]

The Court stated that Rule 702 covered the same issue as the *Frye* test: the standards governing admissibility of expert testimony.[254] Rule 702 did not mention general acceptance as a standard for admission, and the Court found nothing in the Rules' drafting history that suggested such a standard be included.[255] "Given the Rules' permissive backdrop and their inclusion of a specific rule on expert testimony that does not mention 'general acceptance,' the assertion that the Rules somehow assimilated *Frye* [was] unconvincing."[256]

Once it held *Frye* had been superseded, the Court noted that Rule 702 itself set a perimeter of admissibility.[257] Rule 702's requirement that an expert's testimony

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243. *Id.* at 1242-43.
244. *Id.* at 1243; FED. R. EVID. 403.
245. United States v. Downing, 753 F.2d 1224, 1243 (3d Cir. 1985).
246. 113 S. Ct. 2786 (1993).
247. *Daubert*, 113 S. Ct. at 2794. *Erie* ramifications are not discussed as they are beyond the scope of this Note.
248. *Id.* at 2793-94.
249. *See, e.g.*, United States v. Abel, 469 U.S. 45 (1984).
250. *Daubert*, 113 S. Ct. at 2794. *See, e.g.*, Bourjaily v. United States, 483 U.S. 171 (1987).
251. *Daubert*, 113 S. Ct. at 2794 (quoting Beech Aircraft Corp. v. Rainey, 488 U.S. 153, 169 (1988)).
252. *Id.*
253. *Id.* (citing *Abel*, 469 U.S. at 51-52).
254. *Id.* at 2795. *See* FED. R. EVID. 702.
255. *Daubert*, 113 S. Ct. at 2794.
256. *Id.*
257. *Id.* at 2795.

relate to "scientific knowledge,"[258] the Court held, inherently "establishe[d] a standard of evidentiary reliability."[259] The Court reasoned that, in order for an expert's testimony to be admissible as scientific knowledge, it must be grounded on a scientific method, the validity of which method must be proven or provable.[260]

Justice Blackmun then analyzed the relevancy or helpfulness standard set out in Rule 702.[261] He held the proferred evidence or testimony had to be related to the fact in issue in order to help the trier of fact.[262] In other words, the evidence needed to fit, or have a sufficient connection to the relevant inquiry, to be admissible.[263]

The Court compartmentalized the admissibility assessment into two parts: (1) The district judge must first determine that the expert would testify as to scientific knowledge – that "the reasoning or methodology underlying the testimony is scientifically valid;" (2) The district judge then must determine whether such testimony would help the juror determine or understand a fact in issue, the "fit" or relevancy determination – "whether the reasoning or methodology underlying the testimony . . . [could] be applied to the facts in issue."[264] The Court then set out several factors trial judges should consider in making those two determinations.[265]

These factors included: whether the technique or theory could be or had been tested;[266] whether it was published or otherwise subjected to peer review; its rate of error; and its standing in the relevant scientific community.[267] The inquiry focused on the methodology and principles implemented, not the answers they gave.[268] In addition to those specific standards, the lower court should work within the ambit of other relevant evidence rules.[269] For instance, Rules 703, 706, and 403 set more limits within which trial judges determine admissibility of evidence.

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258. *Id.* at n.8.

259. *Id.* at 2795 & n.9.

260. *Id.* at 2795-96.

261. *Id.*

262. *Id.* This consideration was described as fit by Judge Becker in United States v. Downing, 753 F.2d 1224, 1242 (3d Cir. 1985). " 'Fit' is not always obvious and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes." Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786, 2796 (1993). *See also* United States v. Kilgus, 571 F.2d 508 (9th Cir. 1978) (per curiam) (FLIR used to differentiate between types of objects, but not between different objects of the same type); United States v. Brown, 557 F.2d 541 (6th Cir. 1977) (ion microprobic analysis generally used, but not for comparing hair samples).

263. *Daubert*, 113 S. Ct. at 2796.

264. *Id.*

265. *Id.* at 2796-99.

266. *Id.* at 2796-97. As authority for this factor, the Court cited KARL POPPER, CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE 37 (5th ed. 1989) (listing as criteria "testability," "refutability," or "falsifiability"). *Daubert*, 113 S. Ct. at 2797. Chief Justice Rehnquist takes up this last element in his dissent. *See infra* notes 283-85 and accompanying text.

267. *Daubert*, 113 S. Ct. at 2797.

268. *Id.* at 2796-97. This reasoning appears similar to that which the Fifth Circuit advanced when it adopted *Frye* in the civil context. If the methodology was generally accepted, then even if it produced a unique opinion, that opinion would still be admissible. Christophersen v. Allied-Signal Corp., 939 F.2d 1106 (5th Cir. 1991) (en banc) (per curiam), *cert. denied*, 112 S. Ct. 1280 (1992). *See also supra* notes 176-79 and accompanying text.

269. *Daubert*, 113 S. Ct. 2797-98.

The *Daubert* defendants had raised a concern that such an abandonment of *Frye* would result in the admission of "junk science,"[270] which would confuse the jury.[271] The Court opined that traditional devices for guiding fact-finding, such as cross-examination, contradictive evidence, and careful jury instructions, were the appropriate tools by which to expose flaws in shaky evidence, reducing the need for wholesale exclusion of otherwise admissible evidence.[272] As a final safeguard against the improper influence of scientific evidence, the Court noted, trial judges could also use summary judgment and judgment as a matter of law where proper.[273]

The Court then addressed the opposite side of the junk science concern: the argument that the *Daubert* opinion delegated a broad gate-keeping role to the trial judge which would not open the admissibility door too wide, but would allow the trial judge to essentially close it.[274] While the majority recognized the validity of this concern, the Court dismissed it by noting that the nature of the legal dispute mandated that if a judge erred at all, he err on the conservative side – by keeping evidence out.[275]

Chief Justice Rehnquist, in his dissent,[276] agreed with the majority that the Rules superseded the *Frye* test.[277] However, the Chief Justice contended that that holding should have ended the Court's inquiry.[278] He objected to the general observations offered by the Court as abstract, vague,[279] and offering little guidance to trial judges for their implementation.[280] In addition, he questioned whether the factors set out by the majority should apply only to scientific evidence.[281] Rule 702 – the evidence rule for expert testimony – defines when an expert may offer an opinion based on his scientific, technical, or other specialized knowledge. The *Daubert* Court restricted its analysis to only *scientific* knowledge, leaving the question open, in the Chief Justice's mind, as to the application of *Daubert* to expert opinions based on technical or other specialized knowledge.[282]

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270. For more information on this subject, see PETER W. HUBER, GALILEO'S REVENGE: JUNK SCIENCE IN THE COURTROOM (1991).

271. *Daubert*, 113 S. Ct. at 2798.

272. *Id.* The Second Circuit had proffered the same tools as defenses to admissible, but questionable, evidence. *See* United States v. Williams, 583 F.2d 1194, 1200 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979). The Second Circuit pointed out that it was only considering the evidence for admissibility purposes and not for sufficiency purposes. *Williams*, 583 F.2d at 1200. *See also supra* notes 215-16 and accompanying text.

273. *Daubert*, 113 S. Ct. at 2798. See *infra* Part V for the ramifications that this comment might hold for district judges' actions.

274. *Daubert*, 113 S. Ct. at 2798.

275. *Id.* at 2798-99.

276. Chief Justice Rehnquist, who concurred in part and dissented in part, was joined by Justice Stevens.

277. *Daubert*, 113 S. Ct. at 2799 (Rehnquist, C.J., concurring in part and dissenting in part).

278. *Id.*

279. *Id.*

280. *Id.* at 2800.

281. *Id.*

282. *Id.*

The majority also disturbed the Chief Justice by its reliance on a work which proposed that "the scientific status of a theory depend[ed] on its 'falsifiability.' "[283] The Chief Justice realized that Rule 702 afforded some gate-keeping responsibility to trial judges, but he would not have it authorize them to act as "amateur scientists" as he believed the majority's dicta did.[284] He would rather the Court only have decided the question of *Frye*'s viability and allow case law to develop the area further.[285]

V. ANALYSIS

Public perception of the Supreme Court's decision focused on the restrictions that the Court had abandoned.[286] At first glance, it might seem that the Court greatly relaxed the standards for admitting expert testimony. With general acceptance no longer a prerequisite, the junk science so greatly feared by Peter Huber[287] might find its way into court. Although *Daubert* does grant the trial judge more discretion than did *Frye*, *Daubert* does not outlaw consideration of general acceptance, but merely limits its impact. General acceptance, or the lack of it, can no longer be the sole factor in the admissibility determination, but it can be considered along with other factors. In essence, the Court straddles the fence between the restrictive *Frye* standard and the "spirit of admissibility" within the Rules, by overruling the *Frye* standard and then suggesting its own standard for admissibility.

Professor Ronald J. Allen and Mr. Joseph S. Miller would prefer that this usurpation of the *Frye* standard entail a preference for education of the fact finder over jury deference to the expert.[288] In what they call the common-law deference model, neither side of the dispute informs the jury of the facts or theories underlying the expert's opinion.[289] Based on the expert's qualifications and credibility, along with the results of the traditional adversarial trial process, the fact finder decides whether the expert's testimony is reliable and believable.[290] Unless the facts

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283. *Id.* *See supra* note 266 and accompanying text. The work to which the majority referred is POPPER, *supra* note 266, at 37.

284. Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786, 2800 (1993) (Rehnquist, C.J., concurring in part and dissenting in part). Whether what the Chief Justice calls dicta in the opinion actually is dicta remains an open question at this time.

285. *Id.* Case law already had developed the area in those circuits that had previously held *Frye* superseded. *See, e.g.*, United States v. Downing, 753 F.2d 1224 (3d Cir. 1985); United States v. Williams, 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979).

286. *See, e.g.*, Joan Biskupic, *Judges Get Broader Discretion in Allowing Scientific Testimony*, WASH. POST., June 29, 1993, at A6; Paul Houston, *High Court Relaxes Curbs on Expert Witness Testimony*, L.A. TIMES, June 29, 1993, at A14.

287. HUBER, *supra* note 270. Mr. Huber contends that more junk science enters the courtroom as evidence than should ever be allowed. *Id.* He provides examples from cases dealing with Bendectin, Agent Orange, and cancer patients. *Id.* He alleges that "quack" experts allowed to testify against professional evidence confuse juries and cause great harm. *Id.*

288. Allen & Miller, *supra* note 239, at 1141-42. *See also* Ronald J. Allen & Joseph Miller, *The Common Law Theory of Experts: Deference or Education*, *in* FORENSIC EXPERTISE AND THE LAW OF EVIDENCE (J.F. Nijboer et al. eds., 1993).

289. Allen & Miller, *supra* note 239, at 1136.

290. Allen & Miller, *supra* note 239, at 1136.

are known to the expert through personal experience with the incident or person, the basis of the expert's opinion—the data he relied on, the process by which he formed his opinion, the technique he applied—is not admitted in this model.[291] The deference model worked well in those jurisdictions that applied *Frye*: "If fact finders must either defer to an expert or choose (unintelligently) between competing experts, some check on irrationality is necessary. *Frye* [had provided] precisely that check."[292]

With that check seemingly buried by *Daubert*, it would appear likely that courts would choose the education model, with its looser standard for admissibility, as the dominant model. In the education model, the expert explains to the jury the general principles or theories in the relevant field—the basis for the expert's opinion—and then applies them to the facts in issue.[293] The jury is assumed to be capable of understanding what the expert explains, separating what is reliable from what is not, and reaching the correct conclusion.[294] In such a system, the trial judge "should exercise little control over the selection and behavior of experts, and the admissibility of evidence they offer."[295] "The crucial variable in deciding between deference and education is the appraisal of the cognitive abilities of fact finders."[296] By overruling *Frye*, the decision of *Daubert* seems to say that "jurors are apt students, able to grasp the difficult concepts that experts teach, and to distinguish wheat from chaff."[297]

The helpfulness standard of Rule 702 also intimates a preference for the educational viewpoint. If scientific knowledge will help the juror "to understand the evidence or to determine a fact in issue," a qualified expert can testify thereto.[298] The Rule does not speak about deferring to the expert's conclusions, but instead admits the evidence along with the expert's testimony if doing so will educate or help the juror reach his own conclusion.[299] However, the expert can only educate or "assist the trier of fact" if the scientific evidence on which he relies is relevant.[300]

Randolph Jonakait argues, and now the seven-member majority in *Daubert* espouses, that scientific evidence is only relevant if it is reliable—a conditional relevancy question.[301] On that premise, Jonakait leans significantly more to the educational view than does the Court. Jonakait contends that according to the plain meaning standard, the judge, who "will seldom have the expertise to assess

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291. Allen & Miller, *supra* note 239, at 1136.

292. Allen & Miller, *supra* note 239, at 1141-42.

293. Richard A. Epstein, *Judicial Control over Expert Testimony: Of Deference and Education*, 87 Nw. U. L. REV. 1156, 1156 (1993).

294. *Id.*

295. *Id.*

296. Allen & Miller, *supra* note 239, at 1145.

297. Epstein, *supra* note 293, at 1156. *See also* Houston, *supra* note 286, at A14 (" 'juries are not too stupid to figure it out when evidence is not reliable' " (quoting Joan Bertin, counsel for a group of doctors, lawyers, and scientists who favor broader evidence rules)).

298. FED. R. EVID. 702.

299. *Id.*

300. *Id.* at advisory committee's note.

301. Jonakait, *supra* note 115, at 767.

scientific worth," cannot decide the reliability of the scientific evidence.[302] The judge only decides whether the *jury* could reasonably conclude that the evidence is reliable.[303] The parental role of shielding the jury from dubious scientific evidence must deteriorate under the plain meaning, educational standard.[304]

With that role weakened, some critics fear more dubious evidence would be introduced to the jury. However, the *Daubert* Court calms those fears somewhat by reinstating the deferential approach immediately after it abandons the *Frye* standard. The Court interprets Rule 702 as *requiring* that the trial judge determine the evidentiary reliability and relevancy of the scientific evidence before admission—even though no rule requires a preliminary reliability determination.[305] Over half of the Court's opinion focuses on why and how the judge should try to accomplish this task. The Court ostensibly applies the plain meaning standard of interpretation of the Rules to overrule *Frye*, but then sets up its own extraneous standard for admissibility, which is no more found within the language of the Rules than *Frye* was.[306]

Had the Court espoused the strict education model, the concerns expressed by the respondent Merrell—that abandoning *Frye* would set the stage for a "free-for-all" of evidence[307]—would not have been so easy to brush aside: The Court said the respondent was "overly pessimistic about the capabilities of the jury, and of the adversary system generally."[308] That argument reflects the educational approach, in assuming that "the jury is capable of evaluating novel scientific evidence."[309] The education model also assumes that cross-examination will illuminate any unreliable evidence—but, if such illumination does not occur, that evidence is already in front of the jury.

Concerns with the education model are all valid arguments against its adoption; the Court, however, did not adopt the education model. The hybrid standard it does suggest resembles, if anything, the deferential view. The Court holds that the responsibility remains on the trial judge to determine reliability before admissibility.[310] The "general observations" the Court offers to help the judge in his gatekeeping role are all based on deference to the expert. Each factor is essentially a question that must be answered by an expert. Ever an important question that the Court failed to address, however, is selection of an expert (the plaintiff's,

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302. Jonakait, *supra* note 115, at 767.

303. Jonakait, *supra* note 115, at 767 (citing Huddleston v. United States, 485 U.S. 681, 690 (1988)).

304. Jonakait, *supra* note 115, at 770.

305. *See* Daubert v. Merrell Dow Pharmaceuticals, Inc., 113 S. Ct. 2786, 2800 (1993) (Rehnquist, C.J., concurring in part and dissenting in part).

306. *Id.* at 2796-98 and the Rules generally.

307. *Daubert*, 113 S. Ct. at 2798.

308. *Id.* These are the general defenses to critiques of the education model.

309. Gianelli, *supra* note 2, at 1239.

310. *Daubert*, 113 S. Ct. at 2796 & n.10.

defendant's, or court's) on which to rely in the judge's quest for determining reliability, and hence, admissibility.[311]

The Court's first criterion is whether the theory is testable. Usually it is other experts who perform such testing, but the Court does not comment on which expert's results the judge should rely. The second consideration is whether the theory has been published or otherwise subjected to peer review. Who are an expert's peers but other experts? A third factor is the rate of error. Usually experts calculate such rates or determine if the error rates are too high for the evidence to be scientifically reliable. Finally, the judge can also inquire as to the general acceptance of the theory in the relevant scientific community. Again, usually only an expert in the relevant field can answer such an inquiry, and again, the Court does not elucidate on which expert's answer the judge should rely. Although the judge makes the inquiries, he must defer to the answers of experts. Also, the fact of acceptance itself depends on experts – they are the ones who must accept the theory.

Even the Court's proferred use of Rule 403 is based on deference. That Rule states that relevant evidence may be excluded if its danger of unfair prejudice substantially outweighs its probative value.[312] To determine the probative value of scientific evidence, the trial judge generally will be " 'forced to accept the probative value of the evidence as what a qualified expert testifies it to be.' "[313] The same dilemma shows up again, in that the judge will have to rely on one expert to exclude the testimony of another, thus bringing the deference approach (which *Daubert* keeps intact just as much as did *Frye*) full circle.

The *Daubert* opinion does little more than the Rules did to clarify the standard for admissibilty of novel scientific evidence. The opinion does explicitly hold that the Rules supersede the *Frye* standard. That ruling was all that was required to decide the question before the Court. However, the Court proceeds past what is necessary for the decision to offer some general observations on how trial judges should determine admissibility. As Chief Justice Rehnquist states in his dissent, " '[g]eneral observations' by [the] Court customarily carry great weight with lower federal courts, but . . . they tend to be not only general, but vague and abstract."[314]

The majority imbued its general observations offered in *Daubert* with those very flaws. District judges can extrapolate as many different admissibility standards out of *Daubert* as they did out of *Frye* because the Court does not offer the list as exclusive nor exhaustive.[315] Also, although he does not subscribe to them,

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311. For example, should trial judges ask the plaintiff's or the defendant's expert if the rate of error is too high?; if the disputed theory is generally accepted?; if the theory is testable? From these questions the dilemma facing trial judges becomes clear.

312. FED. R. EVID. 403.

313. Gianelli, *supra* note 2, at 1236 (quoting John W. Strong, *Questions Affecting the Admissibility of Scientific Evidence*, 1970 U. ILL. L.F. 1, 22).

314. *Daubert*, 113 S. Ct. at 2799 (Rehnquist, C.J., concurring in part and dissenting in part).

315. I am indebted to Judge William H. Barbour, district judge for the Southern District of Mississippi, for his comments concerning this subject. Remarks at the Meeting of the Charles Clark American Inns of Court (Mar. 28, 1994).

Chief Justice Rehnquist refers to the proffered factors in *Daubert* as dicta,[316] encouraging trial judges to apply their own set of factors distinct from those in *Daubert*, or to not apply any factors at all.

Even if the decision had clarified the admissibility standard, the Court could have chosen a better vehicle with which to accomplish that goal. The evidence offered in *Daubert* was not novel scientific evidence. The type of epidemiology evidence and testimony excluded in *Daubert* had been available for years. Other circuits had decided similar cases concerning the same type of evidence.[317] Because of this, the Court does not adequately address the problems presented when the proffered evidence really is novel – when there has been no time to publish it, or subject it to peer review, or test it, etc. In such a case, under the *Daubert* factors, the novel evidence most certainly will be excluded – the same result reached if *Frye* were still the applicable standard.

Alternatives that district judges may employ if they read *Daubert* as encouraging lenient standards of admissibility include more extensive use of summary judgments and directed verdicts. The Court itself suggested these tools in its opinion as a way for judges to admit the evidence, yet keep control of the jury's reliance on it.[318]

VI. CONCLUSION

The Supreme Court should have only used the *Daubert* case to hold that the Rules superseded the *Frye* test when they were enacted. Instead, the majority went on to try and set up a uniform standard of admissibility for novel scientific evidence. What they offered were some general observations that at least Chief Justice Rehnquist perceives as only dicta. In any event, the Court's proferred "standard" is as malleable as the old general acceptance standard.

The circuits which had previously held *Frye* had been superseded by the Rules had developed their own Rules-based standards, which are similar enough to the standard offered in *Daubert* to suggest that the circuits will not see a need to change their standards in order to conform to *Daubert*'s. Despite all the fuss,[319] the majority's opinion, after its ruling on the continuing viability of *Frye*, changes very little in the way of admissibility of expert testimony based on novel scientific theories.[320]

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316. *Daubert*, 113 S. Ct. at 2800 (Rehnquist, C.J., concurring in part and dissenting in part).

317. *See, e.g.*, DeLuca v. Merrell Dow Pharmaceuticals, Inc., 911 F.2d 941 (3d Cir. 1990); Brock v. Merrell Dow Pharmaceuticals, Inc., 874 F.2d 307 (5th Cir.), *modified*, 884 F.2d 166 (5th Cir. 1989), *cert. denied*, 494 U.S. 1046 (1990); Richardson v. Richardson-Merrell Dow, 857 F.2d 823 (D.C. Cir. 1988), *cert. denied*, 493 U.S. 882 (1989).

318. *Daubert*, 113 S. Ct. at 2791.

319. *See, e.g.*, supra note 286.

320. Reaching the same decision on remand as it did before the *Daubert* opinion, the Ninth Circuit still excluded the expert testimony. Daubert v. Merrell Dow Pharmaceuticals, Inc., 43 F.3d 1131 (9th Cir. 1995).