Scientific Evidence in Wisconsin: Using Reliability to Regulate Expert Testimony

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SCIENTIFIC EVIDENCE IN WISCONSIN: USING RELIABILITY TO REGULATE EXPERT TESTIMONY

Trial courts today, both civil and criminal, are faced with ever increasing questions on how to deal with the admission of novel scientific evidence. Unquestionably, recent years have brought with them an increase in the use of, and consequently the need for, expert testimony on a variety of subjects. It seems one can now find an “expert” who is willing to testify to virtually anything.

In the face of this, courts are looking at the best way in which to handle the admission of novel scientific testimony. To date, two major approaches have been used. First, there is the “general acceptance” rule, first articulated in Frye v. United States.

2. As Judge Weinstein said:
   An expert can be found to testify to the truth of almost any factual theory, no matter how frivolous, thus validating the case sufficiently to avoid summary judgment and force the matter to trial. At the trial itself an expert’s testimony can be used to obfuscate what would otherwise be a simple case. The most tenuous factual bases are sufficient to produce firm opinions to a high degree of “medical (or other expert) probability” or even of “certainty.” Juries and judges can be, and sometimes are, misled by the expert-for-hire.

   The problem outlined by Judge Weinstein is by no means limited to the federal courts. Speaking of the same problem in Wisconsin courts, J. Ric Gass stated: “the historical strict scrutiny of expert testimony has fallen by the wayside, allowing virtually any snake oil salesman to peddle his wares to juries.” Gass, Using the Frye Rule to Control Expert Testimony Abuse, FOR THE DEFENSE, February 1989, at 23.

3. While only the two most often used tests will be discussed in this comment, they are by no means the only tests in use today. Various courts and commentators have suggested alternative methods as well. See Berger, A Relevancy Approach to Novel Scientific Evidence, 26 JURIMETRICS J. 245 (1986) (advocating the incorporation of a balancing test into the present Federal Rules of Evidence); McCormick, Scientific Evidence: Defining a New Approach to Admissibility, 67 IOWA L. REV. 879 (1982) (advocating an eleven-factor balancing test which emphasizes both the accuracy and reliability of scientific evidence); Starrs, Frye v. United States Restructured and Revitalized: A Proposal to Amend Federal Evidence Rule 702, 26 JURIMETRICS J. 249 (1986) (advocating the incorporation of a Frye-like standard into the Federal Rules of Evidence); Case Comment, Changing the Standard for Admissibility of Novel Scientific Evidence: State v. Williams, 40 OHIO ST. L.J. 757 (1979) (advocating a flexible reliability test).

4. 293 F. 1013 (D.C. Cir. 1923).
courts and the majority of other jurisdictions to govern the admission of scientific testimony.⁵

Alternatively, courts in a number of jurisdictions have abandoned the *Frye* rule in favor of a general relevancy rule.⁶ Wisconsin is, of course, such a jurisdiction. Under Wisconsin’s general relevancy rule,⁷ novel scientific evidence is treated no differently than any other kind of evidence with respect to its admission. To be admissible, the evidence need only be relevant, and helpful to the jury’s determination of a fact in issue.⁸

Both of these tests have their strengths and weaknesses. Both of these tests have found supporters. However, neither of them has reached a suitable solution which balances the need for scientific evidence with the dangers inherent therein.⁹ More importantly, neither of them properly addresses the underlying concern with scientific evidence — whether it is reliable.¹⁰

The intent of this comment is not to advocate one of these tests over the other. A number of commentators have already made the arguments on

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⁵ As of today, the following circuits remain followers of the traditional *Frye* approach: the Second, Third, Sixth, Seventh, Eighth, and Ninth Circuits, as well as the District of Columbia Circuit. See United States v. Smith, 869 F.2d 348, 352-54 (7th Cir. 1989); Novak v. United States, 865 F.2d 718 (6th Cir. 1989); Sterling v. Velsicol Chemical Corp., 855 F.2d 1188, 1207-08 (6th Cir. 1988); Kropinski v. World Plan Exec. Council, 853 F.2d 948, 956 (D.C. Cir. 1988); United States v. Christophe, 833 F.2d 1296, 1299 (9th Cir. 1987); United States v. Shorter, 809 F.2d 54, 59-61 (D.C. Cir. 1987); United States v. McBride, 786 F.2d 45 (2d Cir. 1986); United States v. Metzger, 778 F.2d 1195, 1205 (6th Cir. 1985), cert. denied, 106 S.Ct. 3279 (1986); United States v. Tranowski, 659 F.2d 750 (7th Cir. 1981); United States v. Hendershot, 614 F.2d 648 (9th Cir. 1980).

However, the Second, Third, Sixth and Eighth Circuits also have precedent indicating a move away from the *Frye* approach. See infra note 6.

⁶ Recently, there has been movement away from the *Frye* standard in the Second, Third, Fourth, Sixth and Eighth Circuits. See United States v. Ferri, 778 F.2d 985 (3d Cir. 1985); United States v. Downing, 753 F.2d 1224 (3d Cir. 1985); United States v. Luschen, 614 F.2d 1164, 1169 (8th Cir. 1980); United States v. Williams, 583 F.2d 1194, 1198 (2d Cir. 1978); United States v. Stifel, 433 F.2d 431, 438 (6th Cir. 1970).

Also, there has been a move toward the general relevancy standard in the following states: California, Florida, Georgia, Iowa, Kentucky, Louisiana, Maine, Michigan, Montana, New Mexico, New York, Ohio, Oregon, Utah, and Wyoming. Imwinkelried, *The Standard for Admitting Scientific Evidence: A Critique from the Perspective of Juror Psychology*, 28 VILL. L. REV. 554 (1983). This is, of course, in addition to Wisconsin. State v. Walstad, 119 Wis. 2d 483, 351 N.W.2d 469 (1984).

⁷ Wisconsin’s general relevancy rule was best described in State v. Walstad. *Walstad*, 119 Wis. 2d at 519, 351 N.W.2d at 487. See infra notes 71-79 and accompanying text.

⁸ This two-pronged test comes directly from *Wis. Stat.* § 907.02 (1975).

⁹ See infra notes 86-111 and accompanying text.

¹⁰ See infra notes 150-64 and accompanying text.
both sides. Rather, the purpose of this comment is to draw from the strengths of both, with an eye toward fashioning an alternative test which properly considers the reliability of scientific evidence and the trial judge's role in its admissibility.

To that end, this comment will begin with a brief discussion of the Frye rule, and its current status in American jurisprudence. Then, part two will discuss the development of the general relevance rule in Wisconsin, with special emphasis on the role of the trial judge in the admission of scientific evidence. Finally, part three will discuss the present rules with an eye toward providing trial judges with an alternative rule to employ when faced with novel scientific evidence.

I. THE "GENERAL ACCEPTANCE" TEST OF FRYE V. UNITED STATES

The rule that predominates the majority of jurisdictions with respect to expert testimony is the "general acceptance" rule, first articulated in Frye v. United States. Frye was a defendant tried for murder, who sought to introduce the results of a lie detector test. The test, which was a precursor to the polygraph test of today, measured systolic blood pressure and was at the time quite experimental.

The court, in its rather brief decision, articulated the fundamental concern with admitting novel scientific evidence when it stated the following:

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 the 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 to which it belongs.

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12. See infra notes 15-41 and accompanying text.
13. See infra notes 42-132 and accompanying text.
14. See infra notes 43-78 and accompanying text.
15. 293 F. 1013 (D.C. Cir. 1923).
17. Id.
18. The decision of the D.C. Circuit was only two pages long.
Although not expressly stated, inherent in this test is the trial court’s concern about the reliability of novel scientific techniques, such as the lie detector offered by the defendant. The Frye court seemed to adopt the “general acceptance” test as a method to ensure reliability. If a novel scientific technique is generally accepted, its likelihood of reliability is increased.

Because the systolic blood pressure analysis was not yet generally accepted by the scientific community, the evidence was excluded by the court. The rule articulated by the Frye court was soon adopted by the majority of jurisdictions to govern the admission of novel scientific testimony. To this day, it remains the test used by a number of federal and states courts.

While the Frye rule became the leading rule in the nation with respect to novel scientific evidence, it also came under attack from a number of sources. These attacks centered around two main criticisms. First, critics argue that the rule is too conservative in that it requires the proponent of the evidence to cross too high a threshold of acceptance before the evidence will be heard by the jury. Second, the test, critics argue, is difficult and arbitrary in its application.

A. Frye Requires the Proponent of Expert Testimony to Prove Too Much

The brunt of the criticism in this regard, is that the Frye rule confuses the concepts of admissibility of the evidence, weight of the evidence, and judicial notice of the evidence. The leading writer in this area is Professor McCormick. He states:


22. In fact, by the late 1970s, one commentator noted that Frye was the governing test in forty-five states. Comment, supra note 3, at 769.

23. See infra note 5.

24. Virtually from its inception, the Frye rule has come under attack. While most commentators agree that the reasoning behind the rule was well intentioned, they argue that the standard it sets and the manner in which it is employed causes more problems than it solves. See Black, supra note 11, at 629-30. For a more in-depth discussion of these issues, see infra notes 27-42 and accompanying text.

25. See infra notes 27-33 and accompanying text.

26. See infra notes 34-42 and accompanying text.

"General scientific acceptance" is a proper condition for taking judicial notice of scientific facts, but it is not a suitable criterion for the admissibility of scientific evidence. Any relevant conclusions supported by a qualified expert witness should be received unless there are distinct reasons for exclusion. These reasons are the familiar ones of prejudicing or misleading the jury or consuming undue amounts of time.28

The problems of misplaced faith or blind deference on the part of the jury to the expert's opinion are remedied by a vigorous cross examination, resort to learned treatises, and the testimony of rebuttal experts.29 In this way, the jury hears evidence on both sides of the scientific issue, and determines for itself whether the testimony should be given any weight. After all, even the most sound scientific principles had to gain acceptance at some time. Valid scientific principles should not be banned from the courtroom merely because they have not been in existence for sufficient time to gain general acceptance.

This type of reasoning gained widespread popularity with the adoption of the Federal Rules of Evidence.30 More specifically, the rules regarding the admission of expert testimony found in Rules 702 and 703.31 These rules do not distinguish between novel scientific testimony and any other type of testimony given by expert witnesses. For example, Rule 702 gives wide latitude for the admission of expert testimony. Specifically, it 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, experi-

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29. Id., n. 30.
30. Arguably, the Frye decision is no longer applicable after the adoption of the Federal Rules of Evidence. See J. Weinstein, Evidence ¶ 702-03 (1987) (Advisory Committee Note's failure to mention Frye must be considered significant. The silence of the Rule and its drafters may be an abandonment of the general acceptance standard.).

Even if Frye is still effective after the adoption of the Federal Rules of Evidence, the scathing criticism it has received has prompted one commentator to write:

Perhaps Frye will survive this period of criticism and rejection. It is certainly a convenient label for courts that want to reject scientific evidence without engaging in a careful analysis of its reliability and relevance. Yet its survival seems unlikely. Too many courts in too many different jurisdictions have abandoned Frye in too short a time. The restrictive general acceptance test is simply inconsistent with modern evidence concepts favoring admissibility of expert testimony.


31. Fed. R. Evid. 702 and 703. See also United States v. Williams, 583 F.2d 1194 (2d Cir. 1978), cert. denied, 439 U.S. 1117 (1979) (court held that Rules 702 and 703 overrule Frye, and the only balancing factors come from Rule 403).
ence, training, or education may testify thereto in the form of an opinion or otherwise.\textsuperscript{32}

Likewise, Rule 703 allows an expert witness to base his or her conclusions on any facts or data, even if they are otherwise inadmissible, provided that they are "reasonably relied upon by experts in the particular field."\textsuperscript{33} The Federal Rules of Evidence, then, do not contain a general acceptance standard. Because of this, opponents to the \textit{Frye} standard contend that the general acceptance standard forces the proponent of the scientific evidence to pass too great a hurdle before such evidence is admitted.

\textbf{B. The Application of the General Acceptance Test Is Difficult and Arbitrary}

Those who oppose the \textit{Frye} rule on this ground state that there are several difficulties in the application of the rule. Analyzing a case under the \textit{Frye} rule is a two step process. First, the court must identify the field of science in which the underlying principle falls.\textsuperscript{34} Second, the court must determine whether the principle has gained general acceptance by the members of that field.\textsuperscript{35} Both of these steps present difficulties.

First, many of the novel scientific techniques are extremely difficult to categorize as being from any one field of science. For example, polygraph evidence,\textsuperscript{36} "voiceprint" evidence,\textsuperscript{37} and bite mark identification testi-

\textsuperscript{32} FED. R. EVID. 702.
\textsuperscript{33} FED. R. EVID. 703.
\textsuperscript{34} See also Giannelli, supra note 34; Note, \textit{The Emergence of the Polygraph at Trial}, 73 COLUM. L. REV. 1120, 1123 (1973).
\textsuperscript{35} See Giannelli, supra note 34; Note, \textit{The Emergence of the Polygraph at Trial}, 73 COLUM. L. REV. 1120, 1123 (1973).
\textsuperscript{36} Most courts put polygraph evidence in the field of psychology, but it arguably falls under other fields as well. See Giannelli, supra note 34; Note, \textit{The Emergence of the Polygraph at Trial}, 73 COLUM. L. REV. 1120, 1123 (1973).
\textsuperscript{37} Voiceprint analysis may fall within a number of scientific fields, including anatomy, physiology, physics, psychology, and linguistics. People v. King, 266 Cal. App. 2d 437, 72 Cal. Rptr. 478 (1968).
mony may fall within one of several disciplines. In many instances, choosing the field in which the scientific evidence falls is determinative of the outcome as to its admissibility. The choice is left to the broad discretion of the trial judge, and there is great potential for any such decision to be arbitrary.

Next, once the field is chosen, determining whether there is general acceptance within the field is no simple task. The question remains, what is "general acceptance?" The Frye decision is of very little help in making this determination. Nowhere does the court state the ratio or percentage of members of the group required to accept the principle before it can be deemed to be "generally accepted." Because its application is so difficult, and because the results can be arbitrary, the Frye rule has been criticized and abandoned in some jurisdictions.

II. The General Relevance Test Currently Used in Wisconsin

Wisconsin courts have not treated scientific and expert evidence with any appreciable degree of certainty or consistency, and have admitted as much. Early cases quoted the language of Frye; however, none of them expressly adopted it. Later cases expressly rejected the "general acceptance" test of Frye, but the language of the opinion still haunts Wisconsin

38. Bite mark identification may involve the fields of medicine, People v. Milone, 43 Ill. App. 3d 385, 356 N.E.2d 1350 (1976); dentistry, People v. Slone, 76 Cal. App. 3d 611, 143 Cal. Rptr. 61 (1978); or forensic odontology, State v. Stinson, 134 Wis. 2d 224, 397 N.W.2d 136 (1986).

39. The court can, to some extent, control the admission of scientific testimony by choosing either a broad or restrictive field. See, e.g., Williams, 583 F.2d at 1198 ("selection of the 'relevant scientific community' appears to influence the result").

40. Frye, 293 F. at 1014.

41. Id.

42. The Wisconsin Supreme Court acknowledged the confusing treatment Wisconsin has given the Frye rule, stating:

   The trial judge erred when he stated that he was "constrained by the principles elucidated in Frye . . ." and he was incorrect when he stated the Frye test was the accepted standard for the admissibility of scientific testimony. We hasten to add, however, that this court's treatment of Frye has not been marked by certainty or consistency.


43. See, e.g., State v. Stanislawski, 62 Wis. 2d 730, 216 N.W.2d 8 (1974); State v. Bohner, 210 Wis. 651, 246 N.W. 314 (1933).

44. See, e.g., State v. Hamm, 146 Wis. 2d 130, 430 N.W.2d 584 (Ct. App. 1988); State v. Shaw, 124 Wis. 2d 363, 369 N.W.2d 772 (1985); Walstad, 119 Wis. 2d 483, 351 N.W.2d 469; Watson v. State, 64 Wis. 2d 264, 219 N.W.2d 398 (1974).
To better understand where Wisconsin should be going with respect to scientific and expert evidence, one needs to analyze both where the law has been, and how it got where it is today.

A. Development of Wisconsin Case Law

The first reference to the standards of admissibility for scientific evidence in the post-Frye era came in *State v. Bohner*,

46 some ten years after the decision in *Frye*. *Bohner* was a case involving the admissibility of results from a systolic blood pressure deception test — the same type of test analyzed in *Frye*.47 In its decision to exclude such evidence, the Wisconsin Supreme Court held that “the systolic blood pressure deception test has not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made.”

48 The test, as is obvious from the language used, is a restatement of the general acceptance test set forth in the *Frye* decision. In fact, the *Bohner* court quoted from *Frye* in making this determination.49 This seemingly obvious attempt to adopt the *Frye* rule, however, was not to be the last word in Wisconsin.

Some forty years later, the court was again faced with the issue of the admissibility of polygraphic evidence.50 In its consideration of the issue, the court took into account the fact that the general acceptance test had been the subject of recent criticism, especially since the adoption of the Federal Rules of Evidence.51 However, in determining that evidence of polygraph test results may be admissible under certain conditions,52 the court proceeded to list the advances in technology, since *Bohner*, which made

45. Wisconsin courts seem intent upon applying some kind of *Frye*-like limitations on the admission of expert testimony. For a discussion of this type of limitation, see *infra* notes 112-132 and accompanying text.

46. 210 Wis. 651, 246 N.W. 314 (1933).

47. *Id*.

48. *Id.* at 658, 246 N.W. at 317.

49. *Id.* at 657, 246 N.W. at 317.


51. *See supra* note 34 and accompanying text.

52. The Wisconsin Supreme Court stated that the admission of polygraphic evidence by either the defendant or a complaining witness requires: (1) a written stipulation between the prosecutor, the defendant, and defense counsel; (2) the consent of the court; (3) that the expert offering the testimony be subject to cross-examination; and (4) the jury be instructed that the evidence is offered only as proof of whether the individual was telling the truth at the time of the examination. *Stanislawski*, 62 Wis. 2d at 742-43, 216 N.W.2d at 13-14 (citing *State v. Valdez*, 91 Ariz. 274, 371 P.2d 894 (1962)).
polygraphs more accurate and generally accepted by the scientific community. Specifically, the court stated:

This increased use and acceptance reflects the establishing of polygraph tests, conducted by a competent examiner, as having gained "standing and scientific recognition among physiological and psychological authorities" in their particular field. Experts in the field give a high degree of accuracy or dependability to polygraph examinations, conducted by a competent examiner. Polygraph test accuracy is viewed as comparing favorably with other types of expert testimony such as that given by psychiatrists, document examiners and physicians.

While the court did find reason to criticize the application of the *Frye* test of admissibility in Wisconsin, it did, nonetheless, take great pains to demonstrate that the polygraph had moved from the "twilight zone" of *Frye*, and had gained general acceptance. The court's ruling with respect to both the admissibility of polygraph evidence and the *Frye* rule, however, was to be short lived.

The following year, in *Watson v. State*, the court had the opportunity to consider whether evidence, relating to the identification of hair samples as being those of the defendant, was properly admitted. Taking the *Frye* issue head-on, the court weighed the general acceptance test against the general relevance test, as set forth by Professor McCormick. Quoting from McCormick, the court stated:

"General scientific acceptance" is a proper condition for taking judicial notice of scientific facts, but not a criterion for the admissibility of scientific evidence. Any relevant conclusions which are supported

53. Stanislawski, 62 Wis. 2d at 736-40, 216 N.W.2d at 11-13.
54. Id. at 738-39, 216 N.W.2d at 12.
55. Id. at 736-37, 216 N.W.2d at 11.
56. *See supra* note 54 and accompanying text.
57. 64 Wis. 2d 264, 219 N.W.2d 398 (1974).
58. In *Watson*, the defendant was tried for burglary. At the time of the burglary, the victim was unable to see her assailant, but stated that his voice sounded like that of a black male and that he wore a goatee. Police officers were able to find, at the scene, a chin hair which was subsequently identified as being that of the defendant. *Id.* at 272, 219 N.W.2d at 402.
59. The state offered testimony to the effect that it was possible to determine from the sample that the hair was from a black male with blood type B. Further, the state's expert stated that the victim could identify the hair as being from the body of the defendant. *Id.*
by a qualified expert witness should be received unless there are other reasons for exclusion. Particularly, probative value may be overborne by familiar dangers of prejudicing or misleading the jury, and undue consumption of time. If the courts use this approach, instead of repeating a supposed requirement of "general acceptance" not elsewhere imposed, they would arrive at a practical way of utilizing the results of scientific advances.61

Based upon the strength of the general relevance approach, the court held that "the identification of the chin hair was a matter of expert testimony that could be challenged by cross-examination or impeaching evidence, either from other experts or from treatises."62 In so holding, the Watson court set the stage for the "battle of experts" which is commonplace in Wisconsin courtrooms today.

Even in light of this seemingly unequivocal language, however, trial courts were reluctant to give up the general acceptance test. As late as 1984, trial courts were not only using a general acceptance test, they were referring to Frye by name. For example, in State v. Walstad,63 the court stated that "a problem is presented by the fact that the trial judge stated '[t]he Frye test remains the accepted standard for admissibility of scientific testimony.'"64

The Walstad court corrected the trial judge's misunderstanding65 and, in so doing, provided the first in depth discussion of both the development of the law of scientific evidence in Wisconsin, and the application of the Wisconsin Rules of Evidence.66 With respect to the Rules of Evidence, the court stated the following:

The rules in regard to the admission of expert testimony are also clear. The Wisconsin Rules of Evidence . . . provide that, if scientific or specialized knowledge will assist the trier of fact to determine a fact in issue, a qualified expert may testify. As the commentary to Rule 907.02 points out, under Rule 907.02 expert testimony is admissible if relevant and will be excluded only if the testimony is superfluous or a waste of time. The Frye concept is alien to the Wisconsin law of evidence.67

61. Watson, 64 Wis. 2d at 273, 219 N.W.2d at 403.
62. Id. at 274, 219 N.W.2d at 403.
63. 119 Wis. 2d 483, 351 N.W.2d 469 (1984).
64. Id. at 515, 351 N.W.2d at 485.
65. While it did expressly state that the trial judge erroneously held that the Frye standard was applicable in Wisconsin, the court accepted much of the blame for the misunderstanding. Id.
67. Walstad, 119 Wis.2d at 516, 351 N.W.2d at 486.
What the opinion does not discuss, however, is that the Wisconsin Rules of Evidence with respect to both expert testimony and relevance are identical to the Federal Rules of Evidence.\textsuperscript{68} Even with the language of the Federal Rules, federal courts continue to apply the \textit{Frye} rule.\textsuperscript{69} What the \textit{Walstad} court deduced from its review of the Wisconsin case law is the following rule with respect to the admissibility of scientific evidence.

The "general acceptance" standard has been the subject of considerable scholarly criticism in recent years. In particular, it has been suggested that the requirement of "general acceptance" is tantamount to a requirement that the validity of the test be susceptible of such demonstration as to enable the trial court to take judicial notice of the fact. Clearly, the criteria used for determining the admissibility of scientific evidence should not require the instant and unquestionable demonstration required for the judicial notice of scientific facts. Other types of scientific evidence have been admitted into evidence under less stringent standards which merely require the evidence to be "an aid to the jury" or "reliable enough to be probative."

This is the relevancy test of our rules and we adhere to it.\textsuperscript{70}

\subsection*{B. General Relevancy and the Wisconsin Rules of Evidence}

The effect of the general relevancy test for the admissibility of scientific evidence has been to focus attention on three issues. First, it becomes critical under this test to "qualify" the witness as an expert.\textsuperscript{71} Second, once this is accomplished, the judge must determine whether the testimony is relevant.\textsuperscript{72} Finally, the judge must determine that the testimony will be helpful to the trier of fact.\textsuperscript{73} All three of these things are rather easily accomplished.

Under the Wisconsin Rules of Evidence, a witness can be qualified as an expert by virtue of his or her "knowledge, skill, experience, training, or

\begin{footnotesize}
\begin{itemize}
\item[68.] \textsc{Wis. Stat.} § 907.02 (1975) reads: "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." This language is identical to the Federal Rules of Evidence. \textsc{Fed. R. Evid.} 702.
\item[69.] Although the language is identical, the Wisconsin and federal rules have been interpreted differently. Many federal jurisdictions continue to apply the general acceptance standard. \textit{See supra} note 5.
\item[70.] \textit{Walstad}, 119 Wis. 2d at 519, 351 N.W.2d at 487 (quoting State v. Cantanese, 368 So. 2d 975, 979 (La. 1979)).
\item[71.] \textsc{Wis. Stat.} § 907.02 (1975).
\item[72.] \textsc{Wis. Stat.} § 904.01 (1975).
\item[73.] \textsc{Wis. Stat.} § 907.02 (1975).
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education."  

There is nothing in the rules that requires the proponent of scientific evidence to do anything more to "qualify" the witness as an expert. In effect, any person with knowledge beyond the ken of the average juryman can be qualified as an expert under the rules.

Similarly, the rules regarding relevance provide little difficulty to overcome. The Rules define "relevant evidence" as 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." The threshold for relevancy is rarely the barrier to admission of scientific evidence that it could be.

Finally, the test under the Rules is one of helpfulness to the jury. That is, even if the subject matter is such that it is understandable to the jury, if expert testimony will further help them in some way, it is admissible. Taken together, these three tests obviously favor the admission of scientific evidence, regardless of the underlying theory.

74. Id.

75. The Wisconsin Rules of Evidence also incorporate opinion testimony from lay witnesses. Wis. Stat. § 907.01 (1975). The Rule reads:

If the witness is not testifying as an expert, the witness' testimony in the form of opinions and inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness and (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue.

Wis. Stat. § 907.01 (1975).

While lay witnesses may not testify with respect to scientific principles, an interesting observation was made by Judge Weinstein. He stated that there is "[a]n almost unbroken continuum of admissible opinions of lay persons, conventional experts, and new types of experts is the result." Weinstein, supra note 1, at 479. This creates a potential problem with respect to the classification of experts. Under the traditional general relevancy approach, there may be very little separating a lay witness, who may not testify to scientific evidence, and a conventional expert who can.

76. Wis. Stat. § 904.01 (1975).

77. See infra notes 86-95 and 150-64 and accompanying text.

78. Some types of cases have been held to require expert testimony. See, e.g., Kujawski v. Arbor View Health Care Center, 139 Wis. 2d 455, 407 N.W.2d 249 (1987) (setting forth criteria for when medical expert is required); Albert v. Waelti, 133 Wis. 2d 142, 394 N.W.2d 752 (Ct. App. 1986) (expert testimony is required to prove dental malpractice); Helbrecht v. St. Paul Ins. Co., 122 Wis. 2d 94, 362 N.W.2d 118 (1985) (expert testimony required in legal malpractice case).

However, even when expert testimony (including scientific testimony) is not required, it may be permitted when it is helpful to the jury. State v. Friedrich, 135 Wis. 2d 1, 398 N.W.2d 763 (1987); Valiga v. National Food Co., 58 Wis. 2d 232, 206 N.W.2d 377 (1973).

79. As the court held in Friedrich:

Whether opinion testimony of expert witnesses is properly received depends upon whether the members of the jury, having the knowledge and general experience common to every member of the community, would be aided in consideration of the issues by the testimony offered. The expert testimony must assist the trier of fact.

Friedrich, 135 Wis. 2d at 15, 398 N.W.2d at 769 (citing Valiga, 58 Wis. 2d at 251, 206 N.W.2d at 388, and Wis. Stat. § 907.02 (1975)).
The safeguard to this system, as seen by the *Walstad* court,\(^{80}\) is that the opponent of the testimony will have the opportunity to thoroughly cross-examine the expert offering the scientific testimony. This is evident in the following passage from the court in *Walstad*.

Evidence, if given by a qualified expert, [is] admissible irrespective of the underlying theory on which the testimony [is] based. The fundamental determination of admissibility comes at the time the witness is "qualified" as an expert. In a state such as Wisconsin, where substantially unlimited cross-examination is permitted, the underlying theory or principle on which the admissibility is based can be attacked by cross-examination or by other types of impeachment. Whether a scientific witness whose testimony is relevant is believed is a question of credibility for the finder of fact, but it clearly is admissible.\(^{81}\)

### C. Problems Inherent in the General Relevance Approach

While grounded on the theory that the more evidence the jury has, the better its decision will be, the general relevance test for the admission of scientific evidence contains inherent problems.\(^{82}\) These problems exist in both the definition of relevance in connection with scientific testimony,\(^{83}\) as well as the effect of scientific testimony on the jury.\(^{84}\) These problems arise because proper attention is not given to the question of whether the scientific testimony is reliable, and therefore relevant.\(^{85}\)

1. The Relevance Dilemma

The determination of whether scientific evidence is relevant must turn, to some extent, on whether it is at all reliable.\(^{86}\) Scientific evidence which is not reliable will not have "any tendency" to make a fact in issue more or less probable.\(^{87}\) It has been said that the reliability of evidence derived from a scientific principle depends upon three factors: (1) the validity of the underlying principle; (2) the validity of the technique applying that principle; and (3) the proper application of the technique on a particular occasion.\(^{88}\)

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81. Id. at 518-19, 351 N.W.2d at 487.
82. See infra notes 86-111 and accompanying text.
83. See infra notes 86-95 and accompanying text.
84. See infra notes 96-111 and accompanying text.
85. See infra notes 150-64 and accompanying text.
86. See Giannelli, supra note 34; Imwinkelried, supra note 20.
87. Wis. Stat. § 904.01 (1975).
88. Giannelli, supra note 34, at 1200-01. This article was quoted with approval in State v. Walstad, 119 Wis. 2d 483, 351 N.W.2d 469 (1984), when the court stated "The excellent article,
Under this theory, before the results of a scientific test can be relevant, all three of the factors above must be satisfied. That is, the underlying principle must be valid, the technique used must validly test the principle, and the technique must have been properly performed with respect to the specific evidence sought to be admitted at trial. By the same token, if one of these factors is lacking, the scientific evidence will not be reliable, and the evidence will, to the extent that it is not reliable, lose relevance.

Under the general relevance test as it has been articulated in Wisconsin, the existence of these three factors is considered a factual question to be determined by the jury. This rationale carries with it presuppositions that may run contrary to the Wisconsin Rules of Evidence with respect to relevance.

Specifically, the rules indicate that all relevant evidence is admissible; however, evidence which is not relevant is not admissible. Therefore, by leaving the reliability questions for the jury to answer, we may be allowing them to hear irrelevant, therefore inadmissible, evidence. Should the jury determine that the principle upon which the scientific evidence is based is invalid, the evidence derived from it will no longer have "any tendency" to make a fact in issue more or less likely, as is required by the Rules. Similarly, should the jury determine that the technique used to measure the principle was either invalid or improperly performed, the same result is reached. The evidence is unreliable and irrelevant. In effect, we are asking

[by] Giannelli, ... criticizes the Frye rule as nonworkable, but also argues that the alternative relevancy rule of the type accepted in Wisconsin may also present evidentiary pitfalls, and create undue reliance on expert witnesses.” Id. at 519 n.13, 351 N.W.2d at 487 n.13.

89. The first two factors are usually in dispute with respect to novel scientific evidence. Once a principle or technique is sufficiently established, these factors may be satisfied through judicial notice of the principle and/or technique. Giannelli, supra note 34, at 1202.

Rule 201 deals with judicial notice of adjudicative facts and provides: “A judicially noticed fact must be one not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.” FED. R. EViD. 201(b). In the context of scientific evidence, judicial notice would be found under sub. (1) above.

90. See supra notes 86-88 and accompanying text. See also State v. Shaw, 124 Wis. 2d 363, 367, 369 N.W.2d 772, 774 (Ct. App. 1985).

91. See, e.g., Shaw, 124 Wis. 2d at 367, 369 N.W.2d at 773 (“The underlying scientific theory is subject to cross-examination and impeachment, and its credibility is for the finder of fact.”); Watson, 64 Wis. 2d at 274, 219 N.W.2d at 403 (“The question is one of credibility to be resolved by the jury.”).

92. More specifically, they may run contrary to the relevance rules found in Wis. Stat. § 904.01, which defines relevant evidence as having “any tendency” to make a fact in issue more or less probable, and Wis. Stat. § 904.02, which states that only relevant evidence is properly admitted.

93. Wis. Stat. § 904.02 (1975).

94. Id.
the jury to determine whether the evidence is relevant, and therefore properly before them, after they have already heard it.\textsuperscript{95}

2. The Jury's Response to Scientific Evidence

The fact that the jury will determine, for itself, which evidence is or is not relevant becomes of more concern when one considers the way in which juries view scientific evidence. Several studies have been undertaken to determine the effect that scientific testimony has on the jury's decision in any given case.\textsuperscript{96}

One of the earliest studies dealt with the then novel polygraph and its effect on the jury's analysis.\textsuperscript{97} In this study, jurors were interviewed after deliberating a case in which polygraphic evidence had been admitted by the court.\textsuperscript{98} The results of the survey indicated that half of the jurors found the scientific testimony so overwhelming that they accepted it without question.\textsuperscript{99} Four of the members of the jury even went so far as to consider the

\textsuperscript{95} The effect of this reasoning is to place an unwitting fox in charge of the evidentiary chicken coop. Professor Imwinkelried illustrated the problem with the example of evidence which may be covered by the attorney-client privilege. If a dispute arises as to whether a third party was present, thus waiving the privilege, there is a risk in allowing the jury to decide this issue, especially if they decide no third party was present.

A material risk exists that the jury will not disregard the communication even if it concludes that the communication was privileged. If testimony about the communication is presented to the jury, the jurors will have difficulty expunging the testimony from their minds. Although the testimony is technically inadmissible, the jurors have heard the testimony, and may be subconsciously affected. The judge's instruction to disregard the evidence will be ineffective; even a rational juror acting in good faith may not be able to honor the instruction.

Imwinkelried, supra note 20, at 597.

The same problem exists with respect to scientific evidence. If the jury decides that the evidence is unreliable, it is technically inadmissible. However, at that point the bell will have rung, and an instruction to disregard may be of little or no value.


\textsuperscript{97} Forkosch, supra note 96.

\textsuperscript{98} Id.

\textsuperscript{99} Id. at 229-30.
polygraph evidence conclusive proof of the guilt or innocence of the defendant.\textsuperscript{100}

This study seemed to indicate that jurors could be swayed by scientific testimony, alone, without respect to the other evidence in the case. Advocates of the general relevance test point to the fact that such dangers can be overcome by vigorously cross-examining the expert offering the testimony, or by providing expert testimony in rebuttal.\textsuperscript{101} While this response does have merit, it has two major drawbacks. First, when conflicting expert testimony is offered on an issue, the focus of the trial is lost on proving or disproving the validity of the scientific principle. Second, a jury that is faced with an esoteric or highly technical issue will often decide the issue based on the expert who makes the best impression upon them. In effect, the trial is reduced to a popularity contest between the experts and the crucial determination on the underlying issues is never properly addressed.

Both of these dangers are illustrated in a study done by Rosenthal.\textsuperscript{102} In his study, Rosenthal studied a trial in which experimental "voiceprint" evidence was admitted against a criminal defendant.\textsuperscript{103} Rosenthal indicates that although "the trial was originally expected to last two or three weeks; it went almost seven and the bulk of the time was spent hearing expert testimony on the validity of voiceprint identification."\textsuperscript{104} In this trial, the argument over the scientific evidence lasted over twice as long as the rest of the case.

Rosenthal also reported findings consistent with the fear that jurors would not rely on the weight of the scientific evidence to make their decisions; rather, they would side with the expert they liked best for completely subjective reasons.\textsuperscript{105} A survey of the jurors after the deliberation in this case revealed that the expert whose testimony was overwhelmingly ac-

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\textsuperscript{100} Id. at 230.
\textsuperscript{101} For Wisconsin's treatment of this issue, see Walstad, 119 Wis. 2d at 518-19, 351 N.W.2d at 487.
\textsuperscript{102} Rosenthal, supra note 96.
\textsuperscript{103} "Voiceprint" analysis, or sound spectrograph, is a process which purports to identify an individual by the sound of his or her voice. A measuring device produces a series of shadings on electrosensitive paper, in response to the sound of one's voice. The images represent sound features of a voice. The underlying theory is that each person's voice will produce unique images. See Note, The Voiceprint Dilemma: Should Voices Be Seen and Not Heard?, 35 Md. L. Rev. 267 (1975); Annotation, Admissibility and Weight of Voiceprint Evidence, 97 A.L.R.3d 294 (1980).
\textsuperscript{104} Rosenthal, supra note 96, at 529.
\textsuperscript{105} Id.
\textsuperscript{106} Id. at 530-31.
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cepted by the jury was a professor from Stanford University.\textsuperscript{107} When asked why his testimony carried so much weight with them, the universal perception of the jurors was that he was "a real scientist."\textsuperscript{108} Typical comments included "Some of the others looked like hippies . . . . This guy was a real scientist, I could tell."\textsuperscript{109}

The results of this study confirm the weakness inherent in allowing unfettered admission of expert testimony. Not only was the trial time lengthened by four to five weeks by the debate over the scientific testimony, the survey of the jury also indicates that the entire time was wasted.\textsuperscript{110} Despite hearing four to five weeks of debate over the validity of this scientific technique, the jury ultimately based its determination, not on the merits of voiceprint identification, but on the testimony of the expert who they subjectively liked best.\textsuperscript{111}

\textbf{D. The Three-Pronged Test Developed in R.P.R.}

An extremely interesting line of case law has arisen in Wisconsin which indicates that the court is cognizant of the need to find scientific testimony reliable before allowing it to go to the jury. This line of cases also indicates how Wisconsin courts seem reluctant to part with some qualification on the general relevance test. These cases deal with the three-pronged test for the admission of expert testimony first articulated by the court of appeals in \textit{In the Matter of Adoption of R.P.R.}.\textsuperscript{112}

The evidence sought to be admitted in this case was related to the theory of "rejection trauma"\textsuperscript{113} and its effect on adopted children.\textsuperscript{114} As a

\textsuperscript{107} While he remained nameless, Rosenthal described the Stanford professor as being "extremely articulate, his hair was short and trim, he wore glasses and a brown business suit, and presented himself in a very conservative and positive way." \textit{Id.} at 529.

\textsuperscript{108} \textit{Id.} at 530.

\textsuperscript{109} \textit{Id.}

\textsuperscript{110} This is an issue which will also arise in the context of a motion to exclude expert testimony under \textit{Fed. R. Evid.} 403, as a consideration of undue delay. In Wisconsin, the same rule is found in \textit{Wis. Stat.} \textsuperscript{904.03} (1975). The trial judge is given broad discretion in whether to admit or exclude evidence under this section. State v. Hamm, 146 Wis. 2d 130, 142, 430 N.W.2d 584, 591 (Ct. App. 1988); State v. Wollman, 86 Wis. 2d 459, 464, 273 N.W.2d 225, 228 (1979).

\textsuperscript{111} Rosenthal indicated that the jury did not, or could not, decide the scientific issue on its merits; rather, they decided to adopt the position of the person who looked most like a "real scientist." Rosenthal, \textit{supra} note 96, at 530. A substantial delay in the trial, especially a criminal trial, may be warranted if the jury is able to make proper use of the testimony. If, as in the Rosenthal study, the jury is unable to make proper use of the testimony, the trial judge may properly exclude the testimony under \textsuperscript{904.03}.

\textsuperscript{112} 95 Wis. 2d 573, 291 N.W.2d 591 (Ct. App. 1980), rev'd on other grounds, \textit{sub. nom.} Brandt v. Witzling, 98 Wis. 2d 613, 297 N.W.2d 833 (1980).

\textsuperscript{113} "Rejection trauma," according to the proponent of the evidence, is a condition in adoptive children in which they suffer an identity crisis and question their adoptive parents about the
basis to reject expert testimony in this area, the court articulated the follow-
ing test.

The elements of admissible expert testimony are: (1) the subject is distinctly related to some science, profession, business or occupa-
tion and therefore beyond the realm of the average layman; (2) the expert has sufficient skill in the area to aid the trier of fact in his search for the truth; and (3) the state of the pertinent art or scientific knowledge in the subject is sufficiently developed to allow a reason-
able opinion to be asserted by an expert.¹¹⁵

In addition to the requirements already appearing in the Wisconsin Rules of Evidence,¹¹⁶ the court added the third prong of the test, which requires the subject to be sufficiently developed to allow a reasonable opin-
ion on the issue. Although later construed differently by the court,¹¹⁷ this prong of the test seeks to require the scientific knowledge to be sufficiently developed so as to be reliable.¹¹⁸

Rather than allow the evidence to be put forth in front of the jury, the court decided that the evidence of rejection trauma was not more than “baseless conjecture unsupported by any documentary evidence or treatise on the subject.”¹¹⁹ Because of this, the offered testimony failed to meet the third prong of the test above, and was excluded. While the case was ulti-
mately overruled by the supreme court on other grounds,¹²⁰ this test for the admissibility of expert testimony arguably stood intact.

Four years later, in State v. Stinson,¹²¹ the court of appeals was con-
fronted with the issue of whether to admit evidence of bite mark identifica-

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¹¹⁴ R.P.R. involved a custody dispute between the adoptive parents of an infant and his natural mother.
¹¹⁵ R.P.R., 95 Wis. 2d at 590, 291 N.W.2d at 599 (citing C. McCormick, Law of Evi-
dence, § 13, at 29-31 (2d ed. 1972)). The fact that this language comes, at least in part, from McCormick is significant because it is McCormick to whom the Walstad court looked for its language in support of the general relevancy rule. Walstad, 119 Wis. 2d at 518, 351 N.W.2d at 486-87.
¹¹⁶ Wis. Stat. §§ 907.02 and 907.03 (1975).
¹¹⁷ See State v. Stinson, 134 Wis. 2d 224, 233-34, 397 N.W.2d 136, 139-40 (Ct. App. 1986).
¹¹⁸ See infra notes 129-31 and accompanying text.
¹¹⁹ R.P.R., 95 Wis. 2d at 590, 291 N.W.2d at 600.
¹²⁰ The Wisconsin Supreme Court’s decision to overturn R.P.R. was based entirely on the court of appeal’s erroneous ruling that there exists a presumption in favor of the natural parents in an adoption proceeding. Accordingly, it never reached the issue of the scientific evidence which was withheld. Brandt v. Riordan, 95 Wis. 2d 573, 291 N.W.2d 591 (1980).
¹²¹ 134 Wis. 2d 224, 397 N.W.2d 136 (Ct. App. 1986).
tion against a criminal defendant. The defendant sought to exclude the testimony on the ground that it, too, failed the third prong of the test in R.P.R. However, unfortunately for the defendant, by this time the supreme court had already passed on the Walstad case. Accordingly, the First District Court of Appeals made the following ruling with respect to the R.P.R. test.

In Walstad, our supreme court expressly rejected the application of the Frye rule in Wisconsin. The standard for admissibility in Frye required general acceptance of the scientific principle underlying the evidence offered. We conclude that the test we applied in R.P.R. contains nothing more than a variation of the Frye rule and therefore should be rejected. Walstad states that evidence given by a qualified expert is admissible irrespective of the underlying scientific theory.

This rejection of the R.P.R. test by the First District in Stinson was in unequivocal terms. However, two years later, the same First District inexplicably quoted the same language from R.P.R. as authority for the admission of expert testimony concerning whether force used by law enforcement personnel was excessive in Kalt v. Milwaukee Board of Fire Commissioners.

There is no explanation for the re-emergence of this language in the Kalt case. The state of the R.P.R. test after this language is, likewise, uncertain. Because it originally decided Stinson, the court would be completely within its power to reverse itself. However, if it was the decision to reinstate the R.P.R. test which moved the court to quote the language again, this was not...
made clear. Certainly, it is not as clear as the language originally overruling the test in the Stinson decision.\textsuperscript{128}

The court of appeals could have reasonably decided that the three pronged R.P.R. test did not, in fact, constitute a restatement of the Frye rule.\textsuperscript{129} This is because the third prong of the R.P.R. test, that was found objectionable by the court in Stinson, does not require that the scientific principle have attained general acceptance before being admitted.\textsuperscript{130} In fact, the third prong of the R.P.R. test only requires that the state of the art be sufficiently developed to ensure the proper degree of reliability as to the expert’s opinion. This standard is much lower than general acceptance.\textsuperscript{131} Arguably, if an expert can show to the court that the subject matter is sufficiently reliable, the evidence will be admitted even if the testifying expert is the only one to espouse the theory.

Because the supreme court has not passed on the language in R.P.R.,\textsuperscript{132} it is difficult to speculate as to whether it will be interpreted consistently with the analysis above. This, however, is not as important as the fact that the court sees the need to regulate, in some way, the unbridled admission of scientific testimony. Arguably, this is the result of an inherent need for the evidence to be reliable before its admission.

\textsuperscript{128} The court of appeals in Stinson mentioned Walstad and Frye by name, and expressly stated that the language from R.P.R. was overruled. Stinson, 134 Wis. 2d at 233-34, 397 N.W.2d at 139. In the Kalt opinion, however, not only is the R.P.R. language resurrected, it is cited in the paragraph directly above a cite to Walstad. Kalt, 145 Wis. 2d at 516-517, 427 N.W.2d at 414.

\textsuperscript{129} There is a viable argument that the language in R.P.R., requiring the subject to be "sufficiently developed," does not contradict the supreme court's prohibition of Frye, which requires the subject to be "generally accepted" by experts in the field. Professor McCormick makes an argument which is analogous to this when he discusses the "reasonable reliance" standard in Fed. R. Evid. 703. He states that the Federal Rules of Evidence do not explicitly distinguish between scientific and other forms of expert testimony, and they permit experts to rely on facts or data not otherwise admissible into evidence as long as they are "reasonably relied upon by experts in [the] particular field." Plainly, "reasonable reliance" is not synonymous with general acceptance.

\textsuperscript{130} See supra notes 121-25 and accompanying text.

\textsuperscript{131} If "sufficient development" and "general acceptance" are found to be distinguishable standards, clearly the former presents a lower barrier to the admissibility of scientific evidence. By definition, there need only be one person to espouse the theory underlying the scientific evidence, so long as he or she can convince the judge it is sufficiently developed to be reliable.

\textsuperscript{132} While the supreme court did address other aspects of the case, the three-pronged test for admissibility was not addressed bythem. Brandt v. Witzling, 98 Wis. 2d 613, 297 N.W.2d 833 (1980).
E. Brain v. Mann, and the Attempt to Interject Reliability

Along with the language used by the court in the R.P.R. line of cases, there has been at least one attempt by the trial bench to interject a degree of reliability into the admission of expert testimony. In *Brain v. Mann*, the plaintiff in a personal injury action sought to admit testimony with respect to the loss of future earning capacity from a vocational rehabilitation specialist. Interestingly, the defendant did not object to the qualifications of the expert to render an opinion on the issue of future earning capacity; rather, the defendant objected to surveys, relied upon by the expert, as inadequate foundation upon which to base an expert opinion.

The trial judge agreed with the defendant's argument, stating in his opinion that the survey information did not "cross the threshold of reliability which is required for admission of opinions and if it did the prejudice to the defendant ... would outweigh any probative value that it would have, given the infirmity that I've mentioned, under Rule ... 904.03." The trial court then struck the expert's testimony and, as a result, the proper foundation was not laid for testimony from the plaintiff's economist. Therefore, the plaintiff was not allowed to submit an instruction on loss of earning capacity to the jury.

The court of appeals rejected the trial court's attempt to interject reliability into the admission of expert testimony, stating that "the trial court incorrectly focused on the statistical soundness of the surveys" used by the expert. The court of appeals weighed heavily the fact that the expert testified that such surveys were relied upon by vocational rehabilitation specialists. Therefore, the court of appeals held that the testimony should have been admitted under Wisconsin Rule of Evidence 907.03.

The effect of the court's holding is to put the fox in charge of the evidentiary chicken coop. Once an expert is qualified, and he or she testifies that the evidence is of a type relied upon by others in the field, the trial

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133. 129 Wis. 2d 447, 385 N.W.2d 227 (Ct. App. 1986).
134. *Id.* at 457, 385 N.W.2d at 231-32.
135. *Id.*, 385 N.W.2d at 232.
136. The trial judge was the Honorable Ralph Adam Fine. Judge Fine is now a judge with the First District Court of Appeals. Unfortunately, Judge Fine has yet to have the opportunity to rule on this issue at the court of appeals.
137. *Mann*, 129 Wis. 2d at 458, 385 N.W.2d at 232.
138. *Id.*
139. *Id.* at 459, 385 N.W.2d 232.
140. *Id.*
141. This qualification takes place pursuant to the factors listed in Wis. STAT. § 907.02.
judge's hands are tied and the evidence must be admitted. However, this need not be the result. A reasoned interpretation of existing law can allow the trial judge to properly balance the competing interests.

III. INTERPRETING THE WISCONSIN RULES OF EVIDENCE TO CURB THE ABUSE OF EXPERT TESTIMONY

Because of the dangers associated with the admission of expert testimony, it is critical to look for the proper balance between allowing virtually unlimited expert testimony, as in the general relevance test, and relatively restricted expert testimony, as in the general acceptance test. Recognizing this problem, a number of writers have recently posited possible solutions. These solutions range from the application of a “substantial acceptance” test, to amending Rule 702 to creating specialized “science courts” to hear cases in which scientific testimony is to be offered.

The solution proposed by this comment is not as drastic. The recognition that scientific evidence must be reliable to be relevant, as well as a

142. The court does not address what would happen if an opposing expert gave the opinion that experts in the field do not rely on the information used by his counterpart. Arguably, this scenario presents a situation in which the trial judge should make a determination as to its admissibility.
143. See supra notes 86-111 and accompanying text.
146. See generally Black, supra note 11; Giannelli, supra note 34; Imwinkelried, supra note 20.
148. See generally Black, supra note 11. Black suggests amending Fed. R. Evid. 702 to incorporate the concepts of validity and reliability to the determination of whether to admit scientific testimony. As amended, Black’s Rule 702 would read as follows:
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. When the witness offers testimony based on scientific knowledge, such testimony shall be admitted only if the court determines that the opinion:
1) is based on scientifically valid reasoning; and
2) is sufficiently reliable that its probative value outweighs the dangers specified in Rule 403.
Id. at 611.

Another commentator seeks the same result by merely inserting the word “reliable” before the words “scientific, technical, or other specialized knowledge” in the existing Rule 702. Lederer, Resolving the Frye Dilemma - A Reliability Approach, 115 F.R.D. 79, 84-85 (1987).
reasoned application of existing relevance rules, will take the bench and bar of Wisconsin a step closer to resolving the problem.

A. The Reliability of Scientific Evidence

Under the general relevance theory, scientific evidence is treated no differently by the court than any other evidence. This being the case, as long as it has any tendency to make a fact in issue more or less probable, such evidence will be admitted. However, as was seen above, there are dangers inherent in scientific evidence that are different than in other types of evidence; namely, the problems of who determines relevance and how juries typically react to such evidence. Because of these dangers, scientific evidence must be treated differently than other evidence when determining its relevance.

To be relevant, that is, to have any tendency to make a fact in issue more or less probable, scientific evidence must be reliable. As was stated earlier, the reliability of evidence derived from scientific principles depends upon the validity of the underlying principle, the validity of the technique applying that principle, and the proper application of the technique on the particular occasion in question. Under the current application of the general relevance test, these questions are answered by the jury. The effect of this is that the jury decides, after hearing the evidence, whether it is reliable, and therefore relevant.

Along with the problem of relevancy, scientific evidence presents another problem that stems from the questions surrounding its reliability. Unless we can determine, by a preponderance of the evidence, that the scientific evidence is reliable, it is difficult, if not impossible, to properly gauge its probative value. This problem presents practical difficulties for the trial judge under the present general relevancy test.

150. See supra notes 71-81 and accompanying text.
152. See supra notes 86-111 and accompanying text.
153. See Giannelli, supra notes 34 and 88 and accompanying text.
154. Under the Wisconsin Rules of Evidence, there is a strong tendency to admit as much evidence as possible, leaving the issues of credibility to the jury. State v. Friedrich, 135 Wis. 2d 1, 398 N.W.2d 763 (1987); State v. Walstad, 119 Wis. 2d 483, 351 N.W.2d 469 (1984); State v. Armstrong, 110 Wis. 2d 555, 329 N.W.2d 386 (1983).

[The idea] that scientific principles and discoveries that were better established would be more quickly embraced signifies that where judges and juries are in no position to assess for themselves the validity of claims made by an expert, some guarantee of reliability and some indication of the extent of the reliability must exist independent of the claim of the one
As was stated earlier, under the Wisconsin general relevancy test, all scientific evidence, if given by a qualified expert, is admissible. This general rule is subject only to the provisions of Rule 904.03, which act to exclude relevant evidence on the grounds of prejudice, confusion, or waste of time. The task of the trial judge under Rule 904.03, is to determine whether the probative value of the scientific evidence is outweighed by the prejudicial effect it will have on the jury. The trial judge must be able to determine both the probative value of the scientific evidence and the prejudicial effect if he or she is to be able to weigh them.

Under the current test, the trial judge never has to determine the reliability of the scientific evidence. Again, only if the evidence is reliable will it have any probative value. This determination is not a proper one for a jury. A judge deciding questions of admissibility under Rule 904.03 is deciding whether the evidence should reach the jury in the first instance. Therefore, before making a decision as to admissibility under Rule 904.03, the trial judge must, necessarily, rule on the reliability of the evidence.

The problem is clear. If the evidence is not relevant, or if its probative value is outweighed by unfair prejudice, it should not be heard by the jury in the first instance. This problem is further compounded by the danger of the jury misusing the evidence. If the trial judge allows scientific evidence to go to the jury, it may be seen by the jury as tacit approval of the evidence. Because novel scientific evidence is often highly technical and esoteric, there is a real danger that the jury will not feel qualified to pass upon its reliability. Accordingly, it is imperative that the trial judge rule

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An expert called to testify. This guarantee and this indication enable a judge or jury to credit an expert and to evaluate how much weight to attribute to his testimony.

Id. at 212-13.

156. Walstad, 119 Wis. 2d at 518-19, 351 N.W.2d at 487.
158. See State v. Hamm, 146 Wis. 2d 130, 143, 430 N.W.2d 584, 590 (Ct. App. 1988) (Weighing probative value of evidence against prejudicial effect is a discretionary function of the trial court.).
159. United States v. Bailer, 519 F.2d 463, 466 (4th Cir. 1975) (Unless the evidence is obviously prejudicial, it is better to admit the evidence and let the jury decide the probative value).
160. See supra note 88 and accompanying text.
161. Rule 904.03 is designed to keep from the jury evidence that presents the dangers listed therein. If the jury is allowed to decide the issue, the intended effect of Rule 904.03 is lost. Wis. Stat. § 904.03 (1975).
162. Wis. Stat. §§ 904.02 and 904.03 (1975).
163. If the jury hears evidence which is later determined by them to be unreliable, even the most conscientious juror may have difficulty disregarding it. In effect, it is not possible to "unring the bell". Imwinkelried, supra note 20, at 604-05.
164. See supra note 95 and accompanying text.
on the reliability of the scientific evidence as a preliminary question, before allowing it to go to the jury.

**B. Preliminary Questions**

The Wisconsin Rules of Evidence provide two standards for the determination of preliminary questions. First, there is the standard under Rule 901.04(1), which deals with admissibility generally, and states: "Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the judge, subject to sub. (2). In making this determination, the judge is bound by the rules of evidence only with respect to privileges." Second, Rule 901.04(2) deals with conditional relevance and states: "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."

The language in subsection (1) stating that the question "shall be determined by the judge" has been interpreted to be a "preponderance of the evidence" standard. On the other hand, the conditional relevance language in subsection (2) sets forth a "sufficiency" standard. Obviously, the "preponderance" standard is higher than the "sufficiency" standard with respect to the admission of evidence.

At first blush, the question of scientific evidence seems to be one of conditional relevance. That is, its relevance is conditioned upon its reliability. If this were the case, however, a judge would merely decide whether a jury could reasonably determine that the reliability questions were answered affirmatively. The danger of it being unreliable, and therefore irrelevant, still exists.

This apparent inconsistency is reconciled when one considers that scientific evidence is, by its nature, inextricably bound up with, and in many ways analogous to, expert testimony. Scientific evidence invariably

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169. Because it is subjective, there is no suitable definition of how much evidence is needed to be sufficient to support a finding that the conditionally relevant fact exists. Each trial judge determines this for him or herself. In any event, the standard is agreed to be lower than the fifty-one percent requirement under the preponderance standard. See Imwinkelried, supra note 20, at 596-97; Ball, The Myth of Conditional Relevancy, 14 Ga. L. Rev. 435, 438 (1980).
171. Professor Imwinkelried writes:
comes into the courtroom through an expert witness. Just as the expert’s opinions are conditioned upon his qualification under Rule 907.02, the relevance of the scientific evidence is conditioned upon its reliability.\textsuperscript{172}

Questions surrounding the qualification of expert witnesses are determined using the subsection (1) "preponderance" standard.\textsuperscript{173} That is, the trial judge decides by a preponderance of the evidence that the witness is qualified as an expert under Rule 907.02. In the same way, questions surrounding the reliability of scientific evidence should be determined by a "preponderance" of the evidence. The effect of this application would be twofold.

First, trial courts would guarantee that the scientific evidence is relevant before it is allowed to go before the jury. No longer would there be the fear that the jury would misuse the evidence, as the judge would have already ruled upon it. Second, there would be greater flexibility in the system, because the trial judge would be able to make a determination as to the admissibility of each piece of scientific evidence. Further discussion of this second effect is in order.

Under both the general acceptance and general relevancy standards, once an expert is qualified as an expert,\textsuperscript{174} or the procedure has gained general acceptance,\textsuperscript{175} as the case may be, there is not further inquiry into the subject of admissibility. However, during the course of testimony, an expert may have a number of opinions. Likewise, the testimony given by the witness depends upon the questions asked of him during direct and cross examination. The preponderance standard for admissibility, found in Rule 901.04(1), allows the trial judge to constantly monitor the questioning to ensure that the witness will testify only to those things which, (1) he or she is qualified to render an opinion upon,\textsuperscript{176} and (2) meet the preponderance

\textit{Scientific evidence is a type of expert testimony.} The rationale for admitting expert testimony is that the expert's knowledge or skill enables the expert to draw inferences beyond a lay person's capability. Courts often assert that to be admissible, expert testimony must relate to a subject beyond the understanding of lay people.

Imwinkelried, supra note 20, at 604 (emphasis added).

Because scientific testimony is offered for the same reasons, it is logical to use the same standard for deciding preliminary questions regarding its admissibility.

\textsuperscript{172} Wis. STAT. § 907.02 (1975).

\textsuperscript{173} Wis. STAT. § 901.04(1) (1975). The language of this subsection specifically includes "Preliminary questions concerning the qualification of a person to be a witness."

\textsuperscript{174} Under the general relevancy theory, the witness need only be qualified as an expert under Wis. STAT. § 907.02 before his or her opinion can be put before the jury. \textit{See Walstad}, 119 Wis. 2d at 518-19, 351 N.W.2d at 487.

\textsuperscript{175} Under the general acceptance test, it is the underlying principle or technique which must have gained general acceptance in the relevant field of science. \textit{Frye v. United States}, 293 F. 1013.

\textsuperscript{176} The qualification falls under Wis. STAT. § 907.02 (1975).
standard for reliability.\textsuperscript{177} Application of Rule 901.04(1) to the preliminary questions of reliability represents the proper balance of the competing interests embodied in the general acceptance and general relevancy tests.

To begin to solve the problems of reliability with respect to scientific testimony, then, Wisconsin courts must first accept the premise that, to be relevant, scientific testimony must be reliable. Leaving this determination to the jury undermines the principle that only relevant evidence should be put before them.\textsuperscript{178} Only the trial judge, making the decision by a preponderance of the evidence, is in the position to properly determine whether the evidence is reliable and therefore relevant. Accordingly, application of the Rule 901.04(1) standard to the preliminary questions of reliability represents the proper balance for determining the admissibility of scientific evidence.

IV. CONCLUSION

Expert witnesses have become a fact of life in American courtrooms. With them, in many instances, has come novel scientific testimony. Because scientific testimony can determine the outcome of a case, courts need to address the issue of whether it should be admitted.

To date, two schools of thought predominate with respect to the admission of scientific evidence. The general acceptance approach of \textit{Frye}, and the general relevancy approach as seen in Wisconsin. While both of these theories have merit, they fail to adequately consider the underlying problem with scientific testimony. That is, balancing the desire to put forth all possible evidence with the fact that, to be relevant, scientific evidence must be reliable.

The general relevancy theory advocates the admission of all scientific evidence, if offered by a qualified expert. The jury is then to decide the weight, if any, to be given to the testimony. What this approach fails to consider is that if the evidence is not reliable, it loses its relevance. Even though only relevant evidence is admissible, the jury will have already heard it.

For its part, the \textit{Frye} rule does consider the importance of reliability to the consideration of whether to allow scientific testimony. However, the general acceptance test it employs places a standard upon the admissibility of scientific evidence that is more appropriate for determining judicial no-

\textsuperscript{177} Under Wis. Stat. § 901.04(1), preliminary questions are answered using the preponderance test.

\textsuperscript{178} Wis. Stat. § 904.02 (1975).
tice. In so doing, it fails to properly consider the interest in allowing the jury to receive all relevant evidence.

Wisconsin courts can properly balance these competing interests. First, trial courts must recognize that relevance of scientific evidence is inextricably bound up with reliability. Therefore, trial judges must make relevance determinations before this evidence goes before the jury. To do this, trial courts need to apply the Rule 901.04(1) preponderance standard to the preliminary questions which relate to the reliability of scientific evidence. This test represents both an equitable balance between the competing concerns, and a significant step in the right direction.

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