

MILITARY LAW REVIEW

Volume 162

December 1999

RULE OF EVIDENCE 702: THE SUPREME COURT PROVIDES A FRAMEWORK FOR RELIABILITY DETERMINATIONS

MAJOR VICTOR HANSEN¹

I. Introduction

In March of this year,² the Supreme Court clarified one of the most nagging issues that remained unanswered after their landmark opinion in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*³ Using uncharacteristically clear, understandable language, the Court held that the trial judge's gate-keeping responsibility in evaluating the reliability of expert testimony applies not only to testimony based on scientific knowledge as *Daubert* held, but also to testimony based on technical and other specialized knowledge.⁴ The Court also clarified that the trial judge can use the factors announced in *Daubert* as well as other appropriate factors to evaluate the

1. Judge Advocate General's Corps, United States Army. Presently assigned as a professor in the Criminal Law Department, The Judge Advocate General's School, United States Army, Charlottesville, Virginia. B.A., 1985, Brigham Young University, Provo, Utah; J.D. *magna cum laude*, 1992, Lewis and Clark College, Portland, Oregon; LL.M. 1998, The Judge Advocate General's School, United States Army. Previous assignments include, Chief, Military Justice, Chief, Legal Assistance, Fort Riley Kansas, 1995-1997; Senior Trial Counsel, Trial Counsel, Administrative Law Attorney, First Infantry Division (Mechanized), Fort Riley, Kansas 1992-1995; Funded Legal Education Program, 1989-1992; Troop Executive Officer, 1-1 Cavalry Squadron, 1st Armored Division, Katterbach, Germany, 1987-1989; Platoon Leader, 1-1 Cavalry Squadron, 1st Armored Division, Schwabach, Germany, 1986-1987.

2. *Kumho Tire v. Carmichael*, 119 S. Ct. 1167 (1999). This case will be published in the United States reporter at 526 U.S. 137; however, the final published version has not been released. This article will cite to the Supreme Court reporter for all references to *Kumho Tire v. Carmichael*.

3. 509 U.S. 579 (1993). In *Daubert* the Supreme Court held that general acceptance was not the exclusive test to determine the reliability of scientific expert testimony. The Court set out four factors that trial courts could use to evaluate the reliability of this evidence. The Court limited its opinion to scientific expert testimony. *Id.* n.8.

4. *Kumho Tire*, 119 S. Ct. at 1171.

reliability of scientific and nonscientific expert testimony.⁵ Finally, the Court's opinion reiterated the considerable leeway and broad latitude that the trial judge must have to determine the reliability of expert evidence.⁶

In an age of increasing reliance on expert evidence in courts-martial, *Kumho Tire* has important implications for practitioners and judges. Read in connection with *Daubert* and *General Electric v. Joiner*,⁷ *Kumho Tire* completes an expert trilogy and sets the course for the admissibility of expert evidence for years to come. There are several points practitioners must take away from this trilogy. First, the four reliability factors announced in *Daubert* are not an exclusive list. Second, other reliability factors can and should be considered in the appropriate case. Third, the role of the advocate and trial judge in demonstrating and evaluating the reliability of expert testimony is more important than ever before. Finally, military judges will enjoy broad discretion in deciding on the reliability and admissibility of expert testimony.

The purpose of this article is to explore the *Kumho Tire* decision and the implications that this trilogy of cases will have on the admissibility of nonscientific expert testimony. The article first discusses the historical development of methods used to evaluate the reliability of expert testimony. The article next comments on the impact that the federal and military rules of evidence have had on the reliability determination. This section also addresses the impact of *Daubert* and unresolved questions after *Daubert*. After discussing *Daubert* and the associated problems, the article analyzes *Joiner* and *Kumho Tire* and explains how the Supreme Court resolved these problems. The article concludes by discussing how these cases will impact the admissibility of expert testimony in the future. Specifically, this section provides advice to practitioners and judges on how to litigate the reliability of nonscientific expert testimony under the Supreme Court's framework.

II. Historical Background

A. Expert Framework

The long established practice at common law was to give expert witnesses a special status,⁸ unlike the nonexpert, whose testimony was con-

5. *Id.*

6. *Id.*

7. 522 U.S. 136 (1997).

fined to personal observations. The expert witness, however, testified primarily in the form of an opinion. Further, the expert was not limited to opinions based on personal observation. Rather, the expert could base his opinion on interviews, case reviews, and other methods.⁹

Courts have required expert testimony to be both relevant and reliable.¹⁰ The test for relevance focused on the helpfulness of the opinion to the fact finder. The critical question was whether expert testimony would assist the fact finder in understanding a relevant issue at trial.¹¹ If so, an expert with special experience, training, or knowledge on a subject could provide an opinion to assist the fact finder.¹²

Even if the expert's opinion would be helpful to the fact finders, the opinion must also be reliable.¹³ The expert had to base his opinion on methods and practices that produce trustworthy results. If the methods or practices used to develop the opinion were unreliable, the fact finder would have little confidence in the opinion, and ultimately the opinion would not be helpful.

B. The *Frye* Test

The most difficult task for trial courts has always been to determine the reliability of an expert's opinion. This is particularly true when the expert is offered to testify about a new or novel theory or principal. Judges evaluating the admissibility of this evidence must decide when the principal or theory crosses over from experimental and unreliable to demonstrable and reliable.¹⁴ A federal circuit court faced this issue several years ago in *Frye v. United States*.¹⁵

The defendant, James Frye, was convicted of second-degree murder.¹⁶ At his trial, Frye sought to introduce evidence of a novel test known

8. EDWARD J. IMWINKELRIED ET AL., COURTROOM CRIMINAL EVIDENCE § 1403, at 399 (2nd ed. 1993).

9. *Id.* at 408.

10. *Id.* at 135.

11. FED. R. EVID. 702.

12. *Id.*

13. *Daubert v. Merrell Dow Pharmaceuticals Inc.*, 509 U.S. 579, 589 (1993).

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

15. *Id.*

16. *Id.*

as the systolic blood pressure deception test, an early version of the lie detector test. Frye's expert offered to testify that increases in a person's systolic blood pressure are brought about by automatic nervous impulses. One such nervous impulse is caused by conscious deception. According to the expert, concealing a crime, accompanied by fear of detection, raises a person's systolic blood pressure at the exact time when the person attempts to deceive the questioner.¹⁷ The expert claimed that he could measure the rise in a person's blood pressure during questioning and determine if the person was being truthful.¹⁸

Before trial, the expert tested Frye using the systolic blood pressure test and the expert was willing to testify about the result of the testing.¹⁹ In the alternative, Frye's counsel offered to have Frye tested in the presence of the jury. The trial judge rejected both requests.²⁰ The District of Columbia Circuit Court affirmed the trial judge's decision and in the process announced the now-famous test for determining the reliability of novel expert evidence.

The court recognized that the line between experimental research and reliable data could be difficult to draw. Nevertheless, the court inferred that only the latter should be admitted as expert evidence at trial.²¹ To separate the experimental from the reliable, the court held that "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."²² In this case the court said that the systolic blood pressure deception test has not yet gained such standing.²³

For the next seventy years this "general acceptance" requirement became the litmus test for determining the reliability of expert testimony in most federal, state, and military courts.²⁴ Unless the theory or method

17. *Id.*

18. *Id.*

19. *Id.* While the opinion does not state what the results of the test were, it is unlikely that *Frye* would seek to admit this evidence unless it was exculpatory.

20. *Id.*

21. *Id.* "Inferred" is used because the court specifically hold that only reliable deductions should be admitted at trial. Rather, the court said that courts will only admit expert testimony deduced from well-recognized scientific principles. *Id.*

22. *Id.*

23. *Id.*

24. 1 PAUL C. GIANELLI ET AL., SCIENTIFIC EVIDENCE 9 (2nd ed. 1993).

used to develop the evidence offered at trial enjoyed widespread acceptance in the appropriate community, it was unreliable and inadmissible.

In the context of a primitive polygraph machine, the holding in *Frye* is fairly straightforward and uncontroversial. This case would have been surprising only if the Court of Appeals had remanded the case and ordered the trial judge to allow James Frye to be hooked up to the systolic blood pressure detector and questioned in front of the jury. The next seventy years, however, were not as kind to the *Frye* decision in other contexts.

The general acceptance test required a two step analysis. First, the court had to identify the area or field from which the evidence developed. Next, the court had to determine if members in that field generally accept the principle.²⁵ At first blush, this two-step approach seems fairly straightforward. As the next seventy years of case law illustrated, however, the test had a number of problems.

Because many scientific techniques did not fall into a single area or field, courts had difficulty knowing where to look for expertise. A 1968 California case dealing with voice print analysis illustrates the point. In *People v. King*,²⁶ the defendant was convicted of one charge of arson for his involvement in the Watts riots in Los Angeles in August 1965.²⁷ The basis of the prosecution's case was a documentary film made by CBS news on the Watts riots. In the documentary, an unidentifiable young black man made several incriminating statements about his role in the riot. A few weeks after CBS aired the documentary, Edward King was arrested on a narcotics charge.²⁸ During a search incident to the arrest, the police found a business card of the CBS camera man who filmed the documentary, a paper containing the name of the associate producer of the film, and a watch and a ring identified in the film.²⁹

Suspecting a connection, the police surreptitiously taped an interview with King at the police station. At trial, the prosecution did not seek to admit this tape. Instead, the government introduced segments of the CBS interview as well as the expert opinion of a Mr. Kersta, who testified that the voice on the CBS interview and the voice on the police station inter-

25. *Id.* at 14.

26. 266 Ca. App. 2d. 437 (1968).

27. *Id.* at 440.

28. *Id.*

29. *Id.*

view tape were from the same person. Admissibility of this voice print evidence was a case of first impression for the California court.

Mr. Kersta was an early developer of voice print methodology and a machine that could record a person's "voice print." Mr. Kersta asserted that a person's voiceprint is as unique as his fingerprint. Using the method he developed, he claimed he could identify a person's voice with a 99.65% degree of accuracy.³⁰ The trial court admitted this evidence over defense objection and in spite of several defense experts who testified that Mr. Kersta's methods were untested, unreliable, and amounted to parlor tricks.³¹

The California Court of Appeals reversed the trial judge's decision and held that it was an abuse of discretion to admit this evidence. The court noted that while Mr. Kersta was trained in electronics and physics, communication by speech does not fall within one category of science. Rather, it involves an understanding of anatomy, physiology, physics, psychology, and linguistics.³² The court held that because other scientific disciplines that have a role in analyzing the characteristics of someone's voice were not part of Mr. Kersta's methodology, the results were unreliable.³³ This case illustrates the difficulty courts often faced in trying to identify what field or fields of science to look to when determining general acceptance.

The second prong of the *Frye* test was equally problematic. Even if a relevant field of science could be identified, a court had to determine at what point a theory or method becomes generally accepted. This was not an easy determination, and courts since *Frye* have struggled with exactly what it means for a technique to be generally accepted. Some courts have held that a technique is generally accepted if a substantial section of the scientific community concerned have accepted it.³⁴ Other courts ruled that general acceptance means widespread or prevalent, though not universal acceptance.³⁵ Cases that followed *Frye* have offered little guidance on what the term general acceptance really means. The result was a confusing standard that was difficult to apply to the facts of a particular case.

Even assuming the court can identify what it means for a theory to be generally accepted; how does a party show general acceptance? This proof

30. *Id.* at 451.

31. *Id.* at 489.

32. *Id.* at 456.

33. *Id.* at 458.

34. *United States v. Williams*, 443 F. Supp. 269, 273 (S.D.N.Y. 1977).

35. *United States v. Zeiger*, 350 F. Supp. 685 (D.D.C. 1972).

would come via expert testimony, most often the very expert whose testimony was at issue. Indeed, this was a common practice after *Frye*.³⁶ The problem here is one of bias: the expert who developed the procedure or theory is the one who will also provide the testimony as to whether the process or theory was reliable.

Because of this bias problem, courts established additional requirements. Some courts held that the testimony of only one expert would not be enough to represent the views of an entire scientific community.³⁷ These courts required at least two witnesses to testify about general acceptance. Other courts held that only an impartial expert could testify about the general acceptance of a theory.³⁸ Still other courts relied on scientific publications and prior judicial decisions to determine whether the theory enjoyed widespread acceptance.³⁹

Aside from these problems, the most powerful criticism was the impact *Frye* had on the day-to-day admissibility of reliable evidence. The general acceptance requirement test was strict. This meant that relevant and reliable scientific evidence was kept out of the courtroom simply because it was new and had not gained general acceptance. The legal system lagged behind scientific advances.⁴⁰ The case of *Coppolino v. State*⁴¹ is an excellent example.

The defendant in *Coppolino*, Carl Coppolino was charged with murdering his wife. The government theorized that Mr. Coppolino, an anesthesiologist, had injected his wife Carmela with a lethal dose of succinylcholine chloride.

At the time of the victim's death, most experts thought that succinylcholine chloride was undetectable in a person's body after death. Carmela's death was initially ruled a suicide. Four months after her death, however, her body was exhumed and the medical examiner, Dr. Helpern,

36. GIANELLI ET AL., *supra* note 24, at 18-19.

37. *Commonwealth v. Topa*, 369 A.2d 1277, 1282 (Pa. 1977); *See People v. Kelly*, 549 P.2d 1240, 1248-49 (Cal. 1976).

38. *See State ex rel. Collins v. Superior Court*, 644 P.2d 1266, 1285 (Ariz. 1982); *People v. Tobey*, 257 N.W.2d 537, 539 (Mich. 1977).

39. *See Commonwealth v. Lykus*, 327 N.E.2d 671, 675-76 (Mass. 1975); *United States v. Stifel*, 433 F.2d 431, 441 (6th Cir. 1970).

40. Edward J. Imwinkelried, *A New Era in the Evolution of Scientific Evidence*, 23 WM. & MARY L. REV. 261 (1981).

41. 223 So. 2d 68 (Fla. 1968).

performed an autopsy. At the conclusion of his autopsy, Dr. Helpern was unable to determine the cause of death. However, he did find a needle injection tract in the left buttocks of the deceased.⁴²

Dr. Helpern sent some tissue samples to a Dr. Umberger for a chemical analysis. Dr. Umberger performed several tests on the tissue samples. He employed some procedures that were new and had never been used. As a result of his testing, Dr. Umberger determined that the cause of death was an overdose of succinylcholine chloride. Both Dr. Helpern and Dr. Umberger testified at trial as to the cause of death.

The defense objected at trial and on appeal. At the time, Florida courts used the *Frye* test to evaluate the reliability of scientific testimony. The defense presented evidence that most experts in the field believed it was impossible to detect succinylcholine chloride in the body after death. The government witnesses conceded that some of the procedures used by Dr. Umberger were new, but maintained that they were reliable. In spite of the novel nature of this evidence, the trial judge admitted this evidence.

The Florida Court of Appeals affirmed. The court held that the trial judge had carefully evaluated the issue and had not abused his discretion in admitting this evidence.⁴³ The concurring opinion of Judge Mann stated the issue clearly. He said, "Society need not tolerate homicide until there develops a body of medical literature about some particular lethal agent. The expert witnesses were examined and cross-examined at great length and the jury could either believe or doubt the prosecution's testimony as it chose."⁴⁴

This case demonstrated the major weakness of the *Frye* test. The simple fact is that even novel scientific tests or procedures can generate reliable evidence. It is not in the interest of justice to postpone the admissibility of this evidence pending widespread adoption by the scientific community.

Another criticism of *Frye* that remained even after the test's demise was that courts applied the test selectively.⁴⁵ This was largely a problem of distinguishing scientific evidence from other types of expert testimony.

42. *Id.* at 69.

43. *Id.*

44. *Id.* at 75 (Mann, J., concurring).

45. GIANELLI ET AL., *supra* note 24, at 20-21.

Because *Frye* arguably applied only to scientific evidence, courts had to decide if the expert evidence was scientific.⁴⁶ This proved to be a difficult task. This issue will be discussed more fully in Section IV of the article. Many of these criticisms of the *Frye* test became apparent over time as more scientific evidence was introduced into the courtroom.⁴⁷

C. Federal Rules of Evidence

At the very time practitioners pushed for the introduction of more scientific evidence in the courtroom, another important development took place. In 1975, Congress adopted the Federal Rules of Evidence (FRE). For the first time in the federal system, evidentiary issues would be decided by specific rules rather than just by general common law principles. Not only did these rules have a major impact in the federal system, they also impacted on state courts and military courts.

Soon after the federal rules were implemented, other systems adopted their own evidentiary rules modeled after the federal rules. In 1980, the military adopted the Military Rules of Evidence (MRE).⁴⁸ In many respects, these rules directly model the federal rules.

Adopting the federal and military rules of evidence accomplished a number of important objectives. First, a uniform set of rules allowed for predictability in the courtroom.⁴⁹ Before adopting the federal rules, common law principles governed the admissibility of evidence in federal courts. The difficulty with this system was obvious. Practitioners had a difficult time even knowing what principles a judge may apply to a particular issue. Also, because the common law provided the primary source of law, judges could easily ignore the principles or apply them in a way that the practitioners had not anticipated.⁵⁰ Codifying a set of rules common to all courts removed this uncertainty.

The codification of the federal and military rules also ensured a greater degree of uniformity. Because all judges would now be applying

46. This distinction between scientific and nonscientific expert evidence will be discussed in greater detail later in this article.

47. Imwinkelried, *supra* note 40, at 263-64.

48. MANUAL FOR COURTS-MARTIAL, UNITED STATES, app. 22, at A22-1 [hereinafter MCM].

49. 1 STEPHEN A. SALTZBURG ET AL., FEDERAL RULES OF EVIDENCE MANUAL 4 (1998).

50. *Id.* at 5.

the same rules, their rulings on the admissibility and inadmissibility of evidence would be more uniform.⁵¹

A third objective of the rules relevant to the discussion in this article is that more evidence would come before the fact finder.⁵² Many of the common law rules in place before Congress adopted the federal rules were archaic and had little relevance to the modern courtroom.⁵³ The federal and military rules did away with many of these notions and the language of the rules either explicitly or implicitly opened the door for more evidence.⁵⁴

Nowhere was this more apparent than in the language of FRE 702 relating to expert testimony. Rule 702 states:

If scientific, technical, or other specialized knowledge will assist the finder of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify in the form of an opinion or otherwise.⁵⁵

Military Rule of Evidence 702 is identical. The language of Rule 702 opened up the admissibility of expert testimony in a number of ways.

First, the rule does not place any limitations on the subject matter that an expert can testify about. The rule allows expert testimony not only on

51. *Id.* at 4. One can debate whether this goal of uniformity has really been achieved. Any experienced trial advocate can cite numerous instances where evidence deemed admissible by one judge has been deemed inadmissible under the very same circumstances by another judge. The rules are in large part responsible for this remaining disparity because they still grant a great deal of discretion to the trial judge. An example is Rule 403 which says relevant evidence can be excluded if its probative value is substantially outweighed by the risk of unfair prejudice, confusion of the issues, or unreasonable delay. The very language of the rule calls for an ad hoc judgment, and no two judges are likely to reach the same conclusion.

52. STEPHEN A. SALTZBURG ET AL., *MILITARY RULES OF EVIDENCE MANUAL* 474 (4th ed. 1997).

53. A good example of this is the voucher rule used in many jurisdictions. This rule required the party proffering the witness to vouch for their credibility and prevented them from impeaching their own witness. See EDWARD W. CLEARY ET AL., *MCCORMICK ON EVIDENCE* 82 (3rd ed. 1984).

54. The best example is the language of MRE 401 which defines 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." MCM, *supra* note 48, MIL. R. EVID. 401.

55. FED. R. EVID. 702.

scientific and technical knowledge, but on other specialized knowledge as well. The drafters recognized that “specialized knowledge” was a broad term, and there was no attempt in the rule or the analysis to narrow or define its meaning.⁵⁶ The term “specialized knowledge” potentially covers an innumerable range of topics and issues.⁵⁷ The rule recognizes that fact finders may benefit from expert testimony on a wide variety of topics.

Rather than limit the subject matter that an expert could testify about, the rule requires that the expert testimony assist the fact finder to understand the evidence or determine a fact in issue. Here again, this language does not place an onerous burden on the party seeking to admit the expert’s testimony. If the evidence will be helpful to the fact finder and not superfluous or confusing, it is a proper subject for expert testimony.⁵⁸ This is simply a question of logical and legal relevance. Courts applying this requirement have focused on whether the fact finder can resolve the disputed issues simply by applying their own common sense.⁵⁹ If not, expert testimony may be helpful and admissible.

The federal and military rules also liberalized the admissibility of expert testimony by recognizing that a witness’s expertise can come from any number of sources other than formal education. Expert witnesses can include not only physicians and scientists, but may also include farmers, mechanics, bankers, and others.⁶⁰ Provided the witness has the requisite training, experience, knowledge, education, or skill, he can be qualified as an expert.

The final aspect of expert testimony that the federal and military rules liberalized is the form of the expert’s testimony. Prior to the adoption of the rules, experts were often limited to opinion testimony based on hypothetical situations proffered by counsel. This practice stemmed from a belief that if experts commented directly on the facts of the case, they

56. *Id.*

57. Federal and military courts have admitted expert testimony on a number of subjects to include: *United States v. Anderson*, 851 F.2d 384 (D.C. Cir. 1988) (allowing expert testimony on how pimps operate); *United States v. Alexander*, 849 F.2d 1293 (5th Cir. 1987) (allowing expert testimony on the measurement of head dimensions held admissible); *United States v. Cruz*, 797 F.2d 90 (2nd Cir. 1986) (allowing a government agent to testify about the use of food stamps in narcotics sales); *United States v. Rackley*, 724 F.2d 450 (8th Cir. 1984) (allowing a demonstration on performance of drug sniffing dog).

58. FED. R. EVID. 702.

59. *Id.*

60. *Id.*

would invade the province of the jury. The hypothetical situations typically mirrored the facts of the case at issue; once the expert rendered an opinion on the hypothetical, the fact finder had to make the link to the facts of the case.

Rule 702 abolished this requirement. The rule does not limit experts to opinion testimony. They can also explain the principles relevant to the facts of the case and let the fact finder apply the principles to the facts before them.⁶¹ Likewise, the expert can also opine about a hypothetical situation and then suggest to the fact finder what inferences should be drawn to the facts of the case.⁶²

The changes established by Rule 702 had the potential to revolutionize the admissibility and use of expert testimony. The clear message from the new rule was that more expert testimony should come before the fact finder. Courts and commentators alike recognized that Rule 702 should result in greater admissibility of expert testimony.⁶³

D. Conflict Between *Frye* and 702

Rule 702's loosening of restrictions on the admissibility of expert testimony corresponded with a significant increase in the number of cases using expert evidence and expert testimony.⁶⁴ One prominent commentator attributed the increase in the use of scientific evidence in criminal cases to opinions by the Warren Court. As the Court developed strong exclusionary rules, prosecutors were forced to abandon traditional methods of proof. In their place, prosecutors and police turned to more sophisticated forensic techniques to gather evidence and establish criminal liability.⁶⁵ Many of these forensic techniques involved novel scientific theories, and more and more courts were forced to grapple with issues of admissibility.

For their part, the criminal defense bar resurrected the *Frye* test as a means of keeping this novel evidence out of the courtroom. The defense bar was largely successful in their efforts. Throughout the 1970s and early 1980s, federal, state, and military courts routinely invoked *Frye* as their rationale for keeping novel expert testimony and scientific evidence out of

61. *Id.*

62. *Id.*

63. SALTZBURG ET AL., *supra* note 52, at 837.

64. Imwinkelried, *supra* note 40, at 262-63.

65. *Id.*

the courtroom.⁶⁶ The defense bar's success precipitated the many criticisms of the *Frye* test mentioned above.

One criticism, however, warrants further comment. The *Frye* test is inconsistent with both the language and the purpose of Rule 702. As discussed above, the primary restriction on expert testimony under Rule 702 is that the testimony or evidence assists the fact finder. Nothing in the language of the rule requires that the evidence enjoy widespread acceptance before it is admissible. Likewise, no general acceptance requirement is mentioned in the advisory committee notes. In fact, the *Frye* test is not mentioned whatsoever. Further, the restrictive nature of the *Frye* test is inconsistent with one of the primary purposes of the rules.

The restrictive nature of the *Frye* test simply does not square with the language or the purpose of the federal rules. In the early 1980s, this became one of the primary arguments for abolishing the *Frye* test. In jurisdictions that had a version of the federal rules, courts began to adopt this rationale. Many of these courts abandoned *Frye* in favor of the more liberal admissibility standards of Rule 702.

In 1987, the military abandoned the *Frye* test. In *United States v. Gipson*,⁶⁷ the then Court of Military Appeals (CMA)⁶⁸ held that *Frye* had been superceded by the federal and military rules of evidence and that it was no longer an independent standard of admissibility.⁶⁹ Ironically *Gipson*, like *Frye*, involved the admissibility of polygraph evidence. In *Gipson*, the accused was charged with distribution of LSD on three separate occasions. In his defense, the accused sought to admit an exculpatory polygraph that he had secured at his own expense. According to the accused, this polygraph examination indicated that he had been truthful when he denied committing the charged offenses.⁷⁰ The trial judge ruled that because this evidence was not generally accepted in the scientific community, it was

66. *Id.*

67. 24 M.J. 246 (C.M.A. 1987).

68. On 5 October 1994, the National Defense Authorization Act for Fiscal Year 1995, Pub. L. No. 103-337, 108 Stat. 2663 (1994), changed the names of the United States Courts of Military Review and the United States Court of Military Appeals. The new names are the United States Army Court of Criminal Appeals, the United States Air Force Court of Criminal Appeals, the United States Navy-Marine Corps Court of Criminal Appeals, the United States Coast Guard Court of Criminal Appeals, and the United States Court of Appeals for the Armed Forces.

69. *Gipson*, 24 M.J. at 251.

70. *Id.* at 247.

unreliable and inadmissible. The trial judge prohibited the defense from even laying a foundation for the admissibility of this evidence.⁷¹

On appeal, the CMA noted that there was a great deal of controversy surrounding the reliability of polygraph evidence. The court said that for expert testimony such as polygraph evidence to assist the fact finder under MRE 702, it must be both relevant and reliable. According to the CMA, these requirements are implicit in the rule itself.⁷²

The court then turned to the question of how best to determine the reliability of expert testimony. The court recognized that there was a split among state and federal courts as to whether *Frye* was the appropriate test for admissibility.⁷³ The CMA noted that MRE 702 is a comprehensive scheme for the processing of expert testimony. It also said that this scheme makes no mention of *Frye*.⁷⁴ According to the court, the adoption of the federal and military rules superseded the *Frye* test.⁷⁵

The CMA's holding in *Gipson* preceded the Supreme Court's opinion in *Daubert* by six years. *Gipson* was a foreshadowing of things to come. By the early 1990s judges, practitioners, scientists, and commentators alike recognized that *Frye* had outlived its usefulness. It was simply too restrictive of a test, keeping reliable evidence from the fact finder.

III. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*

A. The Opinion

In 1993, the Supreme Court finally addressed the question of whether the *Frye* test survived FRE 702. In the context of a product liability suit, the Court said that *Frye* was no longer the controlling test to determine the reliability of expert evidence. Like the military court six years earlier, the Supreme Court held that expert testimony must be relevant and reliable. On the question of reliability, the Court held that *Frye* was not the appropriate test.⁷⁶ The plaintiffs in *Daubert*, Jason Daubert and Eric Schuller, were born with serious birth defects. Their mothers took a medication called Bendectin during pregnancy to combat nausea. Daubert and

71. *Id.*

72. *Id.*

73. *Id.* at 251.

74. *Id.*

75. *Id.*

76. 509 U.S. 579 (1993).

Schuller sued Dow Chemical alleging that Bendectin, manufactured by Dow, caused the birth defects.⁷⁷

To prove causation, the plaintiffs sought to introduce the testimony of eight well-credentialed experts. The experts would opine that Bendectin caused birth defects despite thirty published studies that concluded that Bendectin did not cause birth defects. The plaintiff's experts based their opinion on novel scientific theories.⁷⁸

First, they found a link between Bendectin and birth defects in test tube and live animal studies. Second, the chemical structure of Bendectin was similar to other substances known to cause birth defects in humans. Finally, the experts conducted a reanalysis of previously published human statistical studies. Based on the information they developed, the experts were willing to testify to a causal link.⁷⁹

The trial court rejected this testimony and granted summary judgment for the defendants. The court said that the methods employed by the plaintiffs' experts were not sufficiently established in the relevant scientific community. The evidence was unreliable and inadmissible under *Frye*.⁸⁰

The Ninth Circuit Court of Appeals affirmed the trial court's ruling.⁸¹ Like the trial court, the court of appeals applied *Frye* to test the reliability of the plaintiff's expert testimony. The court found that the reanalysis method used by the experts had not been published or subjected to peer review.⁸² According to the Ninth Circuit, this method was against the massive weight of the evidence and not generally accepted.⁸³ Finally, the court noted that the plaintiff's evidence was developed solely for use in litigation.⁸⁴

The Supreme Court granted *certiorari* and reversed the lower courts' decisions.⁸⁵ In *Daubert*, the Court did not decide whether the trial judge correctly determined the reliability of the plaintiff's expert testimony

77. *Id.* at 582.

78. *Id.* at 583.

79. *Id.*

80. *Id.*

81. *Daubert v. Merrell Dow Pharmaceuticals*, 951 F.2d 1128 (9th Cir. 1991).

82. *Id.* at 1130-31.

83. *Id.*

84. *Id.*

85. 506 U.S. 914 (1992).

under *Frye*. The Court instead used this case to decide if *Frye* was still the controlling test to evaluate the reliability of expert evidence.⁸⁶ The Court held that *Frye* and general acceptance was no longer the sole basis for evaluating reliability.

The Court noted that over the years courts and legal scholars have hotly debated the usefulness and the proper application of the *Frye* test. Among the numerous criticisms against *Frye*, the Court found the most persuasive to be the plaintiffs' argument that the federal rules superceded *Frye*.⁸⁷ Like the CMA six years earlier, the Supreme Court viewed FRE 702 as a comprehensive mechanism for evaluating the admissibility of expert evidence. The Court held that there is no indication that FRE 702 or the Federal Rules of Evidence as a whole were intended to incorporate a general acceptance standard.⁸⁸ The Court also said that the rigid general acceptance requirement was inconsistent with the thrust of the federal rules, which is to relax traditional barriers on opinion testimony.⁸⁹ The Court then reasoned that since the federal rules made no mention of *Frye* and there was no incorporation of *Frye* anywhere in the rules, *Frye* did not survive the implementation of the federal rules.⁹⁰

B. Competing Concerns

The Court held that the federal rules placed some restrictions on the admissibility of expert evidence. Again, using the same language that the CMA used in *Gibson*, the Supreme Court held that the federal rules required scientific evidence to be both relevant and reliable.⁹¹ According to the Court, the reliability requirement comes from the term "scientific knowledge" found in Rule 702. The court reasoned that for an assertion to qualify as "scientific knowledge," it must be supported by appropriate validation and must be based on good grounds.⁹² In the Court's view, the very term used in the rules established a standard of evidentiary reliability. The Supreme Court also found the relevancy requirement from the language of Rule 702. Here the Court focused on Rule 702's requirement that the expert testimony assist the trier of fact to understand the evidence or to

86. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 581 (1993).

87. *Id.* at 587.

88. *Id.* at 588.

89. *Id.*

90. *Id.*

91. *Id.* at 589.

92. *Id.* at 590.

determine a fact at issue.⁹³ The Court said this requirement goes primarily to the relevance of the evidence.⁹⁴

Simply stating that Rule 702 placed relevance and reliability requirements on expert scientific evidence did not completely resolve the issue. Assuming that *Frye* is no longer the test for evaluating the reliability of expert testimony, what should judges use in its place? The Court faced competing concerns. On the one hand, the Court found the *Frye* standard too restrictive and unworkable. On the other hand, the Court had to ensure that trial judges have the necessary tools to prevent “junk science” from entering the courtroom.⁹⁵

In *Daubert*, the Supreme Court tried to provide some guidance for trial judges to keep “junk science” out of the courtroom. The Court began by clearly stating that it was the trial judge’s responsibility to determine the reliability of scientific evidence. The Court counseled trial judges to conduct a hearing under FRE 104⁹⁶ to make a preliminary determination that the scientific evidence is relevant and reliable.⁹⁷ The Court then listed four

93. *Id.* at 591.

94. *Id.*

95. The fear of “junk science” entering the courtroom was a legitimate concern when the Court decided *Daubert* and it continues to be a concern today. Ironically, at the very time Congress and the courts moved to relax the rules of admissibility, the proficiency of American crime laboratories came into question. Imwinkelried, *supra* note 40, at 269. One study in the 1970s demonstrated the very real possibility of error in the forensic analysis conducted by police laboratories. In 1974 the Law Enforcement Assistance Program sponsored a study to test the proficiency of crime labs in the United States. Some 240 laboratories participated in the study. The testing committee sent the participating labs samples of blood, hair, firearms, drugs, glass, paint and other forensic evidence for analysis. The testing committee knew the findings that a competent scientific analysis would yield. The results showed that the laboratories misidentified the samples in a large percentage of cases. With some samples, the misidentification rate was well over 50%. Imwinkelried, *supra* note 40, at 267-69. As recently as three years ago, similar allegations surfaced about the Federal Bureau of Investigation laboratory, the most prestigious criminal laboratory in the United States.

96. Federal Rule of Evidence 104(a) states:

Questions of admissibility generally. Preliminary questions concerning the qualification of a person to be a witness . . . shall be determined by the court, subject to the provisions of subdivision (b). In making its determination, it is not bound by the rules of evidence except those with respect to privileges.

Military Rule of Evidence 104(a) is substantially the same. See MCM, *supra* note 48, MIL. R. EVID. 104(a).

nonexclusive factors that the trial judge should consider when evaluating the reliability of expert scientific evidence.

First, the trial judge should determine whether the theory or technique can be (and has been) tested.⁹⁸ Second, the trial judge should consider whether the theory or technique has been subjected to peer review and publication.⁹⁹ Third, the trial judge should consider the known or potential rate of error of the theory or technique.¹⁰⁰ Finally, the Court recognized that *Frye* still has some value by holding that the trial judge should also consider whether the theory or technique enjoys general acceptance in the relevant scientific community.¹⁰¹

The *Daubert* opinion was significant for several reasons. The Court clearly established that when there is a conflict or uncertainty between the common law rules and the federal rules of evidence, the federal rules control. The Court also definitively held that the *Frye* test was no longer the single controlling factor courts should use to evaluate the reliability of scientific expert evidence. Finally, the Court emphasized the important role trial judges must play in allowing reliable evidence to be presented to the fact finder, while keeping “junk science” out of the courtroom. On this last point, the Court provided guidance to trial judges about factors they should use to evaluate the reliability of evidence developed from the scientific method.

C. Unanswered Questions

While *Daubert* was unquestionably the most important Supreme Court ruling on expert evidence to date, the opinion was not without problems. *Daubert* did not answer all of the questions surrounding Rule 702, and arguably raised more questions than it answered. The opinion also squarely placed a burden on trial judges that many judges were unwilling or unprepared to accept. By establishing the trial judge as the gatekeeper and rejecting *Frye*, the Court prohibited trial judges from merely relying on the opinions of others to determine the reliability of scientific evidence. The Court told judges that they must preliminarily assess whether the reasoning or methodology underlying the expert testimony is scientifically

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

98. *Id.* at 593.

99. *Id.*

100. *Id.* at 594.

101. *Id.*

valid and can be applied to the facts of the case.¹⁰² This assessment is a much more detailed review than most trial courts had done under *Frye*.¹⁰³

The opinion, however, avoided a glaring problem. Courtrooms are not the best forums for evaluating the scientific validity of a theory or methodology, particularly if the method or theory involves novel ideas. Other than the four factors that the Court provided, the opinion left trial judges on their own. *Daubert* is unclear about how much weight each factor should be given and whether trial courts can consider other factors not expressly listed by the Court.

A second question spawned by the *Daubert* opinion was where the judge should focus the reliability inquiry. According to the Court in *Daubert*, the focus must be solely on principles and methodology, not on the conclusions they generate.¹⁰⁴ The opinion did not discuss the reliability of the expert's conclusions. Should the trial judge care if the expert's conclusions were reliable? Or, does the inquiry stop once the court determines that the methods employed by the expert were reliable, regardless of the conclusions the expert reached? Can a judge even draw a distinction between an expert's methods and conclusions?¹⁰⁵

The Supreme Court clarified this portion of the *Daubert* opinion four years later in *Joiner v. General Electric*.¹⁰⁶ The Court ruled that the trial judge did not abuse his discretion when he evaluated the reliability of the expert's conclusions.¹⁰⁷ In *Joiner*, the plaintiff, an electrician, was occasionally exposed to polychlorinated biphenyls (PCBs) in electrical transformers manufactured by the defendant, General Electric.

In 1991, the plaintiff was diagnosed with small cell lung cancer. He sued General Electric, alleging that the cancer was caused by his exposure to PCBs.¹⁰⁸ To support his claim, the plaintiff sought to introduce testimony and evidence from experts who would opine that the plaintiff's exposure to PCBs promoted his cancer. The expert's opinions were based in large part on studies he conducted on laboratory animals.¹⁰⁹ The

102. *Id.* at 592-93.

103. Bert Black et al., *Science and the Law in the Wake of Daubert*, 72 TEX. L. REV. 715, 721 (1994).

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

105. Kennard Neal, *Life after Joiner*, GA. B.J., May 1998, at 34.

106. 522 U.S. 136 (1997).

107. *Id.* at 145-46.

108. *Id.* at 140-41.

defense claimed that the expert's opinions were unreliable and inadmissible because the studies were conducted on laboratory animals in conditions that were much different than the plaintiff's exposure. The defense also contended that no study existed that linked exposure to PCBs and cancer in humans. The trial judge agreed with the defense and granted summary judgment.¹¹⁰

On appeal, the Eleventh Circuit reversed. The court first evaluated the judge's decision to exclude this evidence, by using a "particularly stringent standard of review," rather than the traditional abuse of discretion standard. The Eleventh Circuit said that this heightened standard was appropriate when a trial judge excludes evidence because FRE 702 displays a preference for the admissibility of evidence. Under this particularly stringent standard of review, the court of appeals said the trial court erred in excluding this testimony.¹¹¹

The Supreme Court granted *certiorari* and reversed.¹¹² The Court first rejected the Eleventh Circuit's particularly stringent standard of review. A unanimous court held that the proper standard of review, even for expert scientific evidence excluded by the judge, was abuse of discretion.¹¹³

The Court then addressed the issue unanswered in *Daubert* of whether the trial judge was limited to reviewing the reliability of an expert's methodology, or whether the judge could look at the expert's conclusions as well. The Court recognized the difficulty, and sometimes the impossibility, of separating an expert's methodology from his conclusions. The Court said conclusions and methodology are not entirely distinct from one another.¹¹⁴ The Court also noted that there is nothing in the Federal Rules of Evidence or the *Daubert* opinion that requires the trial court to admit expert opinion testimony simply because the expert claims that his conclusions are supported by the existing data.¹¹⁵ A trial court may find that the gap between the data and the expert's conclusions is simply too

109. *Id.* at 144-45.

110. *Id.*

111. *Id.* at 140-41.

112. *Id.*

113. *Id.*

114. *Id.* at 145-46.

115. *Id.*

great to be reliable. The appellate courts should reverse such a finding only for an abuse of discretion.¹¹⁶

Joiner answered two important questions left open by *Daubert*. First, the Court in *Joiner* reaffirmed that abuse of discretion is the proper standard to review a trial court's decision to admit or exclude expert evidence. Second, the Court said that it might be appropriate for the trial court to evaluate the reliability of both an expert's methodology and the expert's conclusions and opinions. In spite of this clarification, one very significant question from the *Daubert* opinion remained unanswered. What expert testimony and evidence does *Daubert* apply to?

In a footnote to the *Daubert* opinion, the Court expressly stated that its discussion was limited to the "scientific context" because that was the nature of the evidence in the case.¹¹⁷ The expert evidence in *Daubert* involved evidence derived from laboratory research and epidemiological studies.¹¹⁸ The four factors the Court introduced in *Daubert* to evaluate the reliability of expert testimony are the very questions that a scientist uses to decide if a proposition has been verified.¹¹⁹

Federal Rule of Evidence 702 and MRE 702, however, do not limit expert evidence to opinions developed just from scientific knowledge. The rule states that "scientific, technical, or other specialized knowledge" is admissible if it will assist the fact finder. What impact should *Daubert* have on expert evidence not developed using the scientific method? Does *Daubert* have any application? Should trial judges try to apply the four factors announced in *Daubert* to other types of expert testimony even though there is not a direct correlation? Should trial judges look to factors other than the ones the Court suggested in *Daubert* to evaluate the reliability of the nonscientific expert's testimony? Should trial courts even be concerned about the reliability of nonscientific experts? Finally, how can a court determine what types of evidence were developed using the Newtonian scientific method and which were not? All of these questions remained unanswered after *Daubert*.

116. *Id.*

117. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, n.8 (1993).

118. This is evidence developed using the scientific method. The scientific method is Newtonian experimental science, the process of developing and testing hypothesis. Edward J. Imwinkelried, *Scientific Evidence After the Death of Frye Statistics, Data, and Levels of Proof*, 15 CARDOZO L. REV. 2271, 2277 (1994).

119. *Id.*

IV. *Daubert* and Nonscientific Evidence

A. Is it Science?

These unresolved issues are not mere esoteric points for commentators to debate in academia. The answers to these questions have a significant impact on any case where the reliability of nonscientific or quasi-scientific expert evidence is litigated. With scientific evidence, pre-trial motions relating to reliability can often be outcome determinative.¹²⁰ Similarly, if the judge believes that the *Daubert* factors do not apply to nonscientific testimony, that decision may lead to the testimony of a key witness, which may be outcome determinative.

To begin with, courts after *Daubert* had to answer the fundamental question of whether the evidence or testimony was developed using the scientific method. There is no easy answer to this question. At one end of the spectrum, for example, there is DNA evidence. It is clear that this type of evidence was created using the scientific method and fits well within the Court's definition of scientific knowledge. At the other end of the spectrum is something like astrology. Information developed by astrologists is far removed from the scientific method. Between these two extremes, however, there is a large gray area. A few examples illustrate how courts have struggled in this quasi-scientific no-mans land.

One example deals with expert testimony in child abuse cases. In *United States v. Bighead*,¹²¹ the defendant was charged with two counts of sexual abuse with a minor. The victim claimed that the defendant had been abusing her from the time she was about eleven until she was seventeen. The victim, however, did not report the abuse to an adult until shortly before her eighteenth birthday.¹²²

After the victim was cross-examined by the defense counsel about her delayed reporting, the government introduced as a rebuttal witness an expert in child sexual abuse.¹²³ The thrust of the expert's testimony was that it is not unusual for child victims to delay reporting and that such delays are consistent with incidents of abuse.¹²⁴ On appeal, the defense

120. Neal, *supra* note 105, at 34.

121. 128 F.3d 1329 (9th Cir. 1997).

122. *Id.* at 1330.

123. *Id.*

124. *Id.*

argued that the expert's testimony was improperly admitted because it did not satisfy the four factors of reliability set out in *Daubert*.¹²⁵

The Ninth Circuit rejected the defense argument. The appellate court held that the expert's testimony was not scientific evidence. The court said that her testimony was developed from her own personal observations of numerous abuse victims. Because the evidence was not scientific, the *Daubert* factors did not apply, and the evidence was properly admitted.¹²⁶

The dissenting judge, Judge Noonan, disagreed with the majority's characterization of this evidence. Judge Noonan first said that the majority read *Daubert* too narrowly and that the reliability analysis applied to all types of expert testimony.¹²⁷ Judge Noonan also argued that this testimony is novel scientific evidence because the expert used a particular method to interpret allegations of abuse, and she was not simply reciting her personal observations. According to Judge Noonan, this was scientific evidence that the trial court should have subjected to a *Daubert* analysis.¹²⁸

A second example involves accident reconstruction testimony. In *Robinson v. Missouri Pacific Railroad*,¹²⁹ the plaintiff sued Missouri Pacific Railroad for the wrongful death of his family members. The plaintiff's wife and child were killed when a train at a railroad crossing struck their car.¹³⁰

The plaintiff claimed that the crossing gate was not working and the victims were unaware of the train's approach. The defendants claimed that the crossing gate functioned properly. They alleged that the victim tried to drive around the crossing gate and that her car was struck in the process.¹³¹

To prove their case and rebut the defense theory, the plaintiff introduced testimony from an accident reconstruction expert. The expert created a video of the accident. The video showed that the location of the car after the accident was consistent with the plaintiff's version of the events and inconsistent with the defense claims.¹³² On appeal, the defense argued

125. *Id.*

126. *Id.*

127. *Id.* at 1335 (Noonan, J., dissenting).

128. *Id.* at 1336 (Noonan, J., dissenting).

129. 16 F.3d 1083 (10th Cir. 1994).

130. *Id.* at 1084.

131. *Id.* at 1085.

132. *Id.* at 1086-87.

that the trial judge erred in admitting this video as unduly prejudicial.¹³³ In dicta, the court said it believed that the video did involve scientific evidence because it was based on the science of physics. Therefore, the principles of *Daubert* applied.¹³⁴

Expert testimony about eyewitness identification is another example of the confusion over what fits the definition of scientific knowledge. Two different federal circuit courts have split on this issue. In *United States v. Smith*,¹³⁵ an Eleventh Circuit case, the accused was convicted of bank robbery. At trial, the defense sought to introduce the testimony of an expert in eyewitness identification to explain the various factors that affected the reliability of an eyewitness' identification.¹³⁶ The trial judge excluded the evidence and the Eleventh Circuit affirmed. In the opinion, the court noted that this evidence involved scientific knowledge.¹³⁷ The court, however, agreed with the trial judge that the expert opinion would not assist the fact finder.¹³⁸

Under similar facts, the Ninth Circuit Court of Appeals reached the opposite result. In *United States v. Rincon*,¹³⁹ the accused was also charged with bank robbery and sought to introduce testimony from an expert in eyewitness identification.¹⁴⁰ In contrast with the Eleventh Circuit, the court in *Rincon* held that there was no evidence on the record to indicate that this type of evidence related to a scientific subject.¹⁴¹

These cases illustrate some of the glaring problems that remained after *Daubert*. Because the Supreme Court limited its opinion to evidence developed from the scientific method, courts were now faced with the challenge of deciding what evidence involved scientific knowledge and what evidence did not. These cases also show that *Daubert* did not resolve one of the main criticisms of the old *Frye* test. As discussed above, many commentators criticized *Frye* because judges applied the test selectively. Only if the evidence involved novel scientific testimony would courts

133. *Id.* at 1087.

134. *Id.* at 1089.

135. 122 F.3d 1355 (11th Cir. 1997).

136. *Id.* at 1358.

137. *Id.*

138. *Id.*

139. 28 F.3d 921 (9th Cir. 1994).

140. *Id.* at 923.

141. *Id.* at 924-25.

apply the *Frye* test. This selectivity problem remained because the Court limited the holding in *Daubert* to scientific evidence.

B. Does *Daubert* Apply?

Closely related to the issue of whether the evidence is scientific or nonscientific, is the question of whether *Daubert* should be used to evaluate the reliability of nonscientific expert testimony. This issue has proven to be the most contentious and confusing issue for federal and military courts after *Daubert*. The Supreme Court was vague on this point.

On the one hand the Court limited its opinion to evidence developed using the scientific method.¹⁴² On the other hand, the opinion recognized that Rule 702 is not limited to scientific evidence and the rule “clearly contemplates some degree of regulation of the subjects and theories about which an expert may testify.”¹⁴³ This lack of clarity has fostered most of the confusion for courts following *Daubert*.

There are some persuasive arguments as to why a *Daubert* reliability analysis should apply to all types of expert testimony. One argument comes from the language of the rule and the Court’s opinion in *Daubert*. In *Daubert*, the Court read the reliability requirement into the rule by looking at the terms “scientific” and “knowledge.” The Court reasoned that the rule’s use of these terms created a requirement that the information be based on “good grounds.”¹⁴⁴

“Knowledge,” however, does not only apply to the term “scientific.” The rule says “[i]f scientific, technical, or other specialized knowledge will assist the trier of fact . . .”¹⁴⁵ Under the rule, “knowledge” applies to technical and other specialized evidence as well. Applying the Court’s rationale in *Daubert*, it would stand to reason that the rule is concerned that all types of expert testimony are based on “good grounds.”

Another argument for applying *Daubert* to nonscientific expert evidence is evidentiary policy. In *Daubert*, the Court stressed the role of the trial judge as the gatekeeper to ensure that “all scientific testimony or evidence admitted is not only relevant, but reliable.”¹⁴⁶ There is no reason

142. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, n.8 (1993).

143. *Id.* at 589.

144. *Id.* at 590.

145. FED. R. EVID. 702.

that courts should be any less concerned about the reliability of nonscientific expert evidence and testimony. In fact, one advantage that scientific evidence has over other types of expert testimony is that the scientific method allows for checking and double checking by others. Nonscientific expert evidence often lacks even that level of basic assurance and quality control. Without these basic controls, there is an even greater risk that unreliable evidence will get to the fact finders.¹⁴⁷

If courts do not apply some *Daubert* type of reliability analysis, the consequence is that nonscientific evidence comes in largely unguarded. At most, courts will do a cursory analysis to see that the witness qualifies as an expert and the evidence will be helpful.¹⁴⁸ Courts will rarely go beyond that to look at the reliability of the witness's methods. From both a statutory and a policy perspective, there is no reason why the judge's gate-keeping responsibilities under Rule 702 should not apply to nonscientific expert evidence. In spite of this rationale, there are counter arguments as to why *Daubert* should not apply to nonscientific evidence.

The first argument is based on the language of the opinion itself and the Court's specific limitation of the opinion to evidence developed using the scientific method. The majority opinion expressly limited its holding to evidence developed using the scientific method and the four evaluative criteria that the Court discussed were all in the context of scientific evidence.

A stronger argument why *Daubert* should not apply to nonscientific evidence is a pragmatic one. The *Daubert* factors were created to help evaluate the reliability of scientific evidence.¹⁴⁹ These factors do not generally fit well in evaluating the reliability of nonscientific evidence. Take for example the testimony of a military police officer called to testify in a vehicular homicide case. The officer has investigated numerous vehicle accidents and is willing to testify that, in his expert opinion, the accused ran a stop sign causing the accident. This opinion is based on his view of the accident scene and his interviews of the eyewitnesses to the incident.

Under 702, this witness may be qualified as an expert because of his experience and training.¹⁵⁰ Accident scene investigation also involves

146. *Daubert*, 509 U.S. at 589.

147. Imwinkelried, *supra* note 118, at 2282.

148. *Id.* at 2281.

149. *Daubert*, 509 U.S. at 593-95.

150. FED. R. EVID. 702.

specialized knowledge. The problem is that the *Daubert* factors do not provide much help in evaluating the reliability of his testimony. It is unlikely that his opinions or methods have been published or subjected to peer review. Likewise, the error rate as to the accuracy of his opinion is probably unknown and unknowable. His theories and methods may be testable to some extent but it would be impossible to recreate the exact conditions of the accident to verify his conclusions. Finally, he may be able to show that his method of investigation enjoys widespread acceptance if he can show that he followed established procedures. Short of that, however, even widespread acceptance would be difficult to demonstrate.

This example illustrates the problem with the *Daubert* factors and nonscientific and quasi-scientific testimony. Of the four factors announced in *Daubert*, the only one that easily applies is the old *Frye* test of general acceptance. This difficulty of fitting the square peg of *Daubert* into the round hole of nonscientific and quasi-scientific testimony has caused great confusion among the federal circuits and the military courts, and it has led to inconsistent and poorly reasoned opinions.

Because of this confusion, the federal circuits have been strongly divided on the applicability of the *Daubert* factors and whether the trial judge should perform a gate-keeping function for other than scientific expert testimony. The following are just a few of the many examples of this split of opinion.

In *Berry v. City of Detroit*,¹⁵¹ the Sixth Circuit applied the *Daubert* factors to evaluate the reliability of a proffered expert in police policies and practices. In that case the plaintiff sued the City of Detroit for the death of her son who was shot by a Detroit police officer. The plaintiff claimed that the city failed to properly train its officers. This indifference to the rights of its citizens was the proximate cause of her son's death.¹⁵²

To support her claim, the plaintiff introduced the expert testimony of a Mr. Postill. Mr. Postill testified that in his opinion the police department's lack of proper training and discipline constituted a pattern of deliberate indifference.¹⁵³ The trial judge admitted this testimony over defense objection. The defense appealed and claimed that Mr. Postill's opinion tes-

151. 25 F.3d 1342 (6th Cir. 1994).

152. *Id.* at 1343.

153. *Id.* at 1353.

timony was inadmissible because it was unreliable. The Sixth Circuit Court of Appeals agreed and reversed.

The court began its review by noting that Mr. Postill's expert qualifications were very suspect. He had spent very little time as an actual policeman. It appeared that he awarded himself most of the other qualifications.¹⁵⁴ Next, the court turned to a method for evaluating the reliability of Mr. Postill's testimony. The court said that while *Daubert* dealt only with scientific evidence, evidentiary problems are "exacerbated when courts must deal with the even more elusive concept of nonscientific expert testimony."¹⁵⁵ Based on the court's reading of *Daubert*, they held that the judge's gate-keeping responsibility applies to all types of expert testimony.¹⁵⁶ Applying the *Daubert* factors of publication/peer review and general acceptance, as well as a detailed review of Mr. Postill's methodology, the court held that his testimony was unreliable and should not have been admitted.¹⁵⁷

While the Sixth Circuit found the *Daubert* factors applicable to non-scientific experts, other circuits reached the opposite conclusion. In *United States v. Plunk*,¹⁵⁸ the Ninth Circuit concluded that the *Daubert* factors do not apply to nonscientific expert testimony. In *Plunk*, the defendant was convicted of conspiracy to distribute cocaine. As part of their case, the government introduced taped conversations between Plunk and his co-conspirators about plans to ship drugs from Los Angeles and Houston to the East Coast.¹⁵⁹

During these phone conversations, Plunk and the other conspirators spoke in a type of code. To help the jury understand this code, the government introduced the expert testimony of Detective Jerry Speziale of the New York City Police Department to testify as an expert witness in the analysis of codes, words, and references used by narcotics traffickers.¹⁶⁰ The defense argued that the expert's testimony was inadmissible because

154. *Id.* at 1349.

155. *Id.*

156. *Id.* at 1351.

157. *Id.* at 1351-54.

158. 153 F.3d 1011 (9th Cir. 1998).

159. *Id.* at 1015.

160. *Id.* at 1016.

it lacked the requisite scientific basis and did not meet the *Daubert* standards of admissibility.¹⁶¹

The court of appeals rejected that argument. The court held that the expert's testimony constituted specialized knowledge and the *Daubert* standards for admission did not apply.¹⁶² Instead the court turned to what they termed a more "traditional Rule 702 analysis."¹⁶³ Under this analysis the court avoided looking at the expert's methodology. Instead, the court asked first if this is an area where expert testimony would assist the fact finder, and second, whether the expert possesses the requisite qualifications.¹⁶⁴ Provided these criteria are met, which they were in this case, the trial judge did not abuse his discretion in admitting this evidence.

The military cases dealing with nonscientific expert testimony since *Daubert* have also been inconsistent. In the area of handwriting and questioned document analysis, the Army court adopted an approach consistent with the Ninth Circuit. In *United States v. Ruth*,¹⁶⁵ the accused was convicted of attempted larceny and conspiracy for his role in a scheme to forge the financial documents of other soldiers.¹⁶⁶ An important part of the government's case was the expert testimony of Special Agent Horton. Agent Horton was a questioned document examiner and he opined that there were strong indications that the accused forged the financial documents. On appeal, the defense claimed the military judge erred by not conducting a thorough inquiry into the reliability of handwriting analysis. Specifically, the defense said the military judge failed by not applying the *Daubert* factors to this evidence.¹⁶⁷

The Army court rejected that argument. The court held that *Daubert* was never intended to apply to any knowledge other than scientific knowledge.¹⁶⁸ According to the court, handwriting analysis is best treated as technical or other specialized knowledge.¹⁶⁹ Instead of using the *Daubert* factors to evaluate the admissibility of this evidence, the Army court, like the Ninth Circuit, asked two questions. First, would the evidence assist the

161. *Id.* at 1017.

162. *Id.*

163. *Id.*

164. *Id.* See *Compton v. Subaru of America*, 82 F.3d 1513 (10th Cir. 1996).

165. 42 M.J. 730 (Army Ct. Crim. App. 1995), *aff'd* 46 M.J. 1 (1998).

166. *Id.* at 731.

167. *Id.*

168. *Id.* at 732.

169. *Id.*

trier of fact? Second, is the witness qualified to render an expert opinion? In this case, the court said the answer to both these questions was yes, and the military judge did not abuse his discretion by admitting this evidence.¹⁷⁰

In other areas, however, the Court of Appeals for the Armed Forces (CAAF) has held that the *Daubert* factors do apply to nonscientific expert testimony. In *United States v. Griffin*,¹⁷¹ the accused was charged with, among other things, false official statements and indecent liberties. He confessed to Air Force investigators about taking indecent liberties with his daughter. The defense claimed that this confession was coerced. To support its claim, the defense sought to introduce the testimony of Dr. Rex Frank, a psychologist.¹⁷²

Dr. Frank was prepared to testify that, based on his studies, the accused's confession was consistent with a coerced complaint-type confession.¹⁷³ The military judge excluded this testimony. The judge held that Dr. Frank's testimony did not have the necessary reliability to be of assistance to the fact finders.¹⁷⁴ On appeal, the CAAF acknowledged that this type of expert testimony was nonscientific evidence. Contrary to the Army court's holding in *Ruth*, the court went on to say that it applies the *Daubert* analysis not just to scientific knowledge, but to specialized and other knowledge as well.¹⁷⁵

In spite of this clear statement, the court did not apply the *Daubert* factors in the opinion. Instead, the court held that, while Dr. Frank's testimony was potentially relevant, the evidence Dr. Frank used to reach his conclusions was unreliable.¹⁷⁶ The court noted that Dr. Frank relied on the accused's version of what happened at the interrogation. This version was inconsistent with the investigator's testimony and the military judge found the accused's version unreliable. The CAAF held that, based on this find-

170. *Id.* at 732-33.

171. 50 M.J. 278 (1999).

172. *Id.* at 281.

173. *Id.* at 282.

174. *Id.* at 283.

175. *Id.* at 284.

176. *Id.*

ing, the military judge did not abuse his discretion in excluding this evidence.¹⁷⁷

The CAAF's opinion in *Griffin* muddied the water. Even though the court said the *Daubert* analysis applies, the CAAF made no specific mention of what *Daubert* factors it considered and how those factors impacted on the reliability of this evidence. Both *Ruth* and *Griffin* show that the military courts, like their federal counterparts, are not in agreement on whether or how the *Daubert* analysis should apply to nonscientific expert evidence.

Resolving this question is important. Trial judges need to know exactly what their responsibility is under Rule 702. Expert evidence is an increasing part of nearly every trial. Judges and practitioners are faced with admissibility questions routinely and there should be some uniform guidance to which trial courts can look. Unfortunately, the federal and military appellate courts have been anything but a model of clarity.

C. Other Attempts to Resolve the Confusion

The confusion within the military and federal courts on this issue has provided fertile ground for commentators to offer suggestions. Over the six years since *Daubert* was decided, there have been numerous articles written on how courts should evaluate the reliability of nonscientific expert evidence. Commentators, like the courts, have not reached any degree of consensus. The list of proposals runs the full gambit of doing nothing to excluding all evidence that does not fit neatly within the four factors set out in *Daubert*.

At one end of the spectrum, some commentators have suggested that the trial judge should not be concerned with the reliability of nonscientific expert evidence since *Daubert* was only concerned with "junk science."¹⁷⁸ The logic of this argument, however, fails close scrutiny. As noted above, there is no reason that courts should be any less concerned about the reliability of nonscientific expert evidence than they are with excluding junk science. While scientific expert evidence may be independently scrutinized using the scientific method, nonscientific expert evidence may lack the

177. *Id.* at 284-85.

178. PRELIMINARY DRAFT OF PROPOSED AMENDMENTS TO THE FEDERAL RULES OF CIVIL PROCEDURE AND EVIDENCE, rule 702 comm. n. 126-127 [hereinafter PROPOSED RULES].

same opportunity for independent quality control. If courts do not apply some type of reliability analysis, nonscientific expert evidence will come in largely unguarded.

Others have suggested that the best reliability test for nonscientific testimony is the *Frye* test.¹⁷⁹ This seems to be the one *Daubert* factor that courts can easily apply to nonscientific experts. Before an expert on false confessions or handwriting analysis or any other nonscientific field can testify, the proponent must demonstrate that the subject matter enjoys general acceptance. The value of adopting *Frye* for nonscientific expert evidence is that the trial judge has something to turn to when evaluating the reliability of this evidence. This alternative is certainly better than the approach of not using any criteria to evaluate the expert's reliability. It also ensures that this expert evidence will not come in unguarded.

Unfortunately, the drawbacks outweigh the benefits. There is no reason to believe that the problems associated with *Frye* and scientific evidence will not also plague *Frye*'s application to nonscientific expert evidence. For example, the same danger that reliable evidence may be excluded simply because it is not generally accepted exists with handwriting analysis as it does with DNA evidence. More importantly, applying *Frye* is inconsistent with the language of Rule 702. As the Court said in *Daubert*, nothing in the rule establishes general acceptance as an absolute prerequisite to admissibility.¹⁸⁰

Another possibility is the simple two-pronged test the Army court used in *Ruth*. First, the court asks if this is the type of subject where expert testimony would help the fact finder. Second, the court asks if the expert is qualified to provide an opinion.¹⁸¹

The problem with this test is that it does not go far enough. It assumes that if the information would assist the fact finder and the expert is qualified, the evidence must be reliable. This assumption is not always true. The witness's training and the helpfulness of the information do not equate to reliability. It is not hard to imagine a scenario where a witness with years of experience working with car tires for example, is willing to testify about the cause of a particular tire's failure. The problem is that the witness reached his conclusions without fully examining the tire or considering the past history and use of the tire.¹⁸² If the trial judge only focuses on

179. Imwinkelried, *supra* note 118, at 2286.

180. *Daubert v. Merrell Dow Pharmaceuticals Inc.*, 509 U.S. 579, 589 (1993).

the helpfulness of the testimony and the qualifications of the witness, he may not fully explore the problems with the methodology. The two-pronged test then does not go far enough and can miss the key reliability question by assuming too much from the witness's training.

If one end of the spectrum of possible approaches is to not evaluate the reliability of nonscientific expert evidence, the other end is to slavishly apply the four *Daubert* factors even though there is not a good fit. Some commentators have suggested this approach,¹⁸³ and the Sixth Circuit used it in *Berry*. This approach, however, excludes too much nonscientific expert evidence that may be reliable. Many types of nonscientific evidence will not even fit within the *Daubert* scheme. Trial courts that use this method may exclude evidence not because it is unreliable, but because it does not fit within the *Daubert* framework.

One commentator has suggested a more promising approach to this problem. Professor Imwinkelried suggests that courts evaluate the reliability of nonscientific expert evidence using quantitative and qualitative restrictions.¹⁸⁴ Quantitative restrictions focus on the number of experiences the expert has had which support the opinion. Recall the example of the expert on car tires. Suppose the expert testifies that the tire failure was the result of a defect in manufacturing. If the expert cannot cite any other

181. The then Court of Military Appeals first used this two pronged test in *United States v. Mustafa*, 22 M.J. 165 (C.M.A. 1986). In *Mustafa*, the court held that a blood spatter expert was qualified to testify under MRE 702 because the information would assist the fact finder, and the witness had professional training on the patterns of blood splatter. *Id.* at 166. Other military cases including *United States v. Ruth*, 42 M.J. 730 (Army Ct. Crim. App. 1995) have adopted a similar analysis. *See generally* *United State v. Harris*, 46 M.J. 221 (1997) (holding that the military judge did not abuse his discretion by permitting a state trooper to opine as an accident reconstruction expert because the trooper had training and experience beyond the ken of the average court member); *United States v. Cruz*, 797 F.2d 90 (2nd Cir. 1986) (allowing a government agent to testify about the use of food stamps in narcotics sales). In *United States v. Houser*, 36 M.J. 392 (C.M.A. 1993), the court of military review set out a methodology for evaluating the admissibility of expert testimony. The court listed six factors that the military judge should consider; qualifications of the expert, subject matter of the testimony, basis of the expert testimony, relevance of the testimony, reliability of the testimony, and probative value of the testimony. Military cases after *Hauser* that have evaluated the admissibility of nonscientific expert evidence have tended to focus on just the first two prongs.

182. As will be seen, this is the scenario in the *Kumho Tire* case.

183. Imwinkelreid, *supra* note 118, at 2284.

184. *Id.* at 2290.

experiences where manufacturing defects caused this type of failure, his opinion is really nothing more than unsupported speculation.¹⁸⁵

Quantitative restrictions also focus on the scope of the expert's opinion. For example, assume the tire expert can cite to ten other instances he has seen where the cause of tire failure appears to be the same as the case at issue, and in those cases the cause of the failure was a manufacturing defect. The expert then limits his in-court testimony by saying that a manufacturing error may have caused the tire failure. Because the expert limited his testimony, his past ten experiences may give him a sufficient basis. On the other hand, if the expert testified that manufacturing error was the only possible cause for the failure, his past ten experiences would likely not have been sufficient to support his conclusions.

Along with these quantitative restrictions, Professor Imwinkelried suggests that courts look to the similarity of the expert's past experiences, or, in other words, qualitative restrictions.¹⁸⁶ The tire expert, for example, has examined over one hundred tires to determine the cause of tire failure. There is little doubt that he has a sufficient raw number of experiences to support his conclusion. The tire at issue in this case, however, is from a farm tractor. The expert's past experiences have all been with automobile tires. In this example, the trial judge would be justified in excluding the expert's testimony because his experience is too dissimilar to the case at issue and is, therefore, unreliable.¹⁸⁷

This qualitative/quantitative method has value. It forces the trial judge to look beyond the expert's stated qualifications. The judge cannot merely assume that the testimony or evidence must be reliable merely because the expert has training in the area. There is still a risk under this approach that the trial judge will focus too much on the expert's qualifications and not enough on the methods that the expert employed.

It is clear from the discussion above that commentators have been no more successful than courts in trying to resolve the issue of how to evaluate the reliability of nonscientific expert evidence. The six years since *Daubert* can best be characterized as a state of confusion. There is a split of authority over what is classified as scientific or nonscientific testimony. There is also the contentious and confusing question about whether *Daub-*

185. *Id.* at 2290-91.

186. *Id.* at 2292-93.

187. *Id.* at 2293.

ert should even apply to nonscientific expert evidence. Finally, if the *Daubert* factors do not apply, there is disagreement over what other factors the trial judge could or should use to evaluate the reliability of this evidence. It is an understatement to say that this area was ripe for Supreme Court or statutory clarification.

V. *Kumho Tire v. Carmichael*

A. Proposed Amendments

Prior to the Supreme Court decision in *Kumho Tire*, the Advisory Committee on Evidence Rules proposed changes to Rule 702. Under the current proposed change, 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, *provided that (1) the testimony is sufficiently based on reliable facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.*¹⁸⁸

This change would codify the Supreme Court's holding in *Daubert*. The drafters intended the rule to do two other things as well. By not listing the four specific *Daubert* factors, the rule would reinforce the notion that the four factors are not an exclusive list. Also, because the proposed amendment does not distinguish between scientific and other forms of expert testimony, the rule requires the trial judge to perform the gate-keeping function on all types of expert evidence.¹⁸⁹ Public comment on the proposed amendments closed on 1 February 1999.

B. *Kumho Tire*

Just over a month later, on 23 March 1999, the Supreme Court issued its opinion in *Kumho Tire v. Carmichael*,¹⁹⁰ answering most of the ques-

188. PROPOSED RULES, *supra* note 177, proposed rule 702.

189. *Id.* at 127.

tions that had nagged the federal and military courts for the past six years. On 6 July 1993, the right rear tire of a minivan driven by the plaintiff, Patrick Carmichael, blew out. The minivan crashed, one passenger was killed, and several others were injured. Following the accident, Carmichael sued the tire maker, Kumho Tire, alleging that the tire failed because of a design or manufacturing defect.¹⁹¹

The plaintiffs based much of their case on the testimony of Dennis Carlson, Jr. Mr. Carlson worked for a litigation-consulting firm that performs tire failure analysis. Mr. Carlson had a bachelor's and master's degree in mechanical engineering. Before becoming a litigation consultant, Carlson worked for several years at Michelin Tire Company. At Michelin, he designed truck tires, which are notably different than passenger car tires. Mr. Carlson had not worked in tire failure analysis at Michelin.¹⁹² Mr. Carlson was prepared to testify that, in his opinion, the cause of the tire failure was a manufacturing or design defect.¹⁹³

There was little dispute about some of the background history of the tire. Mr. Carlson acknowledged that the tire was manufactured in 1988 and had traveled many miles since that date. At the time of the blowout, the tread depth ranged from zero to 3/32 of an inch. The tire tread also had at least two previous punctures that had been inadequately repaired.¹⁹⁴ In spite of this history, Carlson opined that a manufacturing or design defect caused the blowout. According to Carlson, separation of the tire tread from the inner carcass caused the blowout. The issues that were hotly disputed were the cause of the separation, and the method used by Carlson to reach his conclusions.¹⁹⁵ Carlson claimed that separation of the tread from the inner carcass was caused by either a manufacturing/design defect or under inflation of the tire. According to Carlson, under-inflation can be detected by looking at four physical symptoms of the tire. If at least two of those four symptoms were not present, Carlson would conclude that a manufacturing or design defect caused the separation.¹⁹⁶

In this case, Carlson adopted the opinion of a colleague as to the cause of the separation before he personally examined the tire.¹⁹⁷ He eventually

190. *Kumho Tire v. Carmichael*, 119 S. Ct. 1167 (1999).

191. *Id.* at 1171.

192. Brief for Petitioner at 4-5, *Kumho Tire v. Carmichael*, 119 S. Ct. 1167 (1999).

193. *Kumho Tire*, 119 S. Ct. at 1171.

194. *Id.* at 1172.

195. *Id.*

196. *Id.*

conducted a physical examination of the tire an hour before he was deposed.¹⁹⁸ Even though Carlson found some evidence of each of the four symptoms that could indicate under-inflation, as well as inadequately filled puncture holes that might have caused separation, he did not change his initial opinion that a manufacturing or design defect caused the separation.¹⁹⁹ Carlson testified that, in his opinion, none of the symptoms were significant, and that a manufacturing or design defect was the cause of the blowout.²⁰⁰

At trial, the defense argued that Mr. Carlson's testimony should be excluded because his methodology for determining the cause of tire separation failed the Rule 702 reliability requirement. The district court judge applied a *Daubert*-type reliability analysis to Carlson's testimony even though it was arguably "technical" rather than "scientific" evidence. Applying the *Daubert* factors, the district court excluded the evidence as unreliable.²⁰¹

The plaintiffs asked the judge to reconsider his decision because he was too inflexible in applying *Daubert*. The district judge granted the motion for reconsideration. He agreed that the four factors were merely illustrative and that other factors could be used to determine reliability. The judge, however, affirmed his earlier decision. Even in light of other factors, the judge held that Carlson's methodology lacked sufficient indications of reliability.²⁰²

The plaintiffs appealed the judge's order to the Eleventh Circuit.²⁰³ The Eleventh Circuit held that the judge's decision to apply a *Daubert*-type analysis was legal error because the evidence was nonscientific and *Daubert* only applied to scientific evidence.²⁰⁴

C. The Opinion

The Supreme Court granted *certiorari*²⁰⁵ to resolve the uncertainty among the lower courts. In its opinion, the Supreme Court addressed two

197. Brief for Petitioner at 5-6, *Kumho Tire v. Carmichael*, 119 S. Ct. 1167 (1999).

198. *Id.* at 6.

199. *Kumho Tire*, 119 S. Ct. at 1172-73.

200. *Id.* at 1173.

201. *Id.*

202. *Id.*

203. *Carmichael v. Samyang Tire, Inc.*, 131 F.3d 1433 (11th Cir. 1997).

204. *Id.* at 1436.

205. 118 S. Ct. 2339 (1998).

key issues. First, does the trial judge's gate-keeping obligation under Rule 702 apply to all types of expert testimony?²⁰⁶ Second, can the trial judge use the *Daubert* factors to evaluate the reliability of nonscientific expert testimony?²⁰⁷ The Court answered yes to both questions.

On the first issue, the Court accepted the arguments discussed above that the language of the rule, evidentiary policy, and the difficulty of distinguishing between "scientific" and "technical" or "other" specialized knowledge all require the judge to serve as a gatekeeper for all types of expert evidence.²⁰⁸ The Court found that the language of Rule 702 makes no relevant distinction between "scientific" knowledge and "technical" or "other specialized" knowledge. In fact, the word knowledge modifies all three terms, not just "scientific." The rule, therefore, creates a reliability standard for all types of expert testimony, regardless of the form.²⁰⁹

The Court also held that evidentiary policy supports this gate-keeping requirement for all expert evidence. Because the rules grant all types of experts greater testimonial latitude than other witnesses, their testimony must be reliable.²¹⁰ Here the court acknowledged that there is a risk that nonscientific "junk" evidence can come before the fact finder as well.²¹¹ The rules should not, therefore, be limited to preventing "junk science."

The Court also acknowledged the difficult, if not impossible, task many courts were struggling with to distinguish scientific from nonscientific evidence.²¹² In many cases, the Court noted that there is no clear line that divides one from the other. The Court held that the administration of evidentiary rules should not depend on making these difficult distinctions.²¹³

The more difficult and contentious issue was whether a trial judge could or should use the *Daubert* factors in performing the gate-keeping function required by the rules for nonscientific expert evidence. The Court framed the issue as follows: "whether a trial judge determining the admissibility of an engineering expert's testimony may consider several more specific factors that *Daubert* said might bear on a judge's gate-keeping determination."²¹⁴ The Court held: "Emphasizing the word 'may' in the

206. *Kumho Tire*, 119 S. Ct. at 1174.

207. *Id.* at 1175.

208. *Id.* at 1174.

209. *Id.*

210. *Id.*

211. *Id.*

212. *Id.*

213. *Id.*

question, we answer that question yes.”²¹⁵ The Court then proceeded to make clear what was very confusing after *Daubert*.

First, the Court recognized that there are many different kinds of experts and many kinds of expertise. To account for these differences, the Rule 702 reliability inquiry must be flexible.²¹⁶ According to the Court, *Daubert* made clear that the factors they listed do not constitute a definitive list. If that point was not clear in *Daubert*, the Court went to great lengths to make the point in *Kumho Tire*. Specifically, the Court said they could not rule in or rule out for all cases and for all time the applicability of the *Daubert* factors.²¹⁷

After acknowledging that the *Daubert* factors are not “holy writ,” the Court determined whether the judge abused his discretion in applying them to a nonscientific expert like Mr. Carlson. The Court said that some of *Daubert*’s questions can help evaluate the reliability of even experienced-based testimony.²¹⁸ By way of example, the Court noted that error rate and general acceptance were certainly two criteria that worked well in analyzing Mr. Carlson’s testimony.²¹⁹ According to the Court, the key is to make sure the expert, regardless of his training, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.²²⁰

The last aspect of the opinion emphasized the discretion of the trial judge. In deciding whether to apply the *Daubert* factors to a particular type of evidence, what *Daubert* factors to apply, and whether to apply factors not listed in *Daubert*, the court stated that the trial judge must have considerable leeway and broad latitude.²²¹ The trial judge’s decision should be evaluated on an abuse of discretion standard. The short concurrence written by Justice Scalia further clarified this point. He stated that the abuse of discretion standard is not discretion to perform the reliability determina-

214. *Id.* at 1175.

215. *Id.* at 1176.

216. *Id.* at 1175.

217. *Id.*

218. *Id.* at 1176.

219. *Id.*

220. *Id.*

221. *Id.*

tion inadequately. “Rather, it is discretion to choose among reasonable means of excluding expertise that is *fausse* and science that is junky.”²²²

The Court’s opinion in *Kumho Tire* was a victory of common sense over formalistic application of evidence rules. The Court recognized the futility of trying to create an inflexible template or formula that can be used for all cases and all types of evidence. Instead, the Court noted that because the type of expert testimony varies widely, the trial judge must have a number of tools available to evaluate the reliability of the evidence. Provided the judge uses factors designed to separate unreliable evidence from reliable evidence, the appellate courts should not second-guess that decision.

VI. Impact of *Kumho Tire*

Because the military rules are patterned after the federal rules, *Kumho Tire* is an important case for military practitioners, and other practitioners in jurisdictions that have followed *Daubert*. Practitioners will feel the greatest impact in the area of nonscientific expert testimony.²²³ First, *Kumho Tire* means that trial judges should consider a number of facts and factors in evaluating the reliability of nonscientific experts. On a closely related point, there will be a greater need for pre-trial motions and motions in limine to evaluate the admissibility of this testimony. Advocates will also have greater responsibility and greater freedom to provide the factors that the trial judge can use to evaluate the reliability of nonscientific expert evidence. Trial judges will also have greater freedom to rule on the admissibility or inadmissibility of nonscientific experts. Finally, *Kumho Tire* may have the effect of actually precluding nonscientific evidence that courts had heretofore routinely admitted.

A. Facts and Factors

As discussed above, trial courts often took a hands-off approach in evaluating the reliability of nonscientific experts. If the expert appeared to have the requisite qualifications and the testimony would be helpful, courts admitted it. This was the approach the CMA ratified in *Mustafa*.²²⁴ To make an adequate reliability determination, courts must use a more sophis-

222. *Id.* at 1179 (Scalia, J., concurring).

223. Hugh B. Kaplan (quoting Prof. Paul C. Giannelli), *Evidence Speakers Offer Guidance in Combating Bad Science, Misuse of Expert Testimony*, 13 THE CRIM. PRAC. REP. 219 (June 16, 1999).

224. *United States v. Mustafa*, 22 M.J. 165 (C.M.A. 1986).

ticated method than merely looking at the expert's qualifications. The *Mustafa* test simply does not go far enough and does not take into consideration that even though the expert may be qualified and the information may be helpful, it may not be reliable. Indeed, after *Kumho Tire*, counsel may have a strong argument that a trial judge has abused his discretion if the reliability decision focused on only these two prongs without considering other relevant factors.

Judges are now faced with a difficult task. The *Daubert* decision provided a baseline by which judges could evaluate the reliability of scientific evidence, namely the proper application of the scientific method. While many judges found themselves woefully unprepared to engage in any sort of critique of the scientific method, at least there were some factors they could use. In contrast, *Kumho Tire* leaves judges with the open ended responsibility of not only evaluating the reliability of nonscientific evidence, but of fashioning a standard out of whole cloth that they could apply.

What should a trial judge look to and how should the court decide questions of reliability? As a starting point, the trial judge should look to the *Daubert* factors that may assist in the reliability analysis. The Court in *Kumho Tire* held that trial judges can consider one or more of the *Daubert* factors when doing so will help determine the evidence's reliability.²²⁵ One factor that should apply to nonscientific experts is general acceptance in the relevant community. However, this should not be the end of the analysis. Other *Daubert* factors that fit the analysis should also be considered. In fact, Justice Scalia in his concurrence said that a failure to consider *Daubert* factors that would aid in the analysis in a particular case might be an abuse of discretion.²²⁶

Other than the *Daubert* factors that may apply, what else can the trial judge use? One point that the Court made clear is that the inquiry should be very fact specific. In the second part of their opinion, the Court illustrated the type of factual analysis that they expect from the trial courts. The court looked at the proffered expert testimony in this case and found that the trial judge did not abuse his discretion in finding it unreliable. Specifically the court looked at the expert's qualifications,²²⁷ the imprecision of his method of inspecting the tire,²²⁸ the subjectiveness of his mode of anal-

225. *Kumho Tire*, 119 S. Ct. at 1176.

226. *Id.* at 1179 (Scalia, J., concurring).

227. *Id.* at 1176-77.

228. *Id.* at 1177.

ysis,²²⁹ the short amount of time the expert spent examining the tire,²³⁰ the fact that the expert reached a preliminary conclusion before he inspected the tire,²³¹ his failure to adequately explain other possible causes for the tire failure,²³² and the fact that none of the *Daubert* factors favored admissibility. Based on this evidence, the Court concluded that the trial judge did not abuse his discretion. The Court also rejected the plaintiff's claim that the expert's work in the field for several years was a sufficient indication that his methods were reliable.²³³

Several commentators believe that this factual analysis was the most important aspect of the opinion.²³⁴ In this part of the opinion, the Court took pains to provide practical guidance to trial judges on how to conduct a reliability analysis. Without taking this extra step, the opinion would have been little help. Practitioners and trial judges are well advised to study carefully this part of the opinion. It provides a good example of how fact specific the reliability analysis should be.

Along with *Daubert* factors and specific case facts that impact the expert's reliability, another area where practitioners and trial judges should focus is available empirical data. Some commentators suggest that one impact of *Kumho* will be the elimination of the "craft approach" to non-scientific experts in favor of more quantifiable empirical data.²³⁵ If empirical data will become more important to the reliability analysis, trial judges should consider the method suggested by Professor Imwinkelreid, which was discussed earlier.²³⁶ Courts should look at both the qualitative and quantitative aspects of the expert's methodology. Specifically, ask how many times has the expert employed this methodology under similar circumstances and how many times the expert has reached similar conclusions. If the expert cannot cite to many or any instances where their

229. *Id.*

230. *Id.*

231. *Id.* at 1178.

232. *Id.*

233. *Id.*

234. Hugh B. Kaplan, *Daubert Applies to All Experts, Not Just "Scientific" Ones, High Court Holds*, 13 THE CRIM. PRAC. REP. 132 (Apr. 7, 1999).

235. Hugh B. Kaplan (quoting Mr. Bert Black), *Evidence Speakers Offer Guidance in Combating Bad Science, Misuse of Expert Testimony*, 13 THE CRIM. PRAC. REP. 219 (June 16, 1999).

236. *See supra* note 145 and accompanying text.

methodology has reached similar results, it may be a strong indication that the method is unreliable.

There are several other common sense factors that court's can consider in evaluating the nonscientific expert's reliability. Many of these factors are discussed in the drafter's comments to the proposed changes to FRE 702. These factors include: whether the expert proposed to testify about matters growing directly out of research independent of litigation,²³⁷ whether the expert unjustifiably extrapolated from an accepted premise,²³⁸ whether the expert accounted for alternative explanations,²³⁹ whether the expert employed the same degree of care he would in his regular professional work outside of the litigation,²⁴⁰ and whether the field of expertise is known to reach reliable results.²⁴¹

The clear message from *Kumho Tire* is that looking at the nonscientific expert's qualifications is not a sufficient gage of reliability. Courts in the future must consider the applicable *Daubert* factors, including in most cases general acceptance, the specific facts of the case that impact the expert's reliability, qualitative and quantitative restrictions and other empirical information, and other common sense factors that affect the reliability of the testimony.

B. Increased Pre-Trial Litigation

There will be a greater need for pre-trial litigation to resolve these issues. In the past, trial judges focusing only on the witness's qualifications and helpfulness of the testimony could make reliability determinations in short order. This is no longer the case.

Kumho Tire requires a much more expansive factual inquiry as the Court itself demonstrated. This inquiry is not something that can be done in a brief hearing or Article 39(a)²⁴² session while the members wait in the deliberation room. Likewise, because the trial judge's decision on the admissibility of this evidence is likely to have a significant impact on each

237. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995).

238. *General Electric v. Joiner*, 118 S. Ct. 512, 519 (1997).

239. *Claar v. Burlington N. R.R.*, 29 F.3d 499 (10th Cir. 1994).

240. *Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997).

241. *Sterling v. Velsicol Chem. Corp.*, 855 F.2d 1188 (6th Cir. 1988).

242. MCM, *supra* note 48, art. 39(a).

party's litigation strategy, this is a question that should be resolved well before the formal presentation of evidence.

Trial judges must decide a host of issues in these pre-trial hearings. Professor Imwinkelreid suggests five possible outcomes to a properly conducted pre-trial inquiry. First, the proponent fails to produce any evidence that the expert's hypothesis can be empirically validated. Second, the proponent fails to produce sufficient evidence that the expert's hypothesis can be empirically validated. Third, the proponent barely sustains the burden by submitting enough evidence to show that the expert's hypothesis has been tested by sound methodology. Fourth, the proponent produces sufficient evidence, the opposing party presents contrary evidence, but the contrary evidence is not so powerful that it would be irrational for the trier of fact to accept the proponent's expert's hypothesis. Fifth, the proponent presents barely enough evidence, but the opposing party presents such overwhelming contrary evidence that it would be irrational for the trier of fact to accept the hypothesis.²⁴³ Reaching one of these five conclusions is no easy matter in most cases, especially when one considers that coupled with this complex inquiry the judge has the equally difficult task of deciding what factors to use in making the reliability determination.

The unavoidable result is that in cases where parties choose to litigate the reliability of an expert's methodology or conclusions, judges must be prepared for expanded pre-trial litigation. To aid the inquiry and clarify the issues, trial judges should place as much of the responsibility on the litigants as possible. They can do this two ways. First, judges should require the parties to submit detailed written briefs. The briefs should cover the specifics of the expert's methodology and conclusions, and why the parties believe that the evidence is or is not reliable. Trial judges should also require the parties to set forth what factors they believe the judge should look to in evaluating the reliability of the testimony.

Along with detailed briefs, trial judges should require the parties to produce the experts at the pre-trial hearings. This is the only way that judges will be able to develop the factual record and conduct the type of factual inquiry envisioned by the Supreme Court in *Kumho Tire*. Without the production of the experts, it will be difficult, if not impossible, for the judge to reach one of the five conclusions envisioned by Professor

243. Hugh B. Kaplan (quoting Prof. Edward J. Imwinkelreid) *Scholars Discuss Judge's Role, Combating "Junk Science" in Wake of Kumho Decision*, 13 THE CRIM. PRAC. REP. 194-95 (May 19, 1999).

Imwinkelreid. More importantly, without the production of witnesses and detailed briefs, it will be much easier for the appellate courts to hold that the trial judge abused his discretion in reaching his conclusion.

C. The Advocate's Responsibility

A third impact of the *Kumho Tire* decision is the increased responsibility and freedom the litigants will have in proposing factors that they believe the judge should consider in evaluating the reliability of the expert evidence. The Supreme Court specifically declined to announce one set of factors that trial judges should use to conduct the reliability analysis. They correctly recognized that too much depends on the facts and circumstances of the individual case.²⁴⁴

This presents a great opportunity for counsel to be creative in formulating and suggesting what factors the trial judge should look to. Parties who focus only on the qualifications of the expert are likely to find that this one factor will not overcome a well prepared opponent who can cite *Daubert* factors, empirical data, and other factual information that calls the reliability of the evidence into question. To litigate these issues successfully, counsel, like judges, must become more sophisticated and have a greater understanding of the methodologies employed by the expert so that those methods can be successfully attacked or defended.

In the military context especially, *Kumho Tire* may have an impact on the government's responsibility to provide the defense counsel with expert assistance. For defense counsel to obtain expert assistance at government expense, they must make a showing of necessity.²⁴⁵ The Court's opinion in *Kumho Tire* may provide defense counsel with a new way to demonstrate necessity. To adequately evaluate the methods used by the government's expert and propose factors that the military judge should consider in determining the reliability of the government's expert, defense counsel could contend that they need expert assistance. Without such assistance, defense counsel would be unable to fully understand and litigate issues of

244. *Kumho Tire v. Carmichael*, 119 S. Ct. 1167, 1176 (1999).

245. See *United States v. Short*, 50 M.J. 370 (1999); *United States v. Garries*, 22 M.J. 288 (C.M.A. 1986).

reliability. While this argument may not win the day, it is an additional point that the defense should argue and the military judge should consider.

D. Trial Judge Discretion

The best news from *Kumho Tire* for trial judges is the Court's reiteration that they have great discretion to decide what expert evidence to admit or exclude and how to conduct the reliability inquiry. The Court initially made this point in *Joiner*,²⁴⁶ and they went out of their way to reemphasize it in *Kumho Tire*. The Court said that "the trial court must have the same kind of latitude in deciding how to test an expert's reliability and to decide whether or when special briefing or other proceedings are needed to investigate reliability, as it enjoys when it decides whether that expert's relevant testimony is reliable."²⁴⁷

This language should give confidence to trial judges. If the record is clear about how the judge conducted the reliability inquiry, and the judge had a rational basis for the method he selected, he should not be overly concerned that the appellate courts will second-guess him. The other consequence of the latitude that a trial judge should enjoy is the likelihood that two different judges may conclude differently on the reliability of certain expert evidence, and neither judge will have abused his discretion.

These differences of opinion among trial judges will likely cause frustration among the litigants who are looking for uniformed guidance and bright-line rules. There will not be one standard rule of admissibility for a given type of expert evidence. Litigants will not be able to take for granted that just because another judge found similar evidence to be reliable or unreliable, that the judge in their case will make identical evidentiary findings. The parties must be prepared to litigate issues of admissibility of the expert evidence in every case until the reliability is "properly taken for granted."²⁴⁸ The Court said this was because the facts and circumstances of each case were unique.²⁴⁹

Appellate courts must be sensitive to this issue and give trial judges the deference and latitude that the Supreme Court intended. Appellate

246. *General Electric v. Joiner*, 118 S. Ct. 512, 517 (1997).

247. *Kumho Tire*, 119 S. Ct. at 1176.

248. *Id.*

249. *Id.*

courts should be cautious about announcing bright line rules on the admissibility or inadmissibility of specific types of expert evidence because so much depends on the “circumstances of the particular case at issue.”²⁵⁰ Instead, the proper focus should be on whether the trial court used a rational set of factors to evaluate the reliability of the evidence and whether the overall reliability inquiry was reasonable.

The downside of this greater latitude is that litigants may have to relitigate the admissibility of evidence on a case-by-case basis. This is likely to open the door to more costly and repetitive litigation because the parties cannot take for granted that just because one judge admitted or excluded this evidence, other courts will follow suit. Slight variations of case facts or expert qualifications could result in the need to constantly “reinvent the wheel.”

E. Less Evidence to the Fact Finder

The other significant and perhaps unintended consequence of *Kumho Tire* is that nonscientific expert evidence that courts have admitted without much scrutiny in the past may now be subjected to a higher level of scrutiny and found to be unreliable. Many commentators see this as a likely consequence, particularly in the areas of handwriting analysis, fingerprints, arson investigations, psychological testing, accident reconstruction, and other areas of nonscientific expert evidence.²⁵¹ A closely related concern is that nonscientific experts may try to “phony up” their qualifications to get past the more rigorous scrutiny the courts are likely to employ.²⁵²

This concern is understandable and somewhat justified. The argument is that before *Kumho Tire*, many courts were not performing a proper gate-keeping function when it came to nonscientific expert testimony. *Kumho Tire* changed that and now all bets are off as to the reliability of any type of nonscientific expert evidence admitted pre-*Kumho Tire*. This may be a boon to defense counsel who can now argue that evidence routinely admitted by prosecutors must undergo close scrutiny for the first time.

This argument, however, is a double-edged sword. By arguing for higher levels of scrutiny to evaluate the reliability of the government’s evi-

250. *Id.*

251. Kaplan, *supra* note 235.

252. *Id.*

dence, the defense bar is also raising the bar to the admissibility of its own experts. Because the defense often lacks the funding and ability to get the most qualified experts, heightened scrutiny by the courts may have an even greater impact on the admissibility of their own experts.²⁵³ This is a point that government counsel will likely exploit.

The Court in *Kumho* recognized that a reexamination of the reliability of routinely admitted expert testimony might not be necessary. The Court said that trial judges have a great deal of discretionary authority on how to conduct the reliability analysis. This authority allows them to avoid “unnecessary reliability proceedings in ordinary cases where the reliability of the expert’s method is properly taken for granted and to require appropriate proceedings in the less usual or more complex cases where cause for questioning the expert’s reliability arises.”²⁵⁴

It is too early to tell if nonscientific expert evidence admitted before *Kumho Tire* will now be routinely excluded. Certainly, the party opposing the admission of the evidence will look for reasons to question the expert’s reliability. Whether trial judges will be more willing to entertain these challenges is another question. Fingerprint evidence, handwriting analysis, document analysis, crash scene investigation evidence, and other forensic evidence enjoys a fairly long history of admissibility. It is unlikely that trial courts will be willing to open an in-depth reliability inquiry on this evidence. They will more likely turn to the language in *Kumho Tire* and find that a detailed examination is not necessary because the reliability of the methods can be properly taken for granted.

Regardless, however, one early post-*Kumho Tire* case shows that judges may indeed take a closer look at evidence they routinely admitted before *Kumho Tire*. In *United States v. Hines*,²⁵⁵ a federal district judge excluded portions of a handwriting expert’s testimony because it failed the reliability test. In her ruling, the district judge noted that before *Kumho Tire*, this evidence would have been routinely admitted.²⁵⁶ Yet, following *Daubert* and *Kumho Tire* rigorously, however, the judge found that the handwriting testimony had serious problems with such issues as empirical testing and rate of error.²⁵⁷ The district judge did not exclude all of the expert’s testimony, but she did prohibit the expert from testifying that, in

253. *Id.*

254. *Kumho Tire*, 119 S. Ct. at 1176.

255. *United States v. Hines*, 55 F. Supp. 2d 62 (D. Pa. 1999).

256. *Id.* at 4-5.

257. *Id.*

his opinion, the defendant was the author of the questioned documents.²⁵⁸ Interestingly, the district judge also ruled on the admissibility of the defense's eyewitness identification expert. Unlike the handwriting expert, the district judge found that the eyewitness expert's testimony was based on solid scientific research and met the *Daubert* factors for reliability.²⁵⁹

In other areas, however, courts may indeed exclude evidence that would have been admitted prior to *Kumho Tire*. Some areas that are ripe for a closer examination include psychiatric testimony, psychological profiling, syndrome evidence, false identification testimony, and false confession testimony, to name a few. Much of this testimony was not highly favored by courts even before *Kumho Tire*.²⁶⁰ Now, trial judges have more reasons to exclude it without worrying about being reversed on appeal.

VII. Conclusion

Expert testimony has come a long way in the seventy-six years since the District of Columbia Court of Appeals announced the *Frye* test. In that time, courts have constantly struggled to ensure that only reliable expert evidence comes before the fact finder. The Supreme Court's rulings in *Daubert*, *Joiner*, and *Kumho Tire*, chart the course that courts throughout the country must follow for the next several years in determining reliability. Trial judges have a great responsibility to serve as gatekeepers of all types of expert testimony. The coming years will determine if they are up to the task.

258. *Id.* at 6.

259. *Id.* at 8.

260. See *United States v. Griffin*, 50 M.J. 278 (1999); *United States v. Brown*, 49 M.J. 448 (1998); *United States v. Rivers*, 49 M.J. 434 (1998).