

Changing the Standard for the Admissibility of Novel Scientific Evidence: *State v. Williams*

Scientific theory and technology are undergoing rapid development. Courts are presented with ever increasing quantities of highly sophisticated novel scientific evidence. Because scientific evidence must be valid and reliable to maximize correct factual conclusions by the jury,¹ evidence obtained from newly ascertained or newly applied scientific principles has traditionally been subjected to a special standard for admissibility. As a precondition to admissibility, courts required a showing that the principle underlying the evidence to be introduced had attained general acceptance within the scientific community in which it belonged.² Against the background of developing science, difficulties in the application of the traditional standard and a change in judicial philosophy concerning the capability of jurors to evaluate novel scientific evidence have raised the significant question whether another standard might be more appropriate.³

The question was answered in the affirmative in *State v. Williams*,⁴ in which the Supreme Judicial Court of Maine rejected the traditional "general acceptance" standard. In its place, the court ruled that expert testimony concerning newly ascertained or newly applied scientific principles be admissible into evidence only when "the testimony to be given is relevant and will assist the trier of fact to understand the evidence or to determine a fact in issue."⁵

The *Williams* decision reconciles scientific advancement with judicial philosophy and underlying policy considerations. It will be argued in this Case Comment that the *Williams* standard is preferable because it is more consonant with the policy considerations of providing a clear standard of review, ensuring uniformity of decision, minimizing erroneous factual conclusions by the jury, and providing the defendant with an adequate opportunity for rebuttal. In addition, it will be argued that the *Williams* standard minimizes difficulties in interpretation to a greater degree than does the traditional standard.

I. THE *Williams* DECISION: FACTS AND HOLDING

An anonymous telephone call was received and routinely recorded by

1. Strong, *Questions Affecting the Admissibility of Scientific Evidence*, 1970 ILL. L.F. 1, 4, 9.

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

3. Professor McCormick suggests that general acceptance is an inappropriate standard for the admission of novel scientific evidence: "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 by a qualified expert witness should be received unless there are other reasons for exclusion." C. MCCORMICK, HANDBOOK OF THE LAW OF EVIDENCE § 203, at 491 (2d ed. 1972).

4. 388 A.2d 500 (Me. 1978).

5. *Id.* at 504.

the Augusta Police. The caller stated that a bomb was going to explode at the Augusta State Airport. A police officer recognized the recorded voice as that of the defendant, Williams. Later that day, at police request, Williams read aloud a transcript of the original anonymous call and, with his agreement, the reading was recorded. Subsequently, both recordings were submitted to Dr. Oscar Tosi, Professor of Audiology and Speech Sciences at Michigan State University, and Lieutenant Smrkovski of the Michigan Department of State Police Voice Identification Unit, for the purpose of making a voice identification based on speech spectrograph analysis.

Williams was indicted and tried for terrorizing.⁶ Expert testimony was given by Dr. Tosi in explanation of the nature, reliability, and scientific acceptance of voice spectrography. Testimony in opposition to the admission of evidence obtained through the use of spectrography was presented by defense witnesses Dr. Louis J. Gertsman, of City College in New York, and Faulsto Poza, a consultant to the Stanford Research Institute. Following presentation of the preliminary testimony, the trial judge ruled, over Williams' objection, that the spectrographic evidence would be admitted. The ruling was based upon the establishment of an adequate and satisfactory foundation that "(1) voiceprint identification has such scientific acceptance and reliability as warrants its admissibility in evidence, [and] (2) the experts whose opinions were here being sought as evidence were qualified to assist the jury in its determination."⁷

Accordingly, specific spectrographic evidence was adduced through which both Dr. Tosi and Lieutenant Smrkovski positively identified the recorded unidentified voice as belonging to Williams. At the conclusion of all the evidence the jury returned a verdict of guilty.

Williams appealed to the Supreme Judicial Court of Maine⁸ assigning as error the admission of the spectrographic evidence. The defense argued that the method was not a generally accepted scientific means of voice identification and that the evidence obtained by the method was unreliable for forensic purposes. The court, declining to apply the widely-adhered to standard of "general acceptance in the particular field in which it belongs," held the standard of admissibility for novel scientific evidence to be "whether in the sound judgment of the presiding Justice the testimony to be given is relevant and will assist the trier of fact to understand the evidence or to determine a fact in issue."⁹ The spectrographic principle was determined to be sufficiently reliable to qualify as relevant and the expert testimony concerning it was determined to be useful to the trier of fact. Under this standard, the court found that the spectrographic evidence was

6. Defendant was accused of violating ME. REV. STAT. ANN. tit. 17-A, § 210 (West 1978).

7. 388 A.2d at 501.

8. *Id.*

9. *Id.* at 504.

properly admitted. Consequently, the court denied the appeal of Williams and affirmed the judgment.

Justice Nichols filed a concurring opinion¹⁰ in which he advocated retention of the traditional standard of *Frye v. United States*.¹¹ He concluded, however, that the spectrographic evidence should have been admitted under the *Frye* test.¹²

To apply the new standard set forth in *Williams*, the trial judge will make a determination whether the proffered evidence is relevant and will be of aid to the trier of fact. When evidence based on newly ascertained or applied scientific principles is proffered, "a stronger showing may become necessary before the presiding Justice is satisfied that the preconditions of admissibility, in terms of relevance and helpfulness to the factfinder, have been met."¹³ To determine whether novel scientific evidence meets the stronger showing of relevance and usefulness, the trial judge may see fit to consider "whether or not the scientific matters involved in the proffered testimony have been *generally accepted* or conform to a *generally accepted* explanatory theory."¹⁴ Thus, the traditional standard is modified and incorporated into the *Williams* standard. Under the traditional standard, however, the trial judge is absolutely bound by the presence or absence of "general acceptance," whereas under *Williams*, the trial judge has discretion to consider general acceptance if it is appropriate either "(1) to avoid prejudice which might arise because the assertion that the principle, or technique, has a 'scientific' basis may import an objectivity which could unduly influence the jury as a lay fact-finder or (2) to assist the presiding Justice in his responsibility to determine relevance."¹⁵

II. HISTORICAL BACKGROUND

The *Williams* standard displaces the traditional test of admissibility originally formulated by the District of Columbia Circuit Court of Appeals in *Frye v. United States*.¹⁶ Frye was convicted of murder and on appeal he assigned as error the trial court's refusal to admit the testimony of defendant's expert witness regarding the results of a deception (lie detector) test administered to Frye.

The concise opinion elucidates the court's reason for excluding evidence of the deception test results:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this

10. *Id.* at 505-07.

11. 293 F. 1013 (D.C. Cir. 1923).

12. 388 A.2d at 506.

13. *Id.* at 504.

14. *Id.* (emphasis added).

15. *Id.*

16. 293 F. 1013 (D.C. Cir. 1923).

twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

We think 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.¹⁷

No authority was cited in support of the court's conclusion. Still, "general acceptance in the particular field in which it belongs" became the standard for the admissibility of newly ascertained and newly applied scientific evidence.

The *Frye* standard has since been applied to many types of novel scientific evidence.¹⁸ Recent examples include neutron activation analysis,¹⁹ psycholinguistics test,²⁰ ion microprobiic analysis,²¹ spectrographic analysis,²² and a new test for detecting a lethal dose of succinylcholine chloride.²³

When the admission of novel scientific evidence under the *Frye* standard is in issue, the trial judge hears preliminary testimony for the purpose of determining whether the standard for admissibility is satisfied. Preliminary expert testimony is presented to provide elaborate exposition of the theory and demonstration of its practical working,²⁴ reliability of the test,²⁵ and currency and status within the relevant scientific community.²⁶ The judge then decides whether an adequate foundation of general acceptance has been laid to warrant admission of the evidence.

Certain difficulties have arisen in the application of the *Frye* standard because the standard may be interpreted in various ways. One difficulty concerns the meaning to be given the language "the thing from which the

17. *Id.* at 1014.

18. See, e.g., *Rivers v. Black*, 259 Ala. 528, 68 So.2d 2 (1953) (drunkometer); *State v. Valdez*, 91 Ariz. 274, 371 P.2d 894 (1962) (polygraph); *People v. Williams*, 164 Cal. App. 2d Supp. 858, 331 P.2d 251 (1958) (nalline test); *State v. Casale*, 150 Me. 310, 110 A.2d 588 (1954) (polygraph); *State v. Sinnott*, 24 N.J. 408, 132 A.2d 298 (1957) (narco-analysis); *Bednarik v. Bednarik*, 18 N.J. Misc. 633, 16 A.2d 80 (1940) (blood grouping tests), *overruled by* *Curtese v. Curtese*, 10 N.J. Super 152, 76 A.2d 717 (1950).

19. *United States v. Stifel*, 433 F.2d 431 (6th Cir. 1970), *cert. denied*, 401 U.S. 994 (1971); *State v. Stout*, 478 S.W.2d 368 (Mo. 1972).

20. *United States v. Hearst*, 412 F. Supp. 893 (N.D. Cal. 1976).

21. *United States v. Brown*, 557 F.2d 541 (6th Cir. 1977).

22. *United States v. Addison*, 498 F.2d 741 (D.C. Cir. 1974); *State v. Olderman*, 44 Ohio App.2d 130, 336 N.E.2d 442 (1975).

23. *Coppolino v. State*, 223 So. 2d 68 (Fla. App. 1969), *appeal dismissed*, 234 So. 2d 120 (1969), *cert. denied*, 399 U.S. 927 (1970).

24. *State v. Bohner*, 210 Wis. 651, 658-59, 246 N.W. 314, 317 (1933).

25. *State v. Cary*, 99 N.J. Super. 323, 333, 239 A.2d 680, 685 (1968), *aff'd*, 56 N.J. 16, 264 A.2d 209 (1970).

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

deduction is made." Two interpretations have developed under this language. Some courts have found the underlying scientific theory to be the thing from which the deduction was to be made²⁷ and other courts have adopted the opposite interpretation by finding the device to be the "thing."²⁸ Professor McCormick notes, as a possible third interpretation, that the "thing" might not be the device but the qualification of the expert interpreting the results of a test conducted using the device.²⁹ Under the first interpretation, the theory must be generally accepted in the scientific community to which it belongs. If the theory is generally accepted, admissibility of results obtained from a particular device is governed by no special standard of admissibility.³⁰ Under the second interpretation, in which the device is the thing from which the deduction is to be made, the general acceptance of the device must be established in addition to the general acceptance of the theory. The significance of the difference in interpretation is readily apparent because it may be determinative of whether that particular type of novel scientific evidence is admitted.

A second difficulty concerns what is meant by "general acceptance." Evidence may be admitted even though acceptance is not uniform;³¹ general acceptance does not require unanimity. This conclusion is premised on the probability that every scientific theory has its critics. In at least one case, only one expert gave testimony attempting to establish general acceptance.³² The court in that case, however, held that although general acceptance does not require that certainty of the theory and reliability of novel scientific evidence be "shared by all commentators and scientists in the field,"³³ the opinion of one expert "alone, will not suffice to permit the introduction of such scientific evidence Admissibility of the evidence depends upon the *general* acceptance of its validity."³⁴ General acceptance may also not be established without the testimony of "disinterested scientists . . . whose livelihood [is] not intimately connected with" the new technique.³⁵ While it is established that "neither infallibility nor unanimous acceptance of the principle" is necessary to justify admissibility,³⁶ it is clear that the meaning of "general acceptance" is ambiguous.

27. See, e.g., *People v. Bobczyk*, 343 Ill. App. 504, 99 N.E.2d 567 (1951) (theory that intoxication can be determined from alcohol content in the blood).

28. See, e.g., *People v. Morse*, 325 Mich. 270, 38 N.W.2d 322 (1949) (device was blood alcohol breath test drunkometer).

29. McCormick, *supra* note 3, at 490.

30. A proper foundation for the introduction of test results consists of establishing the accuracy of the particular device at the time the measurement is made, the qualifications of the operator, and a proper administration of the test. *State v. Miller*, 64 N.J. Super. 262, 270, 165 A.2d 829, 833 (1960).

31. *McKay v. State*, 235 S.W.2d 173, 174 (Tex. Crim. App. 1950).

32. *Commonwealth v. Topa*, 471 Pa. 223, 369 A.2d 1277 (1977).

33. *Id.* at 229, 369 A.2d at 1280.

34. *Id.* at 231, 369 A.2d at 1281 (emphasis in original).

35. *People v. Barbara*, 400 Mich. 352, 376, 255 N.W.2d 171, 180 (1977).

36. *Commonwealth v. Lykus*, 367 Mass. 191, 198, 327 N.E.2d 671, 675 (1975).

A third difficulty of the *Frye* standard concerns identifying "the particular field" of science to which the evidence belongs. Wigmore merely states that the particular field be in the witness' "branch of learning."³⁷ The court may simply require that the test "have gained acceptance in the field of learning in which [it is] in use."³⁸ Some courts have been more explicit and have stated that the *Frye* standard would be satisfied if the principle is generally accepted "by those who would be expected to be familiar with its use."³⁹ More recently, "particular field" has been interpreted to require acceptance by "those scientists active in the field to which the evidence belongs."⁴⁰ The standard is satisfied when recognition of reliability is accorded by a "specialty" within the general field of science. This may minimize to some extent the controversy over who would be expected to be familiar with the application of the principle or who is a competent authority in the field. It is nonetheless uncertain when a particular group of scientists constitutes a sufficiently particular field to be a specialty within the meaning of the *Frye* standard.

The different interpretations of the language of the *Frye* opinion have given the courts no clear standard to apply. The lack of clarity in the standard has given rise to inconsistent results,⁴¹ demonstrated by judicial treatment of spectrographic voice identification evidence. In *Hodo v. Superior Court*,⁴² the California Court of Appeals held that spectrographic analysis was generally accepted. More recently, in *People v. Tobey*,⁴³ the Michigan Supreme Court concluded that spectrographic analysis had not yet achieved general acceptance.

Under special circumstances an intermediate standard of admissibility may be applied. The special circumstances include admission of novel scientific evidence when the court sits without a jury⁴⁴ or for the narrow purpose of establishing probable cause to issue arrest and search warrants.⁴⁵ In these unique situations the danger of possible jury incompetence does not arise. A less restrictive standard may be appropriate in these special circumstances since the policy considerations differ from situations with a jury trial.

37. 2 J. WIGMORE, A TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 659, at 771 (3d ed. 1940).

38. *People v. Williams*, 164 Cal. App. 2d Supp. 858, 860, 331 P.2d 251, 253 (1958).

39. *Commonwealth v. Lykus*, 367 Mass. 191, 203, 327 N.E.2d 671, 677 (1975).

40. *Commonwealth v. Topa*, 471 Pa. 223, 231, 369 A.2d 1277, 1281 (1977).

41. The traditional standard has been criticized for the inconsistent results that have obtained under it. See Decker & Handler, *Voiceprint Identification Evidence—Out of the Frye Pan and Into Admissibility*, 26 AM. U. L. REV. 314, 365 (1977); Boyce, *Judicial Recognition of Scientific Evidence in Criminal Cases*, 8 UTAH L. REV. 313, 325 (1963); Strong, *supra* note 1, at 14.

42. 30 Cal. App. 3d 778, 106 Cal. Rptr. 547 (1973).

43. 401 Mich. 141, 257 N.W.2d 537 (1977).

44. *United States v. Wright*, 17 C.M.A. 183, 37 C.M.R. 447 (1967).

45. *Trimble v. Hedman*, 291 Minn. 442, 192 N.W.2d 432 (1971).

III. ANALYSIS OF *Williams*A. *Rationale of the Decision*

The *Williams* court, adopting a new standard of admitting novel scientific evidence that is relevant and useful to the jury, effected the provisions and basic spirit of Maine's new Rules of Evidence.⁴⁶ Two justifications were given for use of this standard. The first justification, discussed earlier in this Comment,⁴⁷ is the difficulty experienced by courts in applying the traditional *Frye* standard; the second justification is derived from the court's construction of the Maine Rules of Evidence. The rules were enacted in 1976 with the purpose of the "promotion of growth and development of the law of evidence to the end that the truth may be ascertained and proceedings justly determined."⁴⁸ Continued application of *Frye* was not wholly consistent with this goal. The underlying philosophy of the Maine Rules of Evidence "was that there should be a greater liberality in the admission of evidence, thus demonstrating confidence in the ability of Maine jurors to appraise the strength and weakness of testimony which had been excluded at common law. . . ."⁴⁹

The court considered the fundamental philosophy of the Rules of Evidence together with its language. Rule 402 provides: "All relevant evidence is admissible, except as limited by constitutional requirements or as otherwise provided by statute or by these rules or by other rules applicable in the courts of this state. Evidence which is not relevant is not admissible."⁵⁰ Relevant evidence is that which has "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."⁵¹ The general rule for admissibility is read together with Rule 702, which specifically pertains to expert testimony: "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."⁵² Ironically, one commentator noted, before *Williams* was decided, that Rule 702 would not affect the law on the admission of novel scientific evidence.⁵³

46. 388 A.2d at 503.

47. See notes 27-40 and accompanying text *supra*.

48. ME. R. EVID. 102.

49. Field, *The Maine Rules of Evidence: What They Are and How They Got That Way*, 27 ME. L. REV. 203, 207 (1975).

50. ME. R. EVID. 402.

51. ME. R. EVID. 401.

52. ME. R. EVID. 702.

53. With specific regard to the lie detector, spectrograph, and blood tests for intoxication, see P. ROTHSTEIN, RULES OF EVIDENCE FOR THE UNITED STATES COURTS AND MAGISTRATES 284-84.4 (1977). Although Rothstein directed his comments to FED. R. EVID. 702 (identical to ME. R. EVID. 702), it provides an interesting indication of the expectations of the effect of Rule 702 on the law of the admissibility of novel scientific evidence. Federal courts would do well to take note of the *Williams* decision.

Rule 403⁵⁴ provides for a balancing of probativeness or relevance against other factors that are counterweights to admissibility.⁵⁵ Exclusion under the Rule will not result if the counterweights merely "outweigh" probativeness but only if they are "substantially outweighed." Similarly, mere "prejudice" is not sufficient to merit exclusion; only "unfair prejudice" is sufficient.

There is no specific provision made in the Rules of Evidence for the admissibility of newly ascertained or newly applied scientific principles. The court, in *Williams*, rejected defendant's argument that the lack of a specific provision is a gap that should have been filled

by establishing an additional precondition of admissibility as applicable *specially* to the situation in which proffered expert testimony will rest on a new ascertainment, or new application, of scientific principles—this further condition to be that there must be "general acceptance" of such newly discovered scientific principle . . . in the relevant scientific field.⁵⁶

Rather, the court held, the Rules do not contain a gap but are complete on the admissibility of evidence. Any other interpretation would contravene the basic spirit and provisions of the Rules. Therefore, the Supreme Judicial Court concluded that the admissibility of expert testimony is favored "whenever it is relevant and can be of assistance to the trier of fact."⁵⁷

B. *Comparison of the Williams Standard with the Traditional Frye Standard*

A basic comparison that can be made between the *Williams* standard and the traditional "general acceptance" standard of *Frye* lies in the distinct philosophies and attendant policy considerations upon which each standard is predicated. The underlying philosophy of the *Williams* standard is that the factfinder should make the crucial determination of the credibility to be ascribed to novel scientific evidence. In contrast, the underlying philosophy of *Frye* is that the judge should make a predetermination because jurors lack sufficient capability and sophistication to assess accurately the weight of the evidence.

Various policy considerations are closely integrated with each standard and underlying philosophy. Specific policy considerations include the provision of: (1) a clear standard of review; (2) uniformity of decision; (3) minimization of erroneous factual conclusions by the jury; and (4) an adequate opportunity for defendant's rebuttal.

54. ME. R. EVID. 403 provides: "Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence."

55. ROTHSTEIN, *supra* note 53, at 79.

56. 388 A.2d at 503.

57. *Id.*

1. *A Clear Standard of Review*

A primary policy concern of the standard for the admission of newly ascertained or newly applied scientific evidence is the desire for a clear standard of review. The *Frye* standard has been criticized by commentators as "somewhat lacking in definiteness"⁵⁸ and "not enlightening as to its details."⁵⁹ The criticism was made, in large part, because of the ambiguities and difficulties that arose in the application of the *Frye* standard.⁶⁰

The conclusion of the *Williams* court was reached, in part, because of its recognition of the difficulties attendant upon the application of *Frye*.⁶¹ The *Williams* test does provide a clearer standard of review. One objective in the formulation of the Maine Rules of Evidence was to provide clear rules understandable by both the bench and the practitioner.⁶² The Rules of Evidence provide specific guidelines for the admission of evidence. Taken together with the language and underlying philosophy of *Williams*, the standard gives less basis for equivocation than the multiplicity of interpretations that have developed under *Frye*. Relevance and usefulness to the trier of fact are generally established doctrines that contribute to the workability of the standard.

2. *Ensuring Uniformity of Decision*

A second policy consideration is to ensure uniformity of decision. Uniform results are, in part, a function of a clear standard of review. In enumerating the advantages of the *Frye* standard, the California Supreme Court, in *People v. Kelly*⁶³ included the promotion of uniformity of decision. "Individual judges whose particular conclusions may differ regarding the reliability of particular scientific evidence, may discover substantial agreement and consensus in the scientific community."⁶⁴ The divergent results reached by various courts using the *Frye* standard belies the statement of the *Kelly* court that uniformity is to be found in the general acceptance test.⁶⁵

Relevance is a requirement that must be met by all evidence. The necessity for relevance in every circumstance provides a uniform standard for all evidence. Moreover, the Maine courts have become accustomed to considering relevance under the Rules of Evidence. The determination of relevance is well established, and would appear to be a practical standard with which the courts can comfortably function.

58. Strong, *supra* note 1, at 11.

59. McCORMICK, *supra* note 3, at 490.

60. See notes 27-40 and accompanying text *supra*.

61. 388 A.2d at 503 n.4.

62. Field, *supra* note 49, at 204-05.

63. 17 Cal. 3d 24, 31, 130 Cal. Rptr. 144, 148-49, 549 P.2d 1240, 1244-45 (1976).

64. *Id.* at 31, 130 Cal. Rptr. at 149, 549 P.2d at 1245.

65. See notes 41-43 and accompanying text *supra*.

3. *Minimization of Erroneous Factual Conclusions by the Jury*

The policy of minimizing erroneous factual conclusions bears directly on the underlying philosophy of whether judge or jury is more appropriate to determine the probativeness of the evidence. When the admissibility of novel scientific evidence is in issue, courts have been concerned with the abilities of the jury, as factfinder, objectively to evaluate newly ascertained or newly applied scientific principles.⁶⁶

In *United States v. Addison*,⁶⁷ the District of Columbia Circuit Court of Appeals, a proponent of the *Frye* standard, articulated concern over the ability of jurors to assess novel scientific evidence: "scientific proof may in some instances assume a posture of mystic infallibility in the eyes of a jury of laymen. . . ."⁶⁸ Other courts similarly recognized a "danger that the trial judge or jury will ascribe a degree of certainty to the testimony of the expert . . . witness which may not be deserved."⁶⁹

The majority in *Williams* was also concerned with the effect of newly ascertained or newly applied scientific principles on the jury. "[T]o avoid prejudice which might arise because the assertion that the principle . . . has a 'scientific' basis may import an objectivity which could unduly influence the jury as a lay fact-finder . . ."⁷⁰ is an espoused justification for the trial judge's consideration of general acceptance as a component of the relevance and usefulness determination. There is a dearth of definitive empirical evidence that bears on the capability of juries to evaluate the weight of novel scientific evidence.⁷¹

Both *Frye* and *Williams* expressed concern over the ability of juries to assess accurately new scientific evidence; the two courts, however, do not express the same degree of confidence in juries. *Frye* demonstrates little confidence in the jury; *Williams* expresses greater, though not complete confidence in the jury. Since both standards are premised on some degree of doubt over jury capability, for purposes of discussion this Comment will accept the premise that juries may be unable to assess accurately novel scientific evidence.

The traditional standard reflects a conservative judicial posture that has been both criticized⁷² and commended.⁷³ Since scientific principles and techniques gain acceptance gradually over time, courts using the *Frye*

66. *Commonwealth v. Lykus*, 367 Mass. 191, 197, 327 N.E.2d 671, 675 (1975).

67. 498 F.2d 741 (D.C. Cir. 1974).

68. *Id.* at 744.

69. *Commonwealth v. Topa*, 471 Pa. 223, 230, 369 A.2d 1277, 1281 (1977); see also *Huntingdon v. Crowley*, 64 Cal. 2d 647, 656, 51 Cal. Rptr. 254, 262, 414 P.2d 382, 390 (1966).

70. 388 A.2d at 504.

71. Statistics compiled from cases admitting spectrographic evidence fail to support the position that juries are not able to evaluate adequately novel scientific evidence. See Greene, *Voiceprint Identification: The Case in Favor of Admissibility*, 13 AM. CRIM. L. REV. 171, 190-91 (1975).

72. *United States v. Sample*, 378 F. Supp. 44, 53 (E.D. Pa. 1974).

73. *People v. Kelly*, 17 Cal. 3d 24, 31, 130 Cal. Rptr. 144, 149, 549 P.2d 1240, 1245 (1976).

standard will be slower to receive the benefit of available but newly developed types of evidence. The cautious nature of the standard may be perceived as beneficial by those who believe it necessary to guard jurors from undue influence by highly technical evidence. The evidence may assume a position of unwarranted reliability to those not possessed of scientific expertise. The standard is not necessarily effective since there may be types of generally accepted evidence that juries are unable to assess or types of evidence that have not attained general acceptance that the jury could evaluate accurately.

Upon first appraisal it might appear that allowing the evidence to go to the jury might result in prejudice induced by the alleged aura of novel scientific evidence. Careful examination, however, indicates that this is not the case. Under *Williams*, the trial judge gives careful consideration to whether the preconditions to admissibility of relevance and usefulness (and general acceptance to assist in the initial determination) have been met. His consideration essentially creates a balance between the probative value of the evidence and its possible prejudicial effects. This preliminary balancing process protects the jury from unreliable evidence. In addition, the jury may need less protection because the public is becoming more sophisticated and knowledgeable of scientific matters.⁷⁴ Further, the normal procedures of cross-examination and refutation aid the jury in making an assessment of the evidence. As with all other expert opinion, the jury would be apprised that it may accept or reject the expert testimony or assign to it whatever weight the jury believes is merited. In the aggregate, these procedures provided by *Williams* adequately ensure that the jury will accurately evaluate the evidence, rather than be influenced by a "mystical aura."

4. Defendant's Opportunity for Rebuttal

A fourth policy consideration underpinning admissibility of scientific evidence is to provide the defendant with an adequate opportunity for rebuttal. In *United States v. Addison*,⁷⁵ the court emphasized that "since scientific proof may in some instances assume a posture of mystical infallibility in the eyes of a jury of laymen, the ability to produce rebuttal experts, equally conversant with the mechanics and methods of a particular technique, may prove to be essential."⁷⁶ Two factors are important to the provision of an adequate opportunity for rebuttal.

First, there must be assurance of a minimal reserve of experts upon which to draw.⁷⁷ Under *Frye*, new scientific evidence is admissible when

74. Reed, *Practical Pitfalls in Handling Scientific Evidence*, in *SCIENTIFIC AND EXPERT EVIDENCE IN CRIMINAL ADVOCACY* 31 (J. Cederbaums & S. Arnold eds. 1975).

75. 498 F.2d 741 (D.C. Cir. 1974).

76. *Id.* at 744. See also *Commonwealth v. Topa*, 471 Pa. 223, 232, 369 A.2d 1277, 1282 (1977).

77. *Id.* See also Coleman & Walls, *The Evaluation of Scientific Evidence*, 1974 *CRIM. L. REV.* 276, 280; Comment, *Voiceprints—The Admissibility Question: What Evidentiary Standard Should Apply?*, 19 *ST. LOUIS L.J.* 509, 528 (1975).

the principle or technique has achieved general acceptance, not when only a limited number of persons claim special knowledge concerning the evidence. The *Frye* test protects both parties by assuring that a minimal reserve of sufficiently qualified experts will be available. Under *Williams*, in particular circumstances, emphasis may be placed on whether the scientific matter at issue has been generally accepted or conforms to a generally accepted explanatory theory. The preservation of the *Frye* inquiry within the *Williams* standard provides the same protection for the defendant by ensuring a minimal reserve of experts. In other circumstances the judge, in his discretion, may not see fit to consider general acceptance. It then might be less likely that an adequate reserve of experts would exist. This possibility was not discussed by the *Williams* court and may be a weakness of the standard. Procedures such as court appointment of an expert⁷⁸ and exclusion of the evidence on secondary grounds⁷⁹ are available to ensure fairness to the opponent.

A second consideration is that the cost of obtaining expert rebuttal may place a heavy financial burden on the defendant. Since novel scientific evidence will more likely be admitted under *Williams*, the financial burden of rebuttal will more frequently be imposed on defendant. This burden may be alleviated somewhat by procedures derived extrinsically from the standard. Some jurisdictions have appropriated funds to defray the cost of an expert's court appearance.⁸⁰ The court may appoint an expert when only the proponents of a technique appear.⁸¹ When the defendant is the proponent of the evidence, the state, as opponent, would have resources to provide its own expert.⁸²

C. *Implications of Williams for the Future*

The *Williams* standard incorporates the *Frye* consideration of general acceptance and it may be postulated that the difficulties of *Frye* will also be

78. ME. R. EVID. 706. See note 81 *infra*.

79. ME. R. EVID. 403. See note 54 *supra*.

80. A. MOENSSENS & F. INBAU, SCIENTIFIC EVIDENCE IN CRIMINAL CASES § 1.05, at 10 (2d ed. 1978).

81. FED. R. EVID. 706 and ME. R. EVID. 706 provide in part:

(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 witnesses 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 he consents to act. A witness so appointed shall be informed of his duties by the court. . . . A witness so appointed shall advise the parties of his findings, if any; his deposition may be taken by any party; and he may be called to testify by the [court] or any party. He shall be subject to cross-examination by each party, including a party calling him as a witness.

82. *E.g.*, *State v. Bohner*, 210 Wis. 651, 246 N.W. 314 (1933); *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). The general acceptance standard has been used primarily in criminal cases because scientific evidence was more often presented there and because the policy considerations are more vital when human liberty is at issue. *State v. Cary*, 99 N.J. Super. 323, 333, 239 A.2d 680, 685 (1968), *aff'd*, 56 N.J. 16, 264 A.2d 209 (1970). The use of scientific evidence in civil cases is increasing. MCCORMICK, *supra* note 3, § 206, at 503. It is uncertain to what extent, if any, a consideration of general acceptance would be made in a civil case.

incorporated. Since relevance and usefulness are the paramount criteria for admissibility, however, the difficulties of *Frye* are minimized. The issue may not arise in a particular case because consideration of general acceptance is discretionary. If it should arise, general acceptance is a concern inferior to that of relevance and usefulness. Even if the evidence is not generally accepted, it may be admissible if relevant. Under *Williams*, theory and device are considered in the same manner, eliminating some of the technical difficulties of *Frye*.

Forty-five states adhere to the traditional standard for the admission of novel scientific evidence.⁸³ The standard utilized by three states is not clearly ascertainable.⁸⁴ Massachusetts has departed slightly from the traditional standard. The Supreme Judicial Court of Massachusetts took a "cautious first step"⁸⁵ away from the *Frye* standard and held that "failure to achieve the standard of general acceptance need not freeze the evidentiary development of the polygraph. . . ."⁸⁶ The court concluded that the general acceptance test may be adapted to allow admission of novel scientific evidence in limited circumstances.⁸⁷ The Massachusetts position is more restrictive and closer to *Frye* than is *Williams*. Since the traditional standard is currently applied in almost every jurisdiction, the *Williams* decision is the first clear move to a significantly different standard for the admission of novel scientific evidence.

The *Williams* relevance-usefulness standard for the admissibility of newly ascertained or newly applied scientific principles is workable, progressive, and preferable to that of *Frye*. The standard adopted by Maine in *State v. Williams* will likely be the forerunner of a trend toward accepting novel scientific evidence that is relevant and useful to the trier of fact.

VI. CONCLUSION

State v. Williams provides an excellent opportunity to reexamine and analyze the evidentiary standards and considerations for the admissibility of newly ascertained or newly applied scientific principles.

Technology has expanded dramatically since the day of *Frye*.

83. See, e.g., *Chatom v. State*, 348 So. 2d 838 (Ala. 1977); *People v. Kelly*, 17 Cal. 3d 24, 130 Cal. Rptr. 144, 549 P.2d 1240 (1976); *People v. Barbara*, 400 Mich. 352, 255 N.W.2d 171 (1977); *State v. Wakefield*, 263 N.W.2d 76 (Minn. 1978); *State v. Bell*, 90 N.M. 134, 560 P.2d 925 (1977); *Trebotich v. Broglio*, 33 Ohio St. 2d 57, 294 N.E.2d 669 (1973) (dicta); *State v. Canaday*, 90 Wash. 2d 808, 585 P.2d 1185 (1978); *Cullin v. State*, 565 P.2d 445 (Wyo. 1977).

84. Vermont, Delaware, West Virginia.

85. *Commonwealth v. A Juvenile*, 365 Mass. 421, 432, 313 N.E.2d 120, 127 (1974).

86. *Commonwealth v. Vitello*, 381 N.E.2d 582, 592 (Mass. 1978).

87. *Id.* at 592 n.17. The limited circumstances require that (1) the defendant move that the polygraph examination be conducted, (2) the defendant agree in advance that the test results would be admitted regardless of the result, (3) the judge inform defendant of his constitutional right against self-incrimination, (4) the judge find that any waiver of constitutional right was made voluntarily, knowingly, and intelligently, and (5) the judge conduct *voir dire* inquiry to determine the qualifications of the examiner and make findings thereon. *Commonwealth v. A Juvenile*, 365 Mass. 421, 431-32, 313 N.E.2d 120, 126-27. (1974).

Increasingly sophisticated and reliable scientific methods are available for the proof of facts. These principles and methods can be of great value to the courts. Yet the *Frye* standard impeded the courts from deriving the full benefit of newly ascertained or newly applied scientific principles. The traditional standard reflected a lack of confidence in the ability of the jury to assess accurately the probativeness of novel scientific evidence. Inconsistencies and difficulties were present in the application of the traditional standard.

The new *Williams* standard preserves an underlying philosophy of greater confidence in the ability of jurors to evaluate wisely the evidence.⁸⁸ The *Williams* standard provides a clear workable standard of review, promotes uniformity of decision, maximizes correct factual conclusions by the jury, and provides the defendant with a relatively adequate opportunity for rebuttal. Admission of evidence that is relevant and useful to the trier of fact, and consideration of general acceptance toward that initial determination increase the likelihood that the benefits of novel scientific evidence will be enjoyed while concurrently preserving safeguards to preclude the introduction of unreliable evidence.

In view of the dissatisfaction with the *Frye* standard and the advantages of the *Williams* standard, it is submitted that other jurisdictions will adopt similar standards. In addition to serving as an authority for a potential trend toward a standard of relevance, *Williams* may also serve as the advent of the admissibility of evidence that has previously been held inadmissible.

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88. Field, *supra* note 49, at 224.