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Evidence: *Taylor v. State* — Oklahoma Abandons the *Frye* Test and Forces Its State Court Judges to Enter the Twilight Zone

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

— *Frye v. United States*¹

I. Introduction

On January 31, 1995, the Oklahoma Court of Criminal Appeals decided *Taylor v. State*,² thereby officially abandoning the *Frye* test,³ which was used to determine the admissibility of scientific evidence.⁴ Many in the legal community regard this decision as long overdue. While it is arguably true that the *Frye* test should be abandoned,⁵ the Oklahoma Court of Criminal Appeals' decision to follow the United States Supreme Court case of *Daubert v. Merrell Dow Pharmaceuticals*⁶ is questionable. The decision places Oklahoma's trial judges in the role of "gatekeeper," but fails to provide the guidance needed to confront the many difficult issues raised by scientific evidence and expert testimony.

While *Daubert* must be followed in federal courts, state courts are free to adopt their own standards governing the admissibility of scientific evidence. Indeed, many states have decided against adopting the *Daubert* methodology.⁷ It is interesting that the Oklahoma Court of Criminal Appeals decided to adopt a standard that so many other states have rejected.

1. 293 F. 1013, 1014 (D.C. Cir. 1923).

2. 889 P.2d 319 (Okla. Crim. App. 1995).

3. Prior to *Taylor*, Oklahoma used the *Frye* "general acceptance" test which states: "Before scientific evidence is admissible, there must be proof that the reliability of the tests used has gained general acceptance and recognition in the concerned scientific community." *Yell v. State*, 856 P.2d 996, 996 (Okla. Crim. App. 1993) (quoting *Plunkett v. State*, 719 P.2d 834, 840 (Okla. Crim. App. 1986)).

4. *Taylor*, 889 P.2d at 328.

5. See Paul C. Giannelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, a Half Century Later*, 80 COLUM. L. REV. 1197, 1250 (1980) (concluding that the *Frye* test has "proved unworkable").

6. 509 U.S. 579 (1993).

7. *Taylor*, 889 P.2d at 328 n.32 (stating that, as of Jan. 31, 1995, seventeen reported state court decisions had considered *Daubert* and in only two of those did the state court decide to abandon *Frye* in favor of *Daubert*).

Initially, this note will examine the *Frye* and *Daubert* decisions and how they have been applied in Oklahoma. Next, the Oklahoma case of *Taylor v. State*⁸ will be explored. Finally, this note will conclude with an analysis of how the *Taylor* decision will affect Oklahoma's state court judges in future trials involving the admission of novel scientific evidence or expert testimony.

II. Historical Background

A. *Frye v. United States*

1. Facts of *Frye*

In *Frye*, the defendant appealed a second degree murder conviction. Prior to trial, the defendant voluntarily submitted to a systolic blood pressure deception test.⁹ During trial, the defense offered the scientist who had administered the test as an expert witness to testify to the result of the test, or alternatively, to have the scientist administer the test to the defendant in the presence of the jury.¹⁰ The court refused both of these requests.¹¹ In upholding the trial court's decision, the Court of Appeals for the District of Columbia held that the systolic blood pressure deception test had not gained "standing and scientific recognition" among experts in the physiological and psychological fields to justify its admission into evidence.¹² The court reasoned that any form of novel scientific evidence "must be sufficiently established to have gained general acceptance in the particular field in which it belongs" before it will be admitted into evidence.¹³ The test established in *Frye* has become known as the "general acceptance" test.

2. The *Frye* General Acceptance Test

Under the *Frye* "general acceptance" test, the party seeking to have scientific evidence admitted bears the burden of establishing its underlying scientific basis and reliability.¹⁴ This can be accomplished by having an expert in the specific field testify that the scientific community regards the particular technology as reliable. While not specifically required in *Frye*, most courts find that the application of the *Frye* test requires a two prong analysis.¹⁵ The trial judge must determine: (1) whether the underlying theory is generally accepted and (2) whether the particular technique at issue is generally accepted.¹⁶ General acceptance by those who have the greatest knowledge of a technique reportedly guarantees that

8. 889 P.2d 319 (Okla. Crim. App. 1995).

9. *Frye*, 293 F. at 1013.

10. *Id.* at 1014.

11. *Id.*

12. *Id.*

13. *Id.*

14. *Mitchell v. State*, 884 P.2d 1186, 1198 n.30 (Okla. Crim. App. 1994).

15. Cassandra C. Colchagoff, *A New Era for Science and the Law: The Face of Scientific Evidence in the Federal Courts after Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 29 TULSA L.J. 735, 738 (1994).

16. *Id.*

there will be a group of experts familiar with that technique to critically examine its reliability and application in a certain case.¹⁷ Universal acceptance is not required to show general acceptance.¹⁸

3. Criticisms of *Frye*

While many state and federal courts have used the standard set forth in *Frye*, the validity of the *Frye* test has been debated. The debates have centered around two concerns: (1) vagueness in the application of the test and (2) *Frye's* essentially conservative character.¹⁹ Also, uncertainties in determining the appropriate scientific field and the level of acceptance required create difficulties in implementing the test.²⁰ These criticisms of *Frye*, coupled with uncertainty as to how the Federal Rules of Evidence affected *Frye*, led the Supreme Court of the United States to rule, in *Daubert v. Merrell Dow Pharmaceuticals*, that the Federal Rules of Evidence superseded *Frye*.²¹

4. Oklahoma's Application of *Frye*

The Oklahoma Court of Criminal Appeals adopted *Frye* in 1951.²² Since then, Oklahoma has been a "strict" *Frye* state. In other words, Oklahoma has not modified or added to the basic *Frye* test. Allegations of error in the testing process affect the weight of scientific evidence but not its admissibility.²³ In Oklahoma, the *Frye* test has been used to exclude a lie detector test and a truth serum test,²⁴ to rule that the Horizontal Gaze Nystagmus (blood alcohol) test is inadmissible at trial,²⁵ to uphold a trial court's exclusion of a polygraph test,²⁶ to admit expert testimony concerning child "Accommodation Syndrome,"²⁷ to uphold a trial court's decision to admit a fiber analysis test,²⁸ and to determine that DNA evidence is admissible at trial.²⁹

While all of the above cases were decided by the Oklahoma Court of Criminal Appeals, the Oklahoma Supreme Court has not been oblivious to the *Frye* test. In a dissenting opinion, Justice Opala of the Oklahoma Supreme Court stated that it was error to admit into evidence a human leukocyte antigen (HLA) test in a paternity suit.³⁰ The opinion emphasized the absence of expert testimony

17. *United States v. Addison*, 498 F.2d 741, 743-44 (D.C. Cir. 1974).

18. Paul B. Tyler, *The Kelly-Frye "General Acceptance" Standard Remains the Rule for Admissibility of Novel Scientific Evidence: People v. Leahy*, 22 PEPP. L. REV. 1274, 1278 (1995).

19. *United States v. Downing*, 753 F.2d 1224, 1236 (3d Cir. 1985).

20. *Id.*

21. *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579, 587 (1993).

22. *See Henderson v. State*, 230 P.2d 495, 502-03 (Okla. Crim. App. 1951).

23. *Taylor v. State*, 889 P.2d 319, 324 n.13 (Okla. Crim. App. 1995).

24. *Henderson*, 230 P.2d at 506.

25. *Yell v. State*, 856 P.2d 996, 997 (Okla. Crim. App. 1993).

26. *Paxton v. State*, 867 P.2d 1309, 1324 (Okla. Crim. App. 1993).

27. *Davenport v. State*, 806 P.2d 655, 658 (Okla. Crim. App. 1991).

28. *Driskell v. State*, 659 P.2d 343, 356 (Okla. Crim. App. 1983).

29. *Taylor v. State*, 889 P.2d 319, 329 n.37 (Okla. Crim. App. 1995).

30. *Callison v. Callison*, 687 P.2d 106, 115 (Okla. 1984) (Opala, J., dissenting).

regarding the reliability of the testing technique.³¹ At this point, it is impossible to predict whether the Oklahoma Supreme Court will follow the lead of the Oklahoma Court of Criminal Appeals and apply *Daubert*, rather than *Frye*, in civil cases. That decision will be made the next time the court hears a case involving expert testimony or novel scientific evidence.

B. *Daubert v. Merrell Dow Pharmaceuticals*

1. *Facts of Daubert*

In *Daubert*, two minor children and their parents alleged that the mothers' ingestion of Bendectin, a prescription anti-nausea drug, caused the children's birth defects.³² The district court granted Merrell Dow's motion for summary judgment³³ based on published scientific literature which stated that maternal use of Bendectin had not been shown to be a risk factor for human birth defects.³⁴ Plaintiffs' attorney offered evidence of animal studies, chemical structure analyses, and unpublished "reanalysis" of human statistical studies to show that Bendectin was capable of causing birth defects.³⁵ Although all eight witnesses who offered this evidence were well credentialed,³⁶ the court applied the *Frye* test and ruled the evidence inadmissible.³⁷ The Ninth Circuit, reviewing the issue de novo, affirmed.³⁸ The United States Supreme Court granted certiorari "in light of sharp divisions among the courts regarding the proper standard for the admission of expert testimony."³⁹

The United States Supreme Court held that the Federal Rules of Evidence (Rules), specifically Rule 702⁴⁰ which provides for expert testimony, superseded *Frye*.⁴¹ Interpreting the Rules as it would any other legislatively enacted statute, the Court initially examined the text of the Rules.⁴² Rule 402⁴³ provides a standard for liberal admissibility.⁴⁴ Further, Rule 401⁴⁵ establishes a broad

31. *Id.* (Opala, J., dissenting).

32. *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579, 582 (1993).

33. *Id.* at 583.

34. *Id.*

35. *Id.* at 583-84.

36. *Id.* at 583.

37. *Id.* at 583-84.

38. *Daubert v. Merrell Dow Pharm.*, 951 F.2d 1128, 1130-31 (9th Cir. 1991), *vacated*, 509 U.S. 579 (1993).

39. *Daubert*, 509 U.S. at 585.

40. "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.

41. *Daubert*, 509 U.S. at 587-88.

42. *Id.* at 587.

43. "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.

44. *Daubert*, 509 U.S. at 587.

45. "Relevant evidence means evidence having any tendency to make the existence of any fact that

definition of relevance.⁴⁶ Acknowledging that *Frye* predated the Rules by half a century, the Court then cited *United States v. Abel*⁴⁷ for the theoretical proposition that "the Rules occupy the field."⁴⁸ When a specific rule speaks to the contested issue, it displaces existing common law.⁴⁹ Because nothing in the text or drafting history of Rule 702 establishes "general acceptance" as a prerequisite to admissibility, the Court ruled that the *Frye* test is incompatible with the liberal thrust of the Rules and should not be applied in federal trials.⁵⁰

2. The *Daubert* "Standard"

The *Daubert* Court established a new standard which requires the trial judge to act as a "gatekeeper" to "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable."⁵¹ The Court stated that judges will primarily look to Rule 702 when deciding the reliability issue.⁵² The term "scientific knowledge" in the text of the Rule is of particular importance. In the Court's words, "[t]he adjective 'scientific' implies a grounding in the methods and procedures of science."⁵³ Similarly, the word 'knowledge' connotes more than subjective belief or unsupported speculation.⁵⁴ To qualify as "scientific knowledge," an inference or assertion must derive from the scientific method.⁵⁵ Thus, the path to admissibility begins with application of the specific scientific method at issue.

The Court then discussed the Rule 702 requirement that evidence or testimony "assist the trier of fact to understand the evidence or to determine a fact in issue."⁵⁶ This condition, according to the majority, goes primarily to relevance.⁵⁷ Moreover, relevancy under Rule 702 requires that the expert testimony proffered be sufficiently tied to the facts of the case so that it will aid the jury in resolving a factual dispute.⁵⁸ This "helpfulness" standard of Rule 702 requires "a valid scientific connection to the pertinent inquiry as a precondition to admissibility."⁵⁹

Next, the Court cited Rule 104(a)⁶⁰ for the proposition that the trial judge, when

is of consequence to the determination of the action more probable or less probable than it would be without the evidence." FED. R. EVID. 401.

46. *Daubert*, 509 U.S. at 587.

47. 469 U.S. 45, 49 (1984).

48. *Daubert*, 509 U.S. at 587.

49. *Id.* at 588.

50. *Id.* at 588-89.

51. *Id.* at 589.

52. *Id.*

53. *Id.* at 590.

54. *Id.*

55. *Id.*

56. *Id.* at 591.

57. *Id.*

58. *Id.*

59. *Id.* at 591-92.

60. Rule 104 provides:

(a) Questions of Admissibility Generally. Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility

faced with a proffer of expert scientific testimony, must determine "whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue."⁶¹ This inquiry requires the trial judge to determine whether the reasoning or methodology that underlies the testimony is scientifically valid. Also, the inquiry requires the trial judge to determine whether that reasoning or methodology can properly be applied to the facts at issue.⁶²

While declining to set out a definitive checklist or test, the Court expressed confidence in federal judges' ability to undertake the *Daubert* review.⁶³ The Court did, however, provide some "general observations" to assist the courts in evaluating scientific methodology: (1) Can the scientific theory or technique at issue be tested, and has it been tested? (2) Has the theory or technique been subjected to peer review and publication? (3) What is the potential rate of error of the technique at issue? and (4) What degree of acceptance does the theory or technique have in the scientific community?⁶⁴

Finally, the Court emphasized that the inquiry envisioned by Rule 702 is a flexible one. "Its overarching subject is the scientific validity — and thus the evidentiary relevance and reliability — of the principles that underlie a proposed submission. The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate."⁶⁵

3. Chief Justice Rehnquist's Opinion

Concurring in part, Chief Justice Rehnquist, joined by Justice Stevens, agreed that *Frye* had been superseded by the Federal Rules of Evidence.⁶⁶ However, he also dissented in part because he would not have offered the vague "general observations" derived by the majority through "abstract" construction of the Rules.⁶⁷ Rehnquist disagreed with the majority's observations regarding the factors that ought to bear on admissibility.⁶⁸ Specifically, Rehnquist cited Part II-B of the majority's opinion which states that reliability and relevancy are the touchstones of admissibility.⁶⁹ While agreeing that Rule 401 defines "relevancy," Rehnquist

of evidence shall be determined by the court, subject to the provisions of subdivision (b). In making its determination it is not bound by the rules of evidence except those with respect to privileges.

(b) Relevancy Conditioned on Fact. When the relevancy of evidence depends upon the fulfillment of a condition of fact, the court shall admit it upon, or subject to, the introduction of evidence sufficient to support a finding of the fulfillment of the condition.

FED. R. EVID. 104.

61. *Daubert*, 509 U.S. at 592.

62. *Id.* at 592-93.

63. *Id.* at 593.

64. *Id.* at 593-94.

65. *Id.* at 594.

66. *Daubert*, 509 U.S. at 598 (Rehnquist, C.J., concurring in part and dissenting in part).

67. *Id.* (Rehnquist, C.J., concurring in part and dissenting in part).

68. *Id.* at 599 (Rehnquist, C.J., concurring in part and dissenting in part).

69. *Id.* (Rehnquist, C.J., concurring in part and dissenting in part).

was unable to discover any direct authority for the "reliability" requirement imposed by the majority.⁷⁰ Rehnquist stated that the statutory parsing used by the majority to create a reliability requirement will lead to countless questions when district judges attempt to apply the Court's teaching to particular offers of expert testimony.⁷¹ Rehnquist ended his dissent with the following admonition: "I do not doubt that Rule 702 confides to the judge some gatekeeping responsibility in deciding questions of admissibility of proffered expert testimony. But I do not think it imposes on them either the obligation or the authority to become amateur scientists in order to perform that role."⁷²

4. Other Criticisms of *Daubert*

The Honorable Martin L.C. Feldman, United States District Judge for the Eastern District of Louisiana, classifies the *Daubert* standard as disappointing and suggests that the practical impact of *Daubert* could be both minimal and confusing.⁷³ According to Judge Feldman, *Daubert* offers an awkward analytical model at best.⁷⁴ "The Court failed to provide trial judges with a well-defined standard for separating unreliable scientific evidence from reliable scientific evidence."⁷⁵ Noting that the fourth "general observation" listed by the *Daubert* Court is the *Frye* "general acceptance" test, Judge Feldman accuses the Court of sending conflicting signals to trial courts by abandoning *Frye* and then resurrecting it as one consideration under the new standard.⁷⁶ Not only are the results under *Daubert* likely to be the same as those under *Frye*,⁷⁷ the criticisms are also likely to be the same. Like *Frye*, *Daubert* may also fail to liberalize the admissibility of scientific evidence.⁷⁸

5. Oklahoma's Application of *Daubert*

Oklahoma has applied the *Daubert* standard only once. In *Taylor v. State*,⁷⁹ the Oklahoma Court of Criminal Appeals adopted *Daubert* and then applied the *Daubert* standard to the DNA evidence at issue. The court ruled that DNA match evidence obtained through restriction fragment length polymorphism (RFLP) analysis and DNA statistics calculated through standard population genetics formulas pass the *Daubert* test.⁸⁰ As a result of *Taylor*, Oklahoma's trial judges faced with DNA profiling evidence produced through these means will not have

70. *Id.* (Rehnquist, C.J., concurring in part and dissenting in part).

71. *Id.* at 600 (Rehnquist, C.J., concurring in part and dissenting in part).

72. *Id.* at 600-01 (Rehnquist, C.J., concurring in part and dissenting in part).

73. Martin L.C. Feldman, *May I Have The Next Dance, Mrs. Frye?*, 69 TUL. L. REV. 793, 802-03 (1995).

74. *Id.* at 806.

75. *Id.* at 806-07.

76. *Id.* at 807.

77. *Id.* at 805.

78. *Id.* at 804.

79. 889 P.2d 319 (Okla. Crim. App. 1995).

80. *Id.* at 338.

to conduct a *Daubert* pretrial admissibility hearing.⁸¹ While trial judges in Oklahoma will not have to reexamine this issue, a world of scientific evidence awaits their attention in the future. Likewise, the Oklahoma Court of Criminal Appeals, and the Oklahoma Supreme Court, provided it adopts the *Daubert* standard in civil cases, could be kept very busy independently reviewing trial judges' decisions to admit or exclude scientific evidence under *Daubert*.⁸²

III. *Taylor v. State*

A. *Facts of the Case*

On May 23, 1988, an intruder broke a window and entered S.H.'s home.⁸³ After demanding and obtaining money from S.H., the intruder raped S.H. and forced both S.H. and her mother, A.H., to orally sodomize him.⁸⁴ Taylor was apprehended after S.H. helped the police compose a sketch of the assailant.⁸⁵ Taylor voluntarily provided the police with saliva, blood, and hair samples.⁸⁶ These specimens, along with oral washings from both S.H. and A.H. and blood and semen samples collected from their clothing, were sent to a laboratory for testing.⁸⁷ Using DNA Print Identification, scientists determined that the DNA in Taylor's blood sample "matched" the DNA in the semen found on the clothing of S.H. and A.H.⁸⁸

The trial court held an in camera hearing in which it determined that the DNA testing met the admissibility standard set forth in *Frye*.⁸⁹ Three expert witnesses testified at trial. One of these experts was the scientist who had performed the DNA test on the samples taken from Taylor and the victims. This expert explained the procedure to the jury and stated that the results showed a match between Taylor's DNA and the DNA found on the victims' clothing.⁹⁰ Taylor was convicted of first degree burglary, first degree rape, forcible oral sodomy, and first degree robbery.⁹¹

Taylor appealed to the Oklahoma Court of Criminal Appeals, claiming, among other things, inadmissibility of the DNA test results.⁹² After determining that the issue was one of first impression in Oklahoma, the court remanded Taylor's case to the trial court and ordered an evidentiary hearing.⁹³ The purpose of the

81. *Id.*

82. *See id.* at 339 ("This court will independently review a trial judge's decision admitting or excluding novel scientific or technical evidence to determine whether it passes muster under *Daubert*.").

83. *Id.* at 322.

84. *Id.*

85. *Id.*

86. *Id.*

87. *Id.* at 322-23.

88. *Id.* at 323.

89. *Id.*

90. *Id.*

91. *Id.* at 322.

92. *Id.* at 324.

93. *Id.*

evidentiary hearing was to determine the following: "whether DNA fingerprinting is generally accepted in the scientific community; whether the statistical conclusions derived from DNA fingerprinting are generally accepted in the scientific community; and, whether the procedures used in Taylor's case comported with generally accepted scientific procedures."⁹⁴ The court affirmatively answered each of these questions.⁹⁵ Taylor then filed a supplemental proposition in which he argued that the DNA match evidence and accompanying statistics used against him were "obtained through procedures which have not gained general acceptance in the scientific community and should therefore have been excluded under *Frye*."⁹⁶ Additionally, Taylor attacked the procedures the laboratory used in performing the DNA test in his case.⁹⁷ The United States Supreme Court rendered the *Daubert* decision after the evidentiary hearing in *Taylor* but prior to Taylor's appeal from that hearing.

B. The Court of Criminal Appeals' Holding

The Oklahoma Court of Criminal Appeals decided that the DNA evidence admitted against Taylor did pass the *Frye* test, which was the proper standard at the time the evidentiary hearing was held.⁹⁸ Then, after reevaluating the *Frye* general acceptance method for determining the admissibility of novel scientific evidence, the court decided to abandon that test and adopt the more flexible standard fashioned by the United States Supreme Court in *Daubert*.⁹⁹ After deciding that the DNA evidence presented against Taylor also passed muster under *Daubert*, Taylor's conviction and sentence were affirmed.¹⁰⁰

C. The Majority's Stated Purpose For Abandoning Frye In Favor Of Daubert

The Oklahoma Court of Criminal Appeals stated that the adoption of *Daubert* will "provide structure and guidance to what has until now been a potentially confusing and sparsely defined area of legal analysis in our state jurisprudence."¹⁰¹ The court noted that in pertinent cases, it had not consistently relied upon *Frye* when faced with questions involving the admissibility of expert testimony describing novel scientific evidence.¹⁰² Instead of using *Frye* consistently, section 2702 of the Oklahoma Evidence Code¹⁰³ had been used to deter-

94. *Id.*

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.* at 329 n.37.

99. *Id.* at 338.

100. *Id.* at 340.

101. *Id.* at 329.

102. *Id.* at 328-29.

103. Section 2702 provides: "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 in the form of an opinion or otherwise." 12 OKLA. STAT. § 2702 (1991).

mine the admissibility of expert testimony describing novel scientific evidence.¹⁰⁴ Furthermore, in cases utilizing the *Frye* test, the possible prejudicial effect of the expert testimony at issue had generally been ignored.¹⁰⁵ The majority justified its decision to abandon *Frye* in favor of *Daubert* by stating that the adoption of *Daubert* ensures that relevant sections of the Oklahoma Evidence Code are given appropriate consideration in admission decisions.¹⁰⁶ Noting that the *Daubert* standard is both "structured" and "flexible,"¹⁰⁷ the court stated that the *Daubert* approach provides "a uniform method of addressing the admissibility of expert testimony on all types of scientific evidence."¹⁰⁸

D. The Taylor Court's Interpretation of Daubert and How It Will Be Applied in the Future

The Oklahoma Court of Criminal Appeals stated that because it had conducted a detailed examination of DNA profiling techniques and had determined that those techniques passed the *Daubert* standard, courts faced with DNA evidence produced through those means will not need to conduct *Daubert* pretrial admissibility hearings.¹⁰⁹ However, pretrial *Daubert* hearings must be held if either party offers scientific or technical evidence which has not previously been considered in Oklahoma.¹¹⁰ Future *Daubert* hearings will determine whether scientific evidence is sufficiently "reliable" and "relevant" to warrant admission, and whether the probative value of the evidence is substantially outweighed by the danger of unfair prejudice.¹¹¹

Reliability will be determined by using the four factors enumerated in *Daubert*: (1) Whether the scientific method at issue has been or can be tested; (2) Whether the theory has been subjected to peer review; (3) Whether the scientific procedure has a known or potential rate of error; and (4) Whether the scientific evidence at issue has gained acceptance in the relevant scientific community.¹¹² However, these four factors are neither exclusive nor necessarily dispositive, they merely aid the reliability determination which is the responsibility of the trial judge.¹¹³

The relevancy component requires that the evidence bear a valid scientific connection to the pertinent inquiry, thereby assisting the trier of fact in assessing the issues.¹¹⁴ Finally, on appeal, the Oklahoma Court of Criminal Appeals will

104. *Taylor*, 889 P.2d at 329.

105. *Id.*

106. *Id.*

107. *Id.* at 328.

108. *Id.* at 329.

109. *Id.* at 338.

110. *Id.* at 339.

111. *Id.*

112. *Id.* at 339 n.88.

113. *Id.*

114. *Id.* at 339.

independently review a trial judge's decision to admit or exclude novel scientific or technical evidence to determine whether it passes muster under *Daubert*.¹¹⁵

E. The Concurring Opinions

While the majority opinion of *Taylor v. State* illustrates good reasons to abandon *Frye* and adopt *Daubert*, the concurring opinions reveal potential difficulties that Oklahoma's trial judges will face. Judge Lane, specially concurring, stated that the decision to shift the responsibility of determining the scientific reliability of new scientific theories from the scientific community to trial judges may be "ill advised from a practical standpoint."¹¹⁶ While agreeing with the legal analysis used by the majority, he expressed concern for the practical application of the results. His recommendation is that the Oklahoma legislature and the Oklahoma Bar Association consider the *Taylor* decision and "determine if new legislation is needed."¹¹⁷

Judge Lumpkin, concurring in the result, echoed these same concerns in greater detail. Initially, he criticized the majority's adoption of *Daubert* because he perceived that the issue was not properly before the court.¹¹⁸ This criticism is based on the fact that the applicability of *Daubert* was neither presented to the trial court nor mentioned in the briefs filed with the Oklahoma Court of Criminal Appeals.¹¹⁹ Judge Lumpkin also addressed the potential impact of the adoption of *Daubert*.

Judge Lumpkin's first expressed concern is the disparity in resources between federal district courts and state trial courts.¹²⁰ Unlike state trial court judges, federal district judges have "virtually unlimited resources" such as "law clerks and support personnel to assist them in their administrative and adjudicatory duties."¹²¹ Next, he pointed out the fact that federal judges have the use of Rule 706 of the Federal Rules of Evidence¹²² which has not been incorporated into the

115. *Id.*

116. *Id.* at 341 (Lane, J., concurring specially).

117. *Id.* (Lane, J., concurring specially).

118. *Id.* at 341-42 (Lumpkin, J., concurring in result).

119. *Id.* (Lumpkin, J., concurring in result).

120. *Id.* at 342 (Lumpkin, J., concurring in result).

121. *Id.*

122. Rule 706 provides:

(a) Appointment. The court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witness agreed upon by the parties, and may appoint expert witnesses of its own selection. An expert witness shall not be appointed by the court unless the witness consents to act. A witness so appointed shall be informed of the witness' duties by the court in writing, a copy of which shall be filed with the clerk, or at a conference in which the parties shall have opportunity to participate. A witness so appointed shall advise the parties of the witness' findings, if any; the witness' deposition may be taken by any party; and the witness may be called to testify by the court or any party. The witness shall be subject to cross-examination by each party, including a party calling the witness.

Oklahoma Evidence Code.¹²³ Rule 706 provides for the appointment of an independent expert to assist the court in the evaluation of "novel" scientific theories.¹²⁴ Further, even though armed with greater resources, federal courts are presently required to shoulder only 2% of the litigation burden in the United States.¹²⁵ The fact that few judges are "endowed with the educational and experiential background to be able to determine the technical validity of scientific theory" amplifies these concerns.¹²⁶

Judge Lumpkin did not criticize without offering suggestions. Lumpkin opined that if the legislature did not intend the results that have been reached via *Daubert* and *Taylor*, they should act to sufficiently restrict the application of section 2702 of the Oklahoma Evidence Code.¹²⁷ Such a restriction should be in the form of laying a foundation prior to the admissibility of the opinion evidence.¹²⁸ However, if the results reached via *Daubert* and *Taylor* are the intent of the legislature, then the legislature should ensure that Oklahoma's trial judges have the resources needed to conduct *Daubert* investigations.¹²⁹ Specifically, funding is needed to provide judges with research tools, support personnel, and continuing education which will assist them in determining the "reliability" of "novel" scientific evidence.¹³⁰ Additionally, "the Oklahoma legislature should adopt the provisions of Rule 706 of the Federal Rules of Evidence."¹³¹ Judge Lumpkin suggested that the statutory language should "not only permit the use of court-appointed experts by trial courts, but also create the procedure for their appointment, the scope of their role in serving as a court-appointed expert, and provide for appropriate compensation and funding."¹³²

Finally, Judge Lumpkin took issue with the Oklahoma Court of Criminal Appeals' *de novo* standard of review. He recommended that the trial court record bind the appellate court in determining whether "the trial judge abused his or her

(b) Compensation. Expert witnesses so appointed are entitled to reasonable compensation in whatever sum the court may allow. The compensation thus fixed is payable from funds which may be provided by law in criminal cases and civil actions and proceedings involving just compensation under the fifth amendment. In other civil actions and proceedings the compensation shall be paid by the parties in such proportion and at such time as the court directs, and thereafter charged in like manner as other costs.

(c) Disclosure of Appointment. In the exercise of its discretion, the court may authorize disclosure to the jury of the fact that the court appointed the expert witness.

(d) Parties' Experts of Own Selection. Nothing in this rule limits the parties in calling expert witnesses of their own selection.

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123. *Taylor*, 889 P.2d at 342 (Lumpkin, J., concurring in result).

124. *Id.* (Lumpkin, J., concurring in result).

125. *Id.* (Lumpkin, J., concurring in result).

126. *Id.* (Lumpkin, J., concurring in result).

127. *Id.* at 343 (Lumpkin, J., concurring in result).

128. *Id.* (Lumpkin, J., concurring in result).

129. *Id.* (Lumpkin, J., concurring in result).

130. *Id.* (Lumpkin, J., concurring in result).

131. *Id.* (Lumpkin, J., concurring in result).

132. *Id.* (Lumpkin, J., concurring in result).

discretion in admitting or denying the evidence based on the evidence presented to the trial court."¹³³ Oklahoma must place "full faith and credit" in the abilities of trial judges and "not initiate a process that seeks to second-guess their decision making process."¹³⁴

IV. Analysis

The concurring opinions are both insightful and thought-provoking. Judge Lumpkin's points are well taken, especially in light of Justice Blackmun's comment in the United States Supreme Court case of *Daubert v. Merrell Dow Pharmaceuticals*.¹³⁵ In Part II-C of the *Daubert* opinion, Justice Blackmun stated, "We are confident that federal judges possess the capacity to undertake this review."¹³⁶ Because Justice Blackmun did not express a similar confidence in state court judges, it seems clear that *Daubert* was only intended for federal courts and was not intended to be adopted by state court systems. The hesitancy of other state appellate courts to summarily adopt the *Daubert* methodology supports this proposition.¹³⁷ Overburdened state court dockets and financial constraints leave state court judges in a less than optimal position to investigate and determine the admissibility of novel scientific evidence.

With respect to Oklahoma's state courts, Judge Lane may have put it best when he stated, "Heaven help us if a case comes along that relies on sub-atomic physics."¹³⁸ After *Taylor*, what happens if one of Oklahoma's trial court judges is asked to determine the admissibility of evidence based on subatomic physics? Initially, pursuant to sections 2105¹³⁹ and 2702 of the Oklahoma Evidence Code, the trial judge would be required to determine whether the principles underlying subatomic physics and the testing procedure utilizing subatomic physics are reliable. Or, to put it another way, whether the principles and methodology at issue are scientifically valid.¹⁴⁰ To address this initial question of reliability, the trial judge would need to examine the principles underlying subatomic physics and the

133. *Id.* at 344 (Lumpkin, J., concurring in result).

134. *Id.* (Lumpkin, J., concurring in result).

135. 509 U.S. 579 (1993).

136. *Id.* at 593 (emphasis added).

137. See *Taylor*, 889 P.2d at 328 n.32 (noting that as of Jan. 31, 1995, seventeen reported state court decisions had considered *Daubert* and in only two of those did the state court decide to abandon *Frye* in favor of *Daubert*).

138. *Id.* at 341 (Lane, J., concurring specially).

139. Section 2105 provides, in pertinent part:

A. Preliminary questions concerning the qualifications of a person to be a witness, the existence of a privilege or the admissibility of evidence shall be determined by the court, subject to the provisions of subsection B of this section.

B. When the relevancy of evidence depends upon the fulfillment of a condition of fact, the judge shall admit it upon, or subject to, the introduction of evidence sufficient to support a finding of the fulfillment of the condition.

12 OKLA. STAT. § 2105 (1991).

140. *Daubert*, 509 U.S. at 590 n.9 (scientific validity asks: "does the principle support what it purports to show?").

testing procedure at issue in light of the four "general observations" enunciated in *Daubert* and applied in Oklahoma via *Taylor*.

(1) Can subatomic physics be tested and has it been tested? To answer this question, the judge would have to know if the hypotheses surrounding subatomic physics had been tested, falsified, and refined.¹⁴¹ A judge could possibly do this if subatomic physics is a subject which has received extensive literary attention. Of course, this would require a willing judge to sacrifice many hours of valuable time. Oklahoma's judges are intelligent, educated people, but education in the law is much different than schooling in the hard sciences. Most judges would have difficulty deciding if the principles underlying subatomic physics and the testing procedures utilizing subatomic physics have been tested, falsified, and refined simply by sitting down and reading a scientific journal. First, the judge would be required to understand highly technical scientific terminology. Second, even if the judge did come to the conclusion that subatomic physics has been testified, falsified, and refined, the inquiry would not yet be over. The judge would have to determine whether the testing, falsification, and refining lead to a conclusion that the evidence at issue is reliable and therefore admissible.

(2) Has subatomic physics been subjected to peer review? Publication is one element of peer review because submission to the scientific community for scrutiny increases the likelihood that substantive flaws in the research will be detected. However, publication is not the only element of peer review and is not dispositive of admissibility.¹⁴² Therefore, even if subatomic physics has been written on extensively, the judge is not required to admit the evidence in question. From the publications, the judge would have to determine if subatomic physics and testing procedures utilizing the principles of subatomic physics are considered "valid" by the scientific community. Scientific validity is one indication of reliability. Reliability is the first step to admissibility.

(3) What is the known or potential rate of error in testing procedures utilizing subatomic physics? The particular scientific technique's rate of error may also be an important factor in determining the reliability of the technique.¹⁴³ This third "general observation" will require the Oklahoma trial judge to critically analyze the testing methodology at issue to determine if factors are present in the testing process which can lead to an incorrect result and to determine the statistically predictable occurrences of these errors. A technique which has a large rate of error may be so unreliable that it must be ruled inadmissible.¹⁴⁴

For the purposes of this hypothetical, assume that the judge obtains a published article written by a subatomic physicist. Assume further that the article states that testing procedures utilizing the principles of subatomic physics have a 13% known rate of error. What does this tell the judge? Is an 87% success rate "reliable"? Is a 13% failure rate too inherently unreliable to even consider admitting the

141. *See id.* at 592-93.

142. *Id.* at 593-94.

143. *Id.* at 594.

144. *United States v. Downing*, 753 F.2d 1224, 1239 (3d Cir. 1985).

testing methodology into evidence? Does it matter if the case is civil or criminal? Note that this inquiry begs another question: Will allegations of error in the testing process continue to affect the weight of the scientific evidence but not its admissibility? Or, will allegations of error in the testing process be another factor an Oklahoma trial judge must weigh in determining reliability and therefore admissibility?

4. Have the principles underlying subatomic physics and the testing procedure at issue which relies on those principles gained acceptance in the relevant scientific community? This question is the *Frye* "general acceptance" test and the problems with it remain unchanged. "General acceptance" and "relevant scientific community" are vague terms. The Oklahoma trial judge will have to initially decide which scientific community encompasses subatomic physics. Then it is up to the judge to decide if most members of that community believe that the principles underlying subatomic physics are sound and also believe that the testing procedure at issue which utilizes subatomic physics is reliable. Thus, the Oklahoma trial judge will have to conduct a *Frye* hearing.

In determining reliability, the above four factors are not a definitive list of considerations. Rather, they are simply representative of a flexible approach endorsed by the *Daubert* Court.¹⁴⁵ For purposes of the hypothetical, assume that subatomic physics is a topic on which several articles have been published. Further assume that the authors of the articles all agree that the principles underlying subatomic physics and testing procedures utilizing subatomic physics are scientifically valid and reliable. The articles explain that testing procedures utilizing principles of subatomic physics have been refined and have a very low rate of error. Combined, these factors would give the trial judge a sense that the evidence at issue is reliable.

The issue of reliability, however, may not yet be complete. If one or more of the parties wishes to proffer the testimony of an expert on subatomic physics, section 2703 of the Oklahoma Evidence Code¹⁴⁶ might be implicated. This rule allows experts to base their testimony and opinions on evidence which may otherwise be inadmissible. However, the facts and data on which the expert relies must be of the type reasonably relied on by experts in the particular field. Thus, again, the trial judge must be educated in the subject of subatomic physics before deciding whether an expert in the field can testify at trial. Additionally, section

145. See *Daubert*, 509 U.S. at 594-95.

146. Section 2703 provides:

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 him 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.

12 OKLA. STAT. § 2703 (1991).

2705 of the Oklahoma Evidence Code may apply.¹⁴⁷ This gives the trial judge the authority to require the expert to disclose, prior to stating his or her opinion, the underlying data supporting the opinion. If the hypothetical trial judge did require the hypothetical expert to disclose the underlying data supporting his or her opinion of subatomic physics, the judge would have to be able to interpret the data for it to be helpful in making a determination of reliability and thus admissibility.

Once reliability is established, relevance is the next requirement that the trial judge must consider in determining admissibility. Three sections of the Oklahoma Evidence Code are particularly applicable. Relevant evidence, as defined by section 2401,¹⁴⁸ has a tendency to make a fact at issue more probable than it would be without the evidence. Section 2402¹⁴⁹ states that all relevant evidence is admissible; irrelevant evidence is inadmissible. Finally, under section 2403,¹⁵⁰ relevant evidence may be excluded if its probative value is substantially outweighed by, among other things, the danger of unfair prejudice or the potential to confuse the issues or mislead the jury.

Assuming, for purposes of the hypothetical, that the evidence at issue is relevant, it is not difficult to see how evidence involving subatomic physics would be confusing to a jury. Unlike the judge, jurors will not have the opportunity to educate themselves on the subject of subatomic physics. Further, if an expert in the field testifies, the jury is likely to be misled or prejudiced. The *Daubert* Court recognized this fact when it stated, "[e]xpert evidence can be both powerful and quite misleading."¹⁵¹ Citing Judge Weinstein, the Court pointed out the fact that judges should exercise more control over expert testimony than over lay witnesses.¹⁵² Therefore, even if the evidence concerning subatomic physics is both reliable and relevant, the question of admissibility is a difficult one.

The *Taylor* majority was correct in stating that the adoption of *Daubert* will ensure that relevant sections of the Oklahoma Evidence Code are given appropriate consideration in admission decisions.¹⁵³ However, it is difficult to see how the *Daubert* approach provides a "uniform method of addressing the admissibility of

147. Section 2705 provides: "The expert may testify in terms of opinion or inference and give his reasons therefore without prior disclosure of the underlying facts or data, unless the court requires otherwise. The expert may be required to disclose the underlying facts or data on cross-examination." *Id.* § 2705.

148. Section 2401 provides: "'Relevant evidence' means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." *Id.* § 2401.

149. Section 2402 provides: "All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, the Constitution of the State of Oklahoma, by statute or by this Code. Evidence which is not relevant is not admissible." *Id.* § 2402.

150. Section 2403 provides: "Relevant evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, misleading the jury, undue delay, needless presentation of cumulative evidence, or unfair and harmful surprise." *Id.* § 2403.

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

152. *Id.*

153. *Taylor v. State*, 889 P.2d 319, 329 (Okla. Crim. App. 1995).

expert testimony on all types of scientific evidence."¹⁵⁴ Rather than providing a uniform method, the *Taylor* court has succeeded in laying a confusing foundation that will lead to arbitrary results and frustrated trial judges.

The four enumerated "general observations" listed in the above hypothetical assume that publicized information is available to the trial judge. If subatomic physics is not an area that has enjoyed literary attention, what is a trial judge to do? How can the judge obtain the information necessary to determine the reliability of the evidence at issue? As Judge Lumpkin pointed out, federal judges can employ Rule 706 and appoint an independent expert to assist him or her in the evaluation of the scientific evidence at issue.¹⁵⁵ Unfortunately for Oklahoma's state court judges, the Oklahoma legislature has not adopted a rule similar to Rule 706 into the Oklahoma Evidence Code.

The above hypothetical illustrates why each of Judge Lumpkin's suggestions should be given serious consideration by the Oklahoma legislature. Subsequent to incorporating Rule 706 into the Oklahoma Evidence Code, the legislature must address the issue of funding. Oklahoma's trial judges have neither the time nor the resources to invest in scientific investigation. More funding from the Oklahoma legislature is critical. First, extra funding would allow the trial judges to employ research assistants or law clerks, which allows the judge to focus his or her attention on the trial docket while the assistant or clerk researches the scientific evidence at issue. Second, extra funding would also allow trial judges to expand their libraries to include science-related "bench books" and other educational materials.¹⁵⁶ Finally, extra funding would allow Oklahoma's judges to participate in continuing education opportunities. For example, The George Washington University's Center for Health Policy Research sponsors a series of workshops held under the auspices of state courts nationwide.¹⁵⁷ If the Oklahoma legislature expects state court trial judges to assume the responsibilities once left to the scientific community, it must equip them to be rational evaluators of scientific evidence.

V. Conclusion

The Oklahoma Court of Criminal Appeals was too hasty in abandoning *Frye*. While the *Frye* test is outdated because it has been superseded by the Federal Rules of Evidence, Oklahoma should have adequately prepared before adopting a new standard for the admissibility of scientific evidence. Rule 706 of the Federal Rules of Evidence provides a way for federal district judges to appoint experts to assist them in deciphering scientific evidence. The Oklahoma Evidence Code has no comparable provision. Therefore, Oklahoma's trial judges have been forced into somewhat of a twilight zone. They are now required to shoulder a very difficult

154. *Id.*

155. *Id.* at 342 (Lumpkin, J., concurring in result).

156. Paul S. Miller et al., *Daubert and the Need for Judicial Scientific Literacy*, 77 JUDICATURE 254, 259 (1994).

157. *Id.*

burden with very little guidance. The *Daubert* approach purports to be flexible, but in reality it is vague, confusing, and ambiguous. Oklahoma's trial judges who, for the most part, are unschooled in highly scientific or technical areas, do not have the time or resources to educate themselves every time a new scientific theory comes down the pike.

The Oklahoma legislature must act to remedy this lamentable situation. Most importantly, Rule 706 of the Federal Rules of Evidence must be incorporated into the Oklahoma Evidence Code. Providing a way for Oklahoma's trial judges to appoint independent experts to assist them in evaluating scientific theories is an absolute necessity. Additionally, Oklahoma's trial judges must be given adequate funding to allow them to perform the difficult task mandated by *Taylor*.

Paige Queen