

Campbell Law Review

Volume 28

Fall 2005

Number 1

The Admissibility of Expert Testimony in North Carolina After *Howerton*: Reconciling the Ruling with the Rules of Evidence

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I. INTRODUCTION

The Federal Rules of Evidence, enacted by Congress and governing admissibility of evidence in federal trials since 1975, have had a significant influence on the development of evidence law at the state level. To date some forty-two states, including North Carolina, have adopted evidence rules based on the federal rules.¹ But adopting the

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1. The following states have adopted evidence rules based on the federal rules: Alabama, ALA. R. EVID. 101–1103; Alaska, ALASKA R. EVID. 101–1101; Arizona, ARIZ. R. EVID. 101–1103; Arkansas, ARK. R. EVID. 101–1102; Colorado, COLO. R. EVID. 101–1103; Connecticut, CONN. CODE OF EVID. §§ 1-1–10-6; Delaware, DEL. UNIF. R. EVID. 101–1103; Florida, FLA. STAT. §§ 90.101–90.958 (LEXIS through Rev. Sess. 2005); Hawaii, HAW. REV. STAT. ANN. § 626-1, Rules 100–1102 (Michie, LEXIS through 2004 legislation); Idaho, IDAHO R. EVID. 101–1103; Indiana, IND. R. EVID. 101–1101; Iowa, IOWA R. EVID. 5.101–5.1103; Kentucky, KY. R. EVID. 101–1104; Louisiana, LA. CODE EVID. ANN. art. 101–1104 (West, Westlaw through 2005 Reg. Sess. Acts); Maine, ME. R. EVID. 101–1102; Maryland, MD. R. EVID. 5-101–5-1008; Michigan, MICH. R. EVID. 101–1102; Minnesota, MINN. R. EVID. 101–1101; Mississippi, MISS. R. EVID. 101–1103; Montana, MONT. CODE ANN. tit. 26, ch. 10, Rules 100–1008 (LEXIS through 2005 Spec. Sess.); Nebraska, NEB. REV. STAT. §§ 27-101–27-1103 (West, Westlaw through First Reg. Sess. 2005); Nevada, NEV. REV. STAT. §§ 47.020–56.020 (West, Westlaw through 2004 Spec. Sess.); New Hampshire, N.H. R. EVID. 100–1103; New Jersey, N.J. R. EVID. 101–1103; New Mexico, N.M. R. EVID. 11-101–11-1102; North Carolina, N.C. GEN. STAT. § 8C-1, Rules 101–1103 (2003);

same statutory language in an evidence rule does not necessarily mean the state rule is the same as the federal rule. The admissibility of expert testimony in North Carolina is a case in point.

In 1993, the Supreme Court held in *Daubert v. Merrel Dow Pharmaceuticals*² that Federal Rule of Evidence 702³ encompassed a standard of relevance and reliability and did not adopt the prevailing *Frye*⁴ standard. Subsequently, courts and commentators have watched as the various states have construed their own versions of Rule 702. Generally catalogued as “*Daubert*” states, “*Frye*” states, or “other” states, commentators have attempted to chart the development of the law of expert testimony across the United States. Because North Carolina did not “adhere exclusively to . . . *Frye*”⁵ and conditioned the admissibility of expert testimony on the reliability of the scientific

North Dakota, N.D. R. EVID. 101–1103; Ohio, OHIO R. EVID. 101–1103; Oklahoma, OKLA. STAT. tit. 12, §§ 2101–3009 (LEXIS through 2004 legislation); Oregon, OR. REV. STAT. §§ 40.015–40.585 (LEXIS through 2003 Reg. Sess.); Pennsylvania, PA. R. EVID. 101–1008; Rhode Island, R.I. R. EVID. 100–1008; South Carolina, S.C. R. EVID. 101–1103; South Dakota, S.D. CODIFIED LAWS §§ 19-9-1–19-18-9 (LEXIS through 2005 legislation); Tennessee, TENN. R. EVID. 101–1008; Texas, TEX. R. EVID. 101–1009; Utah, UTAH R. EVID. 101–1103; Vermont, VT. R. EVID. 101–1103; Washington, WASH. EVID. R. 101–1101 (LEXIS through 2005 legislation); West Virginia, W.VA. R. EVID. 101–1102; Wisconsin, WIS. STAT. §§ 901.01–911.02 (LEXIS through July 22, 2005); Wyoming, WYO. R. EVID. 101–1104.

The following states have *not* adopted evidence codes based on the federal rules: California, CAL. EVID. CODE §§ 1–1605 (LEXIS through 2005 Ch. 566); Georgia, GA. CODE ANN. §§ 24-1-1–24-10-154 (LEXIS through 2005 legislation); Illinois, 725 ILL. COMP. STAT. §§ 5/115-1–5/115-22 (LEXIS through Public Act 94-0241) (dealing with criminal trials) and 735 ILL. COMP. STAT. §§ 5/8-101–5/8-2701 (LEXIS through Public Act 94-0241) (dealing with civil trials); Kansas, KAN. STAT. ANN. §§ 60-401–60-472 (LEXIS through 2004 supp.); Massachusetts, *see* R. MARC KANTROWITZ, MASSACHUSETTS EVIDENCE FROM A TO Z, Appendix I-1 Scope Note (2003) (reproducing a Dec. 30, 1982 announcement by the Massachusetts Supreme Judicial Court rejecting a set of proposed rules patterned after the federal rules); Missouri, MO. REV. STAT. §§ 490.010–490.733 (LEXIS through 2004 legislation); New York, N.Y. C.P.L.R. 4501–4508 (McKinney 1992 & 2005 supp.); Virginia, VA. CODE ANN. §§ 19.2-267–19.2-271.3 and §§ 8.01-385–8.01-420.6 (LEXIS through 2005 Reg. Sess.) (dealing with criminal and civil trials, respectively).

2. 509 U.S. 579 (1993) (holding that FED. R. EVID. 702 requires proffered scientific evidence to be relevant and reliable; acceptance by the scientific community is only one factor to consider).

3. FED. R. EVID. 702.

4. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923) (holding that expert testimony based on novel scientific methods would not be admissible unless the underlying methods and principles were “generally accepted” within the relevant scientific community).

5. *See State v. Pennington*, 393 S.E.2d 847, 852 (N.C. 1990).

technique or methodology,⁶ most such cataloguers considered North Carolina a “*Daubert*” state.⁷ Even the North Carolina Court of Appeals thought *Daubert* governed the admissibility of expert testimony in the trial courts.⁸ The confusion was understandable. The language of the North Carolina rule mirrored the federal rule, North Carolina never adopted *Frye*, and nineteen years before *Daubert* the North Carolina Supreme Court declared reliability the touchstone of admissibility of expert testimony, not general acceptance by the scientific community.⁹ Thus, placing North Carolina in the *Daubert* column seemed appropriate. Courts, commentators, and cataloguers failed, however, to appreciate the significant differences between the federal *Daubert* standard for determining reliability and the standard routinely applied by the North Carolina Supreme Court. The North Carolina Supreme Court’s recent decision in *Howerton v. Arai Helmet, Ltd.* reveals those differences and clearly places North Carolina in the “other” category.¹⁰

While the *Howerton* decision removed all doubt as to whether North Carolina adopted *Daubert*’s substantive standard, it did not address how the North Carolina test for admitting expert testimony fits within the broader context of the North Carolina Rules of Evidence. *Howerton* also failed to explain how substantially identical language in the governing rules and the same criteria of admissibility, i.e. reliability, could produce such a different test. As a result, trial judges and lawyers are left to apply *Howerton* to future cases without fully understanding the substantive and procedural foundation for the rule. The resulting ad hoc development of the law in this vital area will likely breed confusion and inconsistent results. This article will attempt to reconcile the reasoning in *Howerton* with the rules of evidence and explain the procedural and substantive differences between the federal approach under *Daubert* and the North Carolina test applied in *Howerton*. It will also suggest a change to the procedure courts use to deter-

6. See *State v. Crowder*, 203 S.E.2d 38, 46 (N.C. 1974) (“Scientific tests of this nature [gunshot residue] are competent only when shown to be reliable.”).

7. See, e.g., David E. Bernstein & Jeffrey D. Jackson, *The Daubert Trilogy in the States*, 44 JURIMETRICS J. 351, 358 n.41 (2004); Kenneth S. Broun, *Daubert is Alive and Well in North Carolina - In Fact, We Beat the Feds to the Punch*, N.C. STATE B. J., Fall 2002, at 10, 10; Edward K. Cheng & Albert H. Yoon, *Does Frye or Daubert Matter? A Study of Admissibility Standards*, 91 VA. L. REV. 471, 493 n.52 (2005) (noting that North Carolina regards its admissibility standard as distinct from *Daubert*).

8. See *Howerton v. Arai Helmet, Ltd.*, 581 S.E.2d 816 (N.C. Ct. App. 2003); *State v. Bates*, 538 S.E.2d 597, 600 (N.C. Ct. App. 2000).

9. See *State v. Crowder*, 203 S.E.2d 38 (N.C. Ct. App. 1974).

10. 597 S.E.2d 674 (N.C. 2004).

mine admissibility of expert testimony that will be more consistent with the rules of evidence and the concerns of the court in *Howerton*.

Part II of this paper briefly describes the federal rule in order to appreciate the context of the North Carolina approach to expert testimony. Part III traces the development of North Carolina's expert testimony law from the common law to codification in the rules of evidence through the decision in *Howerton* and reveals that the North Carolina test for reliability is, essentially, an evaluation of the credibility of the testifying expert. Part IV argues that *Howerton*'s adoption of a less stringent and credibility-based substantive test for reliability but retention of the *Daubert* procedural "gatekeeping" role of the judge in determining admissibility of expert testimony only partially addresses the *Daubert* problems the *Howerton* court sought to avoid. I suggest *Howerton* should have rejected the *Daubert* procedural paradigm and treated the reliability of expert testimony as a matter of conditional relevancy under North Carolina Rule of Evidence 104(b)¹¹ instead of a preliminary matter for the judge under Rule 104(a),¹² as does *Daubert*. Part V concludes that treating the reliability of expert testimony as a matter of conditional relevancy is supported by the language of the North Carolina Rules of Evidence, furthers the policy goals that motivated the court in *Howerton* to reject *Daubert*, and is consistent with the factors traditionally applied in North Carolina to determine the reliability of expert testimony.¹³

11. N.C. GEN. STAT. § 8C-1, Rule 104(b) (2003) ("When the relevancy of evidence depends upon the fulfillment of a condition of fact, the court shall admit it upon, or subject to, the introduction of evidence sufficient to support a finding of the fulfillment of the condition.").

12. N.C. GEN. STAT. § 8C-1, Rule 104(a) (2003) ("Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the 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.").

13. It is not my purpose to discuss the wisdom of rejecting *Frye* and *Daubert* in favor of the more lenient *Howerton* substantive standard. My purpose is to examine the procedural application of the *Howerton* standard in the context of the overall North Carolina evidence code.

II. EXPERT TESTIMONY IN FEDERAL COURT: THE *DAUBERT* STANDARD¹⁴

Rule 702 governs the admissibility of expert testimony in federal court.¹⁵ The first condition on the admissibility of expert testimony, like the condition on all other evidence, is relevance.¹⁶ The expert testimony must have a “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.”¹⁷ While logical relevancy under Rule 401 is required of all evidence, as discussed more fully below, expert testimony requires heightened relevancy or a more exacting “fit” to the facts of the given case than Rule 401 requires.¹⁸

The second condition on the admissibility of expert opinion testimony is the evidence must be from some scientific, technical, or specialized area that is outside the common experience and understanding of the jury.¹⁹ If a jury could reach the same conclusion

14. For a comprehensive treatment of expert testimony in federal court *see*, 2 MICHAEL H. GRAHAM, *HANDBOOK OF FEDERAL EVIDENCE* §§ 701.0-706.2 (5th ed. 2001); DAVID H. KAYE, DAVID E. BERNSTEIN & JENNIFER L. MNOOKIN, *THE NEW WIGMORE: A TREATISE ON EVIDENCE: EXPERT EVIDENCE* (2004); 4 JOSEPH M. McLAUGHLIN, *WEINSTEIN'S FEDERAL EVIDENCE* §§ 701.01-706.06 (2d ed. 2005); 3 CHRISTOPHER B. MUELLER & LAIRD C. KIRKPATRICK, *FEDERAL EVIDENCE* §§ 342-67 (2d ed. 1994); 3 STEPHEN A. SALTZBURG, MICHAEL M. MARTIN, & DANIEL J. CAPRA, *FEDERAL RULES OF EVIDENCE MANUAL* §§ 701.01-706.04 (8th ed. 2002).

15. FED. R. EVID. 702 (“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, if (1) the testimony is based upon sufficient 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.”).

16. FED. R. EVID. 402.

17. FED. R. EVID. 401.

18. *See infra* notes 35-40 and accompanying text.

19. FED. R. EVID. 702; *see also* *United States v. Finley*, 301 F.3d 1000, 1007 (9th Cir. 2002) (“[For expert testimony to be admissible the] subject matter must be beyond the knowledge of the average layman”); *United States v. Brown*, 7 F.3d 648, 652 (7th Cir. 1993) (“[B]ecause courts have recognized that the average juror is unlikely to be knowledgeable about drug trafficking, they have consistently allowed expert testimony concerning ‘tools of the trade’ and the methods of operation of those who distribute various types of illegal narcotics.”) (citations omitted). *See generally*, *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923) (“When the question involved does not lie within the range of common experience or common knowledge, but requires special experience or special knowledge, then the opinions of witnesses skilled in that particular science, art, or trade to which the question relates are admissible in evidence.”) (citations omitted).

without the expert's opinion, the testimony is not helpful and does not add anything the lawyer's closing argument could not supply.²⁰

The third condition is the testimony must come from a witness who is qualified by virtue of knowledge, training, skill, education, or experience in the subject matter.²¹ The witness's expertise must be in the area that is the subject of the proffered testimony.²² While the qualifications of an expert are given in the disjunctive and are not particularly onerous, courts will exclude the expert who fails to meet these minimal standards.²³

The fourth, and by far the most contentious, condition of admissibility of expert testimony is the requirement the testimony be reliable.²⁴ The current version of Rule 702 is a product of three Supreme Court decisions: *Daubert*,²⁵ *Joiner*,²⁶ and *Khumo Tire*.²⁷ *Daubert* rejected the popular *Frye* "general acceptance by the relevant scientific

20. See, e.g., *Wills v. Amerada Hess*, 379 F.3d 32 (2d Cir. 2004) ("[E]xpert testimony is unnecessary in cases where jurors 'are as capable of comprehending the primary facts and of drawing correct conclusions from them as are witnesses possessed of special or peculiar training.'" (citations omitted)); *Hibiscus Assoc. Ltd. v. Bd. of Trustees of Policemen & Firemen Ret. Sys.*, 50 F.3d 908, 917 (11th Cir. 1995) ("Expert testimony is properly excluded when it is not needed to clarify facts and issues of common understanding which jurors are able to comprehend for themselves.") (citations omitted); *Green v. Kinney Shoe Corp.*, 715 F. Supp. 1122 (D.D.C. 1989) (excluding plaintiff's expert from testifying on matters that should be clear to "any reasonable person," can be argued by the lawyers in closing argument, and for which special expertise is not needed).

21. FED. R. EVID. 702.

22. See *Ralston v. Smith & Nephew Richards, Inc.*, 275 F.3d 965, 969 (10th Cir. 2001); *Thomas J. Kline, Inc. v. Lorillard, Inc.*, 878 F.2d 791 (4th Cir. 1989); *Devito v. Smithkline Beecham Corp.*, No. 02-CV-0745, 2004 U.S. Dist. LEXIS 27374 (W.D.N.Y. 2004).

23. *Thomas J. Kline, Inc.*, 878 F.2d at 799-800 (excluding opinion testimony of plaintiff's expert that defendant's actions amounted to unjustified credit and price discrimination because the witness was not an economist and had no training, experience, or education in anti-trust or credit and price determination); *Ralston*, 275 F.3d at 969 (excluding opinion testimony of plaintiff's expert-orthopaedic surgeon on the subject of causation of intermedullary nailing); *Devito*, 2004 U.S. Dist. LEXIS 27375, at *26 (excluding plaintiff's expert *pharmacist/nutritionist* from testifying that within a reasonable *pharmacological* certainty plaintiff was experiencing withdrawal toxicity reactions from paxil: "Pharmacology can be fairly described as the study of the effect of drugs on living organisms. Pharmacy, on the other hand, is the profession of preparing and dispensing drugs.").

24. FED. R. EVID. 702.

25. *Daubert v. Merrel Dow Pharm.*, 509 U.S. 579 (1993).

26. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136 (1997).

27. *Khumo Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999).

community” standard²⁸ and made clear the trial judge was the expert testimony gatekeeper and must determine whether the proffered expert testimony is reliable and relevant before admitting it.²⁹ *Joiner* held the trial judge was vested with discretion in deciding how to determine reliability, as well as in making the ultimate decision to admit or exclude expert testimony, and would be reversed only upon an abuse of discretion.³⁰ *Khumo Tire* applied the reliability requirement to all expert testimony, not just novel scientific testimony.³¹

The *Daubert* gatekeeping function requires the court to make an “assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue.”³² In conducting this assessment, the Court set out the now famous “*Daubert* factors” to guide the trial judge: (1) whether the theory or technique relied upon by the expert has been or can be tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) what is the known or potential error rate of the technique employed by the expert; (4) what standards exist that govern or control the technique’s or methodology’s operation; and (5) to what degree has the theory or technique been accepted or adopted by the relevant scientific community.³³ While each of these factors may not be applicable or useful in every case, they serve as the primary, though not exclusive, factors used by federal district judges in evaluating the reliability of proffered expert testimony.³⁴

In addition to the reliability requirement, the Court in *Daubert* required the opinion testimony to “fit” the facts of the case.³⁵ This relevancy standard is more exacting than logical relevancy under Rule 401 and comes from the language in Rule 702 that requires the expert

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

29. *Daubert*, 509 U.S. at 597.

30. *Joiner*, 522 U.S. at 146-47.

31. *Khumo Tire*, 526 U.S. at 147-48.

32. *Daubert*, 509 U.S. at 592-93.

33. *Id.* at 593-95.

34. See, e.g., *Bourne v. E.I. Dupont De Nemours & Co.*, No. 02-1469, 2004 U.S. App. LEXIS 1161 (4th Cir. 2004) (rejecting expert causation opinion in toxic tort case based on *Daubert* factors); *Scotts Co. v. United Indus. Corp.*, 315 F.3d 264 (4th Cir. 2002) (rejecting, without applying *Daubert* factors, expert testimony of consumer confusion based on results of focus group survey as unreliable because focus group survey was not conducted objectively); *Westberry v. Gislaved Gummi AB*, 178 F.3d 257 (4th Cir. 1999) (holding toxic tort causation opinion based on differential diagnosis methodology that satisfies three of the *Daubert* factors is reliable).

35. 509 U.S. at 591-92.

testimony “assist the trier of fact to understand the evidence or to determine a fact in issue.”³⁶ Thus, in addition to logical relevancy under Rule 401, expert testimony “requires a valid scientific connection between the expert’s testimony and the pertinent inquiry before the court as a precondition to admissibility.”³⁷ This heightened relevancy inquiry actually “incorporates a consideration of the Rule 403 dangers, particularly the danger of unfair prejudice.”³⁸ Relevancy or “fit” under Rule 702 “means that the expert’s opinion must relate to an issue that is actually in dispute”³⁹ Logical relevancy, on the other hand, does not require the fact to which the evidence is directed be disputed.⁴⁰

A fourth Supreme Court case, *Weisgram v. Marley Co.*, held appellate courts had power to enter judgment against the verdict-winner below, instead of remanding for a new trial, if the appellate court found admission of the expert testimony was an abuse of discretion and the record was insufficient to support the verdict when the expert testimony was removed.⁴¹ When *Weisgram* is added to *Daubert*, *Joiner*, and *Khumo Tire* it underscores the case-dispositive aspect of the federal expert testimony standard. Failure to meet the exacting *Daubert* admissibility standards often results in summary judgment.

III. EXPERT TESTIMONY IN NORTH CAROLINA STATE COURT: FROM COMMON LAW TO *HOWERTON*’S RELIABLE AND RELEVANT STANDARD

Since at least 1851, the North Carolina Supreme Court has recognized the value of expert testimony to the judicial system.⁴² Admissibility, referred to in the early cases as the competency of the testimony,

36. *Id.* at 591 (quoting FED. R. EVID. 702); see also *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co.*, 161 F.3d 77, 81 (1st Cir. 1998) (“Along with the reliability requirement, the *Daubert* Court imposed a special relevancy requirement.”).

37. *Garlinger v. Hardee’s Foodsystems, Inc.*, 16 F. App’x 232, 234 (4th Cir. 2001).

38. *United States v. Hall*, 165 F.3d 1095, 1104 (7th Cir. 1999); see also 4 JOSEPH M. McLAUGHLIN, WEINSTEIN’S FEDERAL EVIDENCE § 702.02[5] n.35-36 (2d ed. 2005) and accompanying text.

39. *Graham v. Playtex Prods., Inc.*, 993 F.Supp. 127, 130 (N.D.N.Y. 1998) (quoting Margaret A. Berger, *Procedural Paradigms for Applying the Daubert Test*, 78 MINN. L. REV. 1345, 1351 (1994)).

40. *Old Chief v. United States*, 519 U.S. 172 (1997) (stipulation by defendant that he had a prior felony conviction did not make evidence of the prior conviction irrelevant in a prosecution for possession of a firearm by a convicted felon); see also FED. R. EVID. 401 Advisory Committee’s Note (stating “[t]he fact to which the evidence is directed need not be in dispute”).

41. 528 U.S. 440, 457 (2000).

42. See *State v. Clark*, 34 N.C. 151 (1 Ired. 1851).

was conditioned upon the ability of the expert to form opinions based on scientific or technical principles that were simply beyond the grasp of jurors and judges. Competency of the testimony was determined by the qualifications of the witness, not the underlying scientific reliability of the opinion.⁴³

A. *The Common Law Competency Standard*

*State v. Clark*⁴⁴ typifies the early North Carolina approach to expert testimony. Adam Clark was charged with shooting and stabbing Eli Sigman and hiding his body in the woods of Person County.⁴⁵ Witnesses who found Sigman's body, decomposed and dismembered by animals, testified: "[T]he head was separated from the other parts of the body, and . . . the skin attached to the face and the throat under the chin where it separated from the body presented a smooth and straight edge"⁴⁶

To prove that Clark murdered Sigman by cutting his throat with a knife, the State called a surgeon as a witness.⁴⁷ The surgeon had not personally examined the body, but had heard the descriptions of the body given in court by the witnesses who did see it. The prosecutor asked the surgeon if he could form an opinion from the description of the body as to whether the skin of the throat under Sigman's chin was cut by a sharp instrument or torn by animals.⁴⁸ Defense counsel objected and, during a brief voir dire, the doctor admitted he had never read of or encountered a body that had decomposed for three months and had been subjected to scavenging by animals.⁴⁹ Despite the doctor's admitted unfamiliarity with determining the cause of wounds on a badly decomposed and mutilated body like Sigman's, the trial court overruled defense counsel's objection to the State's evidence.⁵⁰ Clark was convicted and raised the admissibility of the surgeon's testimony as error on appeal.⁵¹

43. *Id.* at 151.

44. *Id.*

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. *Id.*

50. *Id.*

51. *Id.* The court noted the bill of exceptions did not contain the substance of the doctor's testimony and, as a result, it could not determine whether the doctor's opinion actually prejudiced the defendant. The court could have disposed of the appeal on this basis but chose to address the admissibility of the expert's opinion anyway. *Id.* at 152-53.

In addressing the admissibility of the surgeon's expert opinion, Chief Justice Ruffin first noted the difficulty confronting judges and juries in deciding cases based on scientific or technical principles.⁵² He recognized the necessity of receiving testimony from "those who made it . . . the business of their lives to study the principles of that science"⁵³ In areas of scientific or technical knowledge, Chief Justice Ruffin observed, the opinions of experts are "the best accessible evidence on the matters in issue; and when received, their weight must depend on the impression made thereby on those who hear them."⁵⁴ Thus, admitting the surgeon's opinion concerning the victim's wounds was permissible because the surgeon was a man of science, who had made it "the business of his life to study the principles of that science."⁵⁵

In expanding upon this general principal, the court noted the role of "science [is] to discover general principles from long and accurate observations and sound reasoning,"⁵⁶ while the court's role was to seek justice.⁵⁷ Chief Justice Ruffin saw the relationship as a complementary one: the court was entitled to rely on the opinions of scientists and other experts who could testify that the established principles of their area of expertise were sufficient to allow them to form an opinion.⁵⁸ That a scientist had not examined the physical evidence of the case, nor had experience with the precise question presented, went to the weight of the opinion, not its admissibility.⁵⁹

Chief Justice Ruffin's opinion commanded a strong following. Nineteen years later, in *Horton v. Green*, the court relied upon *Clark* to find error in the appellate court's exclusion of expert testimony.⁶⁰ Horton's suit claimed the defendant sold him a diseased mule. The trial court excluded the opinion of plaintiff's expert witness that the mule plaintiff purchased was diseased at the time of sale. The witness, Dr. Rivers, had practiced medicine for eleven years but was not a veterinarian, had not examined the mule at the time of the sale, had no particular knowledge or familiarity with diseases common to mules, and had never seen a case of the specific disease the mule in question

52. *Id.* at 154.

53. *Id.*

54. *Id.* at 153-54.

55. *Id.*

56. *Id.* at 155.

57. *Id.*

58. *Id.*

59. *Id.*

60. 64 N.C. 64 (1870).

allegedly suffered.⁶¹ He testified, however, that from his “books, observation and general knowledge of diseases of the human family,” he could tell from the mule’s symptoms whether the disease was present at the time of sale.⁶² He testified that, although he had never seen a case of glanders before examining this mule, “he was able to form an opinion as to whether the symptoms of this mule indicated a disease of recent or of long standing.”⁶³ Noting the difference between diseases in humans and animals goes to the weight of the testimony rather than its admissibility, the court held that an opinion from a witness who “has had peculiar means of forming an opinion by reading, reflection and observation in the pursuit of a particular science, and [who] . . . is a physician of many years standing, and [who] . . . will swear that in this way he has formed an opinion, it is competent evidence.”⁶⁴

The early cases recognized that neither judges nor jurors were equipped to determine whether a given scientific method, technique, or principle was capable of answering the specific problem presented. Rather, the judicial system relied upon those trained in these specialized areas to determine whether the given discipline, method, or principle could answer the question presented; and, if so, provide the jury with an opinion on the matter. By conditioning the competency of expert opinion on the qualifications and credibility of the witness, the courts deferred to not only the particular scientific community, but to the individual expert. Once qualified as an expert by experience, skill, knowledge, or training and swearing that his area of expertise could be applied to answer the question before the court, the testimony was considered competent and the only remaining issue was how much weight the jury would give the opinion.⁶⁵

61. *Id.* at 67.

62. *Id.*

63. *Id.*

64. *Id.*

65. *See generally*, JOHN D. LAWSON, *THE LAW OF EXPERT AND OPINION EVIDENCE* 297-98, 468 (2d ed. 1900) (“[T]he qualification of a witness to express an opinion . . . is a preliminary question for the trial court . . . [but] [t]he opinions of . . . experts are not conclusive, but are to be weighed by the jury like all other evidence.”); I GREENLEAF ON EVIDENCE § 441k at 559 (1899) (“[O]pinions are receivable . . . from persons having special skill . . . whenever that special skill enables them, better than the jury, to draw inferences on the subject . . .” and recognizing the jury’s responsibility to weigh the opinion and determine the existence *vel non* of the underlying facts or data.); HENRY WADE ROGERS, *THE LAW OF EXPERT TESTIMONY* § 197 at 444 (2d ed. 1891) (“For while it is the function of the court to rule on the competency of witnesses and the admissibility of evidence, it is a fundamental and well established principle of law that the weight which is to be accorded to the evidence when admitted is a question that lies within the province of the jury to determine.”).

B. *The Competency Standard in the Twentieth Century*

This uncritical and unquestioning deference to the expertise of a given witness, as established by sworn testimony of the witness himself, persisted well into the twentieth century. For instance, when the North Carolina Supreme Court first addressed the admissibility of fingerprint evidence, it held that if the trial judge found that the witness was qualified in his field of expertise and the subject matter was appropriate for expert testimony, the expert's opinion was admissible.⁶⁶ Moreover, the determination of whether the witness was a qualified expert was a "preliminary fact to be found by the trial court, and that when there is any evidence to sustain such finding, it is conclusive on appeal."⁶⁷ Thus, the finding of the trial judge that a given witness was an expert determined the admissibility of the underlying opinion and, for all practical purposes, insulated the issue from meaningful appellate review.

State v. Rogers illustrates the North Carolina Supreme Court's deference to the sworn testimony of the expert in establishing admissibility of scientific opinion evidence.⁶⁸ One of the issues in *Rogers* was the trial judge's admission of expert testimony linking a bloody footprint found at the crime scene to the accused.⁶⁹ The State's expert witness used the ridge pattern comparison technique, commonly employed in comparing latent fingerprints with known exemplars, to conclude the footprints found at the scene matched those of the accused.⁷⁰ In reviewing the trial court's decision to admit this testimony, the court noted this was an issue of first impression in North Carolina and had not yet been addressed in any other state.⁷¹

The court began its analysis by reciting the qualifications of the witness and noting that the trial judge had found the witness "qualified to testify as an expert in fingerprinting and footprinting."⁷² It then noted the "well settled rule" that fingerprint evidence was admissible to prove the accused's presence at the crime scene and that the expert witness himself testified the ridge pattern on the sole of the foot

66. *State v. Combs*, 158 S.E. 252, 254 (N.C. 1931).

67. *Id.*

68. 64 S.E.2d 572 (N.C. 1951), *rev'd on other grounds*, *State v. Silver*, 213 S.E.2d 247 (N.C. 1975).

69. *Id.* at 575.

70. *Id.* at 577.

71. *Id.*

72. *Id.* The foundation testimony offered at trial consisted solely of a description of the witness's training as a fingerprint analyst. Statement of the Case on Appeal to the North Carolina Supreme Court at 40-42, *State v. Rogers*, 64 S.E.2d 572 (N.C. 1951) (No. 951).

was just as permanent and just as unique as the ridge pattern on the fingers.⁷³ The court also took into consideration its own recognition that “[i]t is a matter of common knowledge . . . in the fields of crime detection and medical jurisprudence that the permanence of the friction ridges on the sole of the foot makes a naked footprint a means of identification.”⁷⁴ Accordingly, the court affirmed the admission of the footprint evidence.⁷⁵

There is no indication in the court’s opinion, however, that the trial judge considered anything but the sworn testimony of the expert witness in finding the evidence admissible.⁷⁶ The court’s reference to “common knowledge” and its citation to treatises on criminal investigation and medical jurisprudence merely confirmed the trial judge’s decision.⁷⁷ Interestingly, the court did not specifically impose a reliability test to the footprint analysis, since it was an extension of an existing technique. Rather, the sworn testimony of the State’s expert who “testified with positiveness that the friction ridges on the soles of the feet . . . are as individual and permanent as those on . . . fingers, and that the technique used in identifying naked footprints is the same as that employed in identifying fingerprints,” was sufficient to admit the testimony.⁷⁸

Although the *Frye* standard prevailed in most jurisdictions at the time *Rogers* was decided, the court did not cite or refer to *Frye*’s principle that new techniques are not admissible until generally accepted by the relevant scientific community.⁷⁹ Rather, the *Rogers* court’s uncritical acceptance of the ipse dixit of the expert that the principles applied to fingerprint identification are equally accurate when applied to footprints defers to the expert witness himself. The noticeable absence of any reference to *Frye* at a time when it was the prevailing view among both state and federal courts, or to any other principled test of reliability, reveals a trend toward a less rigid approach. This less rigid approach allowed the witness to establish his own status as an expert,

73. *Id.* at 578.

74. *Id.* at 577 (citing ALFRED A. HERZOG, *MEDICAL JURISPRUDENCE* § 244 (1931); CHARLES E. O’HARA & JAMES W. OSTERBURG, *AN INTRODUCTION TO CRIMINALISTICS: THE APPLICATION OF PHYSICAL SCIENCES TO THE DETECTION OF CRIME* 112-14 (1949)).

75. *Rogers*, 64 S.E.2d at 579.

76. The foundation testimony offered at trial consisted solely of the witness’s training as a fingerprint analyst. Statement of the Case on Appeal to the North Carolina Supreme Court at 40-49, *State v. Rogers*, 64 S.E.2d 572 (N.C. 1951) (No. 951).

77. *Rogers*, 64 S.E.2d at 579.

78. *Id.* at 577.

79. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

vested tremendous discretion in the trial court, and showed great confidence in the jury to understand and appropriately weigh the evidence, all with the protection of a deferential standard of appellate review.

C. *The Reliability Standard Arises*

While deference to the sworn testimony of a qualified expert and the virtual non-reviewability of the trial court's determination of the expert's qualifications was the prevailing practice in North Carolina in the mid-twentieth century, the issue of scientific reliability was lurking in the background.⁸⁰ The move away from almost complete deference to the sworn testimony of the expert began with *State v. Crowder*, a case dealing with the admissibility of evidence of gunshot residue on the hands of the defendant as disclosed by flameless atomic absorption spectrophotometry.⁸¹ Albert Crowder was convicted of first-degree murder in the shooting death of his girlfriend, Peggy Ann Bryant.⁸² At trial, the prosecutor offered the expert opinion of R.D. Cone, a chemist with the State Bureau of Investigation, that the results of the flameless atomic absorption spectrophotometry test when applied to wipings taken from the defendant's hands revealed the presence of barium, antimony, and lead, thus indicating the defendant had recently fired a gun.⁸³ Crowder's counsel objected, claiming the tests were "speculative and highly unreliable."⁸⁴ The trial court overruled the objection.⁸⁵

80. *State v. Foye*, 120 S.E.2d 169, 171 (N.C. 1961) (excluding polygraph evidence because the "lie detector has not yet attained scientific acceptance as a reliable and accurate means of ascertaining truth or deception" (citations omitted)).

81. 203 S.E.2d 38 (N.C. 1974). In the flameless atomic absorption analysis method, a suspect's hands are wiped with cotton swabs saturated with a nitric acid solution. The solution is extracted from the swab and placed on a metal strip in an instrument called the flameless atomic absorption spectrophotometer. The metal strip is heated, causing the elements present in the liquid to vaporize and form an atomic cloud. A light beam is passed through the cloud at specific wavelengths designed to detect the presence of barium and antimony. If these two elements are found in sufficient quantity, it signals the presence of gunshot residue. Neither barium nor antimony are elements commonly found in the environment. Based on independent laboratory tests, levels higher than .2 micrograms of antimony and .3 micrograms of barium indicate the presence of gunshot residue. See *State v. Chatman*, 383 A.2d 440, 441 (N.J. Super. Ct. App. Div. 1978) (describing test).

82. *State v. Crowder*, 203 S.E.2d 38, 39-40 (N.C. Ct. App. 2003).

83. *Id.* at 38.

84. *Id.* at 45.

85. *Id.* at 45-46.

The supreme court began its analysis of the expert testimony assignment of error with the proposition, without any citation to authority, that “[s]cientific tests of this nature are competent only when shown to be reliable.”⁸⁶ In its reliability analysis, the court first noted Mr. Cone’s professional experience and training, particularly relying on Mr. Cone’s own testimony concerning the reliability of flameless atomic absorption spectrophotometry.⁸⁷ The court specifically noted that Mr. Cone was experienced in gunshot residue tests, had presented papers on the subject, and had conducted laboratory experiments to evaluate the accuracy of the method.⁸⁸ The court then looked beyond Cone’s background, experience, and testimony as to the reliability of the method and examined scientific literature on the subject, noting the published literature supported Cone’s opinion as to reliability.⁸⁹ There is no indication, however, that Cone relied upon any of the published literature to support his opinion or that the trial judge considered the literature when ruling on the admissibility of the expert testimony.⁹⁰ Nonetheless, the court found Cone’s method sufficiently reliable and thus admissible despite the fact it did not exclude “every remote possibility of error.”⁹¹

Crowder is significant in the evolution of North Carolina’s law of expert testimony because it specifically conditioned the admissibility of the opinion testimony on the scientific reliability of the underlying test. In affirming the trial court’s admission of the evidence, however, the court continued its century-long habit of relying heavily, if not exclusively, upon the qualifications of the witness and his own testimony concerning the reliability of his method.⁹² The court’s discussion of scientific literature supporting the reliability of barium, antimony, and lead as indicators of recently firing a weapon was merely in the context of distinguishing it from the discredited dermal nitrate, or paraffin test, previously used by some jurisdictions as evidence of recent weapon discharge.⁹³

While *Crowder* adopted reliability as the test for admission of expert opinion based on scientific tests, it reaffirmed the long-standing practice of deferring to the sworn testimony of the witness to estab-

86. *Id.* at 46.

87. *Id.*

88. *Id.*

89. *Id.*

90. Record on Appeal at 65-76, *State v. Crowder*, 203 S.E.2d 38 (N.C. 1974) (No. 7).

91. *Crowder*, 203 S.E.2d at 47.

92. *Id.*

93. *Id.* at 46.

lish that reliability. Just as Dr. Rivers's testimony in *Horton v. Green* that his training and experience as a physician enabled him to diagnose diseases and their duration in mules, though he had never done so previously, was sufficient to find him competent and his opinion admissible,⁹⁴ so too was Cone's sworn testimony that the presence of barium, antimony, and lead on the defendant's hand indicated he had recently fired a weapon.⁹⁵ While *Horton* involved a professional judgment based on professional training and experience and *Crowder* dealt with the results of a scientific test that the expert had personally researched and conducted, the facts upon which the trial courts in each case based their admissibility decisions all came from the sworn testimony of the expert.

Over the next decade, the court routinely relied upon *Crowder* for the proposition that scientific testimony must be reliable to be admissible, but also continued the practice of deferring almost exclusively to the sworn testimony of the proffered expert to establish that reliability.⁹⁶

D. *Reliability Refined*⁹⁷

The seminal case in the development of the North Carolina approach to the reliability of expert opinion is *State v. Bul-*

94. *Horton v. Green*, 64 N.C. 64, 66-67 (1870).

95. *Crowder*, 203 S.E.2d at 46.

96. See, e.g., *State v. Sparks*, 255 S.E.2d 373, 381-83 (N.C. 1979) (citing *Crowder* for the proposition that scientific tests must be reliable and finding testimony by State's forensic chemist sufficient to establish reliability of test to determine presence of nitrites on defendant's clothes); *State v. Mayhand*, 259 S.E.2d 231, 237 (N.C. 1979) (citing *Crowder* for the proposition that scientific tests must be reliable and excluding an FBI laboratory report showing none of the victim's hairs were found on the defendant's clothes as hearsay because no one with personal knowledge of the testing testified to lay the foundation for the report); *State v. Gray*, 233 S.E.2d 905, 914-15 (N.C. 1977) (citing *Crowder* for the proposition that scientific tests must be reliable and finding testimony of the State's expert forensic chemist sufficient to establish the reliability of the results of absorption inhibition tests to establish defendant's blood type as the same blood type found on vaginal swabs from rape victim and on cigarette dropped by rapist at crime scene); see also *State v. Green*, 290 S.E.2d 625, 629-30 (N.C. 1982) (holding testimony of State's expert forensic odontologist sufficient to establish reliability of methodology to link defendant to the victim through bite mark identification); *State v. Temple*, 273 S.E.2d 273, 279-81 (N.C. 1981) (holding testimony of State's expert forensic odontologist and expert forensic pathologist sufficient to establish reliability of methodology to link defendant to the victim through bite mark identification).

97. In 1981 the Legislative Research Commission's Study Committee on the Laws of Evidence and Comparative Negligence recommended continued study with a view towards codifying the rules of evidence. Legislative Research Commission Report to

lard.⁹⁸ In 1978, Pedro Hales shot and wounded Vonnie Ray Bullard's son, but was acquitted by a jury on a claim of self-defense.⁹⁹ The verdict did not sit well with Bullard and on several occasions over the next couple of years Bullard threatened to kill Hales.¹⁰⁰ When Hales suddenly and mysteriously disappeared during the late evening hours of August 25, 1981, suspicion naturally focused on Bullard.¹⁰¹ Witnesses saw Bullard and Hales together earlier in the day on August 25, and they appeared to be arguing.¹⁰² Others saw Bullard's truck later that night leaving a highway bridge over the South River, about four miles from where Hales was last seen alive.¹⁰³ The next morning, law enforcement officers found a large amount of blood, a .22 bullet, broken glass, bloody bare footprints, a bare footprint in the sand, tire

the 1981 General Assembly of North Carolina: Laws of Evidence and Comparative Negligence (Jan. 14, 1981). Later that same year the General Assembly passed An Act to Eliminate the Hypothetical Question that adopted the then-existing version of FED. R. EVID. 702 and a modified version of FED. R. EVID. 705. H.B. 394, Ch. 543 Session Laws 1981, N.C. GEN. STAT. § 8-58.13 (1981) (repealed 1984). Though the language in the new statute was exactly the same as the language the Supreme Court of the United States later relied upon in *Daubert* to reject the *Frye* standard and require the trial judge to exclude expert testimony that was not reliable or relevant, the enactment of the statute was not intended to, nor did it have the effect of, altering the North Carolina practice in any way other than eliminating the requirement for the hypothetical question. 1 BRANDIS ON NORTH CAROLINA EVIDENCE § 136 at 538-39 (2d rev. ed. 1982) ("Effective October 1, 1981, a statute provides that hypothetical questions may no longer be required, though it does not prohibit their voluntary use. . . . [I]t seems to require, in general, no change in the principles governing: (1) upon what an opinion may be based; and (2) the extent to which the expert may testify to the basis for his opinion."). Thus, despite the reform in expert testimony wrought through the adoption of FED. R. EVID. 702, the North Carolina practice of admitting the testimony of a qualified expert whose opinion could help the jury understand the evidence or determine a question in the case remained unchanged. *Crowder* remained the appropriate standard. In 1984 the General Assembly completed the codification of the law of evidence in North Carolina by enacting the North Carolina Rules of Evidence, a comprehensive evidence code patterned after the federal rules. N.C. GEN. STAT. § 8C-1, Rules 101–1102 (2003). N.C. GEN. STAT. § 8-58.13 was repealed because the new rules 702 and 705 were identical to the earlier statute. For contemporary analysis of the evidence reform efforts in North Carolina, see Walter J. Blakley, *Examination of Expert Witnesses in North Carolina*, 61 N.C. L. REV. 1 (1982) and Walter J. Blakely, *Moving Towards an Evidence Law of General Principles: Several Suggestions Concerning an Evidence Code for North Carolina*, 13 N.C. CENT. L. J. 1 (1981).

98. 322 S.E.2d 370 (1984).

99. *Id.* at 372.

100. *Id.*

101. *Id.*

102. *Id.*

103. *Id.*

tracks, and a piece of a safety belt assembly on that same bridge.¹⁰⁴ A search of Bullard's truck later that day revealed a blood smear matching Hales's blood type, a damaged seat belt assembly matching the one found at the bridge, and a broken window with glass matching the glass found at the bridge.¹⁰⁵ Hales's body was found in the river several days later.¹⁰⁶ He had been stabbed seventeen times and shot three times.¹⁰⁷ A .22 bullet was removed from his body during the autopsy.¹⁰⁸

Detectives investigating the case took photographs of the bloody bare footprint on the bridge and of the bare footprint in the sand.¹⁰⁹ The detectives also sprayed the bloody print on the bridge pavement with luminol, which enhanced the bloody portions of the print, and photographed the luminol-enhanced print.¹¹⁰ Investigators took ink and latex paint impressions of Bullard's bare feet and compared them to the photos of the footprints found at the bridge.¹¹¹ The latent evidence section at the State Bureau of Investigation (SBI) could not see any ridge pattern details in the photographs and was unable to identify the prints using techniques and methods commonly used in matching latent fingerprints or footprints with known prints.¹¹²

Having failed to identify the footprints on the bridge using standard techniques, the SBI sent the photos and print exemplars from Bullard to Dr. Louise Robbins, a physical anthropologist and faculty member at the University of North Carolina at Greensboro.¹¹³ Dr. Robbins claimed to be able to identify footprints based on size and shape without relying on ridge pattern details.¹¹⁴ She examined the photographs of the footprints taken at the bridge, compared them to the exemplars from Bullard, and concluded that Bullard left the prints on the bridge.¹¹⁵

Bullard objected to Robbins's testimony at trial.¹¹⁶ The trial court overruled the objection, admitted the testimony, and the jury convicted

104. *Id.* at 373.

105. *Id.*

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.*

110. *Id.*

111. *Id.*

112. *Id.*

113. *Id.*

114. *Id.*

115. *Id.*

116. *Id.*

Bullard of Hales's murder.¹¹⁷ Before the supreme court,¹¹⁸ Bullard claimed the following errors in admitting the expert testimony:

1. The trial court erred in allowing Dr. Robbins to testify as an expert in the field of footprint identification when, in fact, as shown by the evidence adduced in voir dire hearing prior to her testimony, there is no such area of such expertise recognized by our law;
2. The trial court erred in failing to exclude or suppress Dr. Robbins's testimony because it has no basis or recognition whatever in the scientific community and is not sufficiently reliable or acceptable by the court;
3. The trial court erred by failing to grant defendant's motion to strike the opinion testimony of Dr. Robbins because she was not properly qualified to give such an opinion, and her testimony was too speculative and had no basis in science or fact;
4. The trial court erred in allowing Dr. Robbins to testify as an expert and give her opinion because the court did not make findings of fact as to her expertise.¹¹⁹

The court saw the allegations of error as falling into two broad categories. The first three all revolved around whether the methods or techniques employed by Dr. Robbins were scientifically valid and whether she applied those techniques reliably in reaching her opinion.¹²⁰ The fourth allegation of error was, essentially, a challenge to whether Dr. Robbins was properly qualified and whether the subject matter of her testimony was an appropriate subject for opinion testimony.¹²¹

The court began by addressing the subject matter appropriateness and qualification issue.¹²² First, the court said, "[i]t is undisputed that expert testimony is properly admissible when such testimony can assist the jury to draw certain inferences from facts because the expert is better qualified."¹²³ The court then quoted chapter 8, section 58.13 of the North Carolina statutes to support the principle of admitting expert testimony because the expert knows more about the subject than the jury.¹²⁴ Second, the court recognized that to testify in North

117. *Id.* at 372.

118. Bullard's appeal of his conviction and life sentence went directly to the Supreme Court under N.C. GEN. STAT. § 7A-27(a) (1981).

119. *Bullard*, 322 S.E.2d at 374.

120. *Id.*

121. *Id.* at 375.

122. *Id.* at 376.

123. *Id.* (citing *Cogdill v. Highway Comm'n*, 182 S.E.2d 373 (N.C. 1971)).

124. *Id.* This is the only reference to the statutory provision applicable to the admission of expert testimony in the opinion. *See also supra* note 97.

Carolina “[i]t is not necessary that an expert be experienced with the identical subject area in a particular case or that the expert be a specialist, licensed, or even engaged in a specific profession.”¹²⁵ Finally, the court noted that the trial judge has broad discretion in determining the admissibility of expert testimony.¹²⁶

In applying the concept that expert testimony is admissible if the expert knows more about the subject matter than the jury and the jury would be aided in receiving the expert’s opinion, the court reviewed Dr. Robbins’s education, training, and experience.¹²⁷ The court found that making the footprint comparisons involved an area of knowledge “beyond the realm” of the average juror.¹²⁸ Dr. Robbins’s superior knowledge allowed her to find “unusual and distinct” features in the footprints she examined.¹²⁹ She made acetate overlays of the prints and made visual comparisons with the naked eye and with a magnifying glass.¹³⁰ While the court recognized Dr. Robbins had no formal training in footprint identification, she had conducted extensive independent study and research into the subject over a fourteen-year period and was formally trained and experienced in the recognized field of physical anthropology.¹³¹ Thus, the court found Dr. Robbins was “clearly in a superior position and better qualified [than the average juror] to compare the bloody bare footprint found on the bridge with those of the defendant” and held that the trial court did not abuse its discretion in finding Dr. Robbins a qualified witness and her testimony helpful to the jury.¹³²

Turning to the other assignments of error, the court framed the issue as “[w]hether scientific evidence which tends to identify an accused by bare footprint comparison is admissible where the expert relies upon methods other than ridge detail in making such comparisons.”¹³³ Bullard argued that Dr. Robbins’s technique of visually comparing the size and shape of the foot in four areas (the toe, the ball, the

125. *Id.* (citing *State v. Phifer*, 225 S.E.2d 786 (N.C. 1976), *cert. denied*, 492 U.S. 1123 (1977); *Shaw v. Sylvester*, 116 S.E.2d 351 (N.C. 1960)).

126. *Id.*

127. *Id.* at 375-76.

128. *Id.* at 376.

129. *Id.* at 376-77.

130. *Id.* at 377.

131. *Id.* at 375.

132. *Id.* at 376.

133. *Id.* at 379. The North Carolina Supreme Court had already admitted expert testimony based on ridge pattern comparison. *State v. Rogers*, 64 S.E.2d 572 (N.C. 1951), *rev'd on other grounds*, *State v. Silver*, 213 S.E.2d 247 (N.C. 1975). See *supra* notes 68-78 and accompanying text for a discussion of *Rogers*.

arch, and the heel) and drawing conclusions as to the identity of the print required the jury to make a “leap of faith” and accept “at face value the ultimate opinion of a person who professes to be the only one skilled in a particular subject area.”¹³⁴ Because Dr. Robbins’s technique was novel, untested, and unreported in any other judicial decision, Bullard claimed, the court must make an independent determination as to whether the technique is “reliable and sufficiently established to have gained general acceptance in the field.”¹³⁵ In other words, Bullard asked the court to apply *Frye*’s general acceptance test and reject the evidence because the relevant scientific community had not embraced it as reliable.¹³⁶ The court declined to adopt *Frye* and noted the lack of recognition by others “does not *per se* prevent the admissibility . . . [of the evidence].”¹³⁷ Instead, the court was willing to give novel techniques time to develop and show their reliability rather than rejecting them outright.

Turning from the question of whether a lack of general acceptance by the relevant scientific community requires rejection of the evidence, the court next considered whether this evidence, though novel and not generally accepted, was nevertheless reliable.¹³⁸ Three overarching principles directed its inquiry: (1) scientific methods of crime detection are favored; (2) scientific reliability is determined by judicial notice, the testimony of experts in the area, or both; and (3) the focus is on the reliability of the scientific method, not its popularity within a scientific community.¹³⁹ The court then reviewed over twenty years of legal precedent from North Carolina and other jurisdictions and identified five “significant factors relied upon by the courts when evaluating whether a scientific method in its infancy is reliable and whether it should be adopted or rejected.”¹⁴⁰

The first “significant factor” is whether the data underlying the expert’s opinion is verifiable by the court.¹⁴¹ Because Dr. Robbins used visual exhibits to fully explain what she considered significant in the footprint comparisons, the court and the jury were able to verify

134. *Bullard*, 322 S.E.2d at 379. Dr. Robbins testified during voir dire that she was the only person in the United States who used this particular technique of footprint identification. She claimed that an investigator with Scotland Yard and a German detective, as well as several people in India, use the same methods. *Id.* at 374 n.2.

135. *Id.* at 379.

136. *Id.*

137. *Id.*

138. *Id.* at 379-80.

139. *Id.* at 380-81.

140. *Id.* at 381.

141. *Id.* (citing *State v. Temple*, 273 S.E.2d 273, 280 (N.C. 1981)).

the underlying data, including her measurements and the interrelationships of the various portions of the footprints, without having to “sacrifice its independence by accepting her scientific hypotheses on faith.”¹⁴²

The second “significant factor” identified by the court is whether the expert applied established techniques to solve a particular, albeit novel, problem.¹⁴³ Dr. Robbins’s methods involved “scientifically established measurement techniques relied upon in the established field of physical anthropology.”¹⁴⁴ Thus, the court concluded, she applied well-accepted and established methods to address a novel problem.

The professed experience of the expert in the relevant field was the third “significant factor” identified by the court.¹⁴⁵ Dr. Robbins’s professional background as a physical anthropologist was unchallenged. She earned a Ph.D. in the field and at the time of trial had been a full-time faculty member in the physical anthropology department at the University of North Carolina at Greensboro for ten years.¹⁴⁶ She served in similar positions in two other universities before coming to Greensboro.¹⁴⁷

The fourth and fifth “significant factors,” the expert’s presentation of technical papers and publications and the expert’s independent research, like the third factor, are intimately associated with the expert’s qualifications.¹⁴⁸ Dr. Robbins taught courses in forensic anthropology, published an article dealing with the individuality of footprints, and presented papers at various technical meetings and seminars.¹⁴⁹ At the time of trial, she was anticipating publishing a book on the subject.¹⁵⁰ Also, Dr. Robbins claimed to have done extensive independent research into the uniqueness of human footprints.¹⁵¹ She told the court she began studying and collecting human footprints in 1971 and had amassed a collection of over 1,200 footprints and examined thousands more.¹⁵²

142. *Id.* at 382.

143. *Id.* at 381.

144. *Id.* at 382.

145. *Id.*

146. *Id.* at 375 n.3.

147. *Id.*

148. *Id.* at 382.

149. *Id.* at 375 n.3.

150. *Id.*

151. *Id.* at 375 n.4.

152. *Id.*

The application of these five factors to the proffered testimony led the court to conclude, “Dr. Robbins’s unique scientific method is reliable because of her explanatory testimony, professional background, independent research, and use of established procedures to make her visual comparisons of bare footprints.”¹⁵³ Also significant to the court’s conclusion was the difference between Dr. Robbins’s area of scientific inquiry and cases rejecting admission of polygraph and hypnosis evidence.¹⁵⁴ Polygraph and hypnosis evidence seek to “explore the workings of the mind” while Dr. Robbins’s testimony dealt with a scientific method readily understandable and demonstrable to the jury through the use of visual aids and in-court comparisons of the known and unknown footprints.¹⁵⁵

After determining Dr. Robbins’s testimony was reliable, the court addressed whether the testimony was relevant. Defining relevant evidence as having “any logical tendency however slight to prove the fact at issue in the case,”¹⁵⁶ the court concluded evidence of Bullard’s presence at the crime scene through his bare footprints had a logical tendency to connect him to the crime.¹⁵⁷

Bullard thus established the rule in North Carolina that expert testimony must be both relevant and reliable and that general acceptance by the scientific community was not the sine qua non of admissibility. In this regard, it foreshadowed *Daubert* by almost ten years. Though not couched in the exact terms and analytical framework of *Daubert*, the stated goal of both cases is to admit reliable and relevant expert opinion and exclude those opinions that are irrelevant, unreliable, or both.

E. *The Reliability Standard Revisited*

Six years after *Bullard*, the court revisited the issue of reliability of expert testimony in *State v. Pennington*.¹⁵⁸ In *Pennington*, the State offered DNA profiling evidence to identify the defendant as the rapist.¹⁵⁹ The court noted at the outset that “[a] new scientific method of proof is admissible at trial if the method is sufficiently reliable,”¹⁶⁰ but eschewed the *Frye* standard as the exclusive index of reliability. The

153. *Id.* at 383.

154. *Id.*

155. *Id.* at 384.

156. *Id.* (quoting *State v. Pratt*, 295 S.E.2d 462, 466 (N.C. 1982)).

157. *Id.*

158. 393 S.E.2d 847 (N.C. 1990).

159. *Id.* at 845.

160. *Id.* at 852 (quoting *State v. Bullard*, 322 S.E.2d 370, 381 (N.C. 1984)).

court then applied the *Bullard* factors and found expert testimony identifying the defendant as the source of semen found at the scene, based on restriction fragment length polymorphism analysis, reliable and admissible.¹⁶¹

The trial court conducted a lengthy hearing on the admissibility of the DNA evidence.¹⁶² Three experts for the State, a forensic serologist, a professor of genetics and microbiology with twenty-two years of experience in extracting DNA, and the scientist who performed the DNA analysis all testified that the DNA profiling method used was reliable and generally accepted within the scientific community.¹⁶³

While the trial court seemed to place great weight on the State's evidence establishing the DNA profiling method as generally accepted within the scientific community, the supreme court did not find the admission of the evidence at trial appropriate simply because the methods were generally accepted within the scientific community.¹⁶⁴ Pointing to "reliability of the scientific method" as the appropriate inquiry, the court applied the *Bullard* factors: (1) the expert's use of established techniques, (2) the expert's qualifications and professional background, (3) the use of visual aids or other illustrations so the jury is not asked to merely accept the expert's opinion on faith, and (4) the expert's relevant independent research in the area.¹⁶⁵

Applying the *Bullard* factors to the proffered DNA testimony in this case, the court noted that Dr. George Herrin, the State's expert, used established techniques that were considered reliable within the scientific community.¹⁶⁶ In reviewing the extensive and impressive professional background of Dr. Herrin, the court mentioned he not only had a Ph.D. in biochemistry with a specialization in molecular biology, he had also done post-doctoral research in molecular biology, published over a dozen articles and abstracts on molecular biology,

161. *Id.* at 853-54.

162. *Id.* at 853.

163. *Id.*

164. *Id.*

165. *Id.* The opinion does not cite or refer to N.C. R. EVID. 702, which had been in effect for some nine years. Presumably, the failure to cite to Rule 702 was because the qualifications of the witness were not an issue. *Bullard* recognized five "significant factors" to guide the court in determining reliability. See *supra* notes 98-157 and accompanying text. *Pennington* reduced the number to four by eliminating any specific reference to publications and technical papers. Arguably, the expert's publications and technical papers on topics relevant to the area of his testimony are subsumed in the independent research or professional background and experience factors.

166. *Pennington*, 393 S.E.2d at 853.

and had conducted DNA profile testing on over one hundred DNA samples.¹⁶⁷

The testimony also passed the third *Bullard* factor because Dr. Herrin used visual aids to help the jury understand the nature of DNA and the DNA profiling process.¹⁶⁸ He showed the jury the radiographic film of the DNA results so they could see the actual comparison between the sample found at the crime scene and the known sample taken from the defendant.¹⁶⁹ The court was satisfied “the jury was not asked ‘to sacrifice its independence by accepting [the] scientific hypothesis on faith.’”¹⁷⁰

Finally, the witness’s independent research in his post-doctoral studies and the conduct of other DNA profiling tests over the years prior to his involvement in the instant case satisfied the fourth *Bullard* prong and convinced the court the “expert testimony in this case established the reliability of the DNA profiling process”¹⁷¹

The issue of the reliability of expert opinion presented itself again in *State v. Goode*.¹⁷² In determining whether to admit evidence from the State’s blood spatter expert that the absence of blood on the defendant’s clothes did not exculpate him from participation in the stabbing murder of the victim, the court cited the United States Supreme Court’s decision in *Daubert* and quoted Rule 702, but applied the *Bullard-Pennington* analysis.¹⁷³ Noting the blood spatter expert testified that bloodstain pattern interpretation is a “specialized crime scene technique” and trained bloodstain pattern interpreters not only study the characteristics of blood spatters but also recreate situations to determine how certain categories of stains are produced, the court found bloodstain pattern interpretation an appropriate area for expert testimony.¹⁷⁴ Additionally, the court noted other jurisdictions had reached the same conclusion.¹⁷⁵

Having found bloodstain pattern interpretation a reliable and appropriate area for expert opinion based on the testimony of a qualified expert and the judicial recognition by other jurisdictions, the court then addressed whether the absence of bloodstains on the defen-

167. *Id.* at 853-54.

168. *Id.* at 854.

169. *Id.*

170. *Id.* (quoting *State v. Bullard*, 322 S.E.2d 370, 382 (N.C. 1984)).

171. *Id.*

172. 461 S.E.2d 631 (N.C. 1995).

173. *Id.* at 639-40.

174. *Id.* at 641.

175. *Id.* at 641-42.

dant's clothes did not exculpate him from participation.¹⁷⁶ The court reviewed the testimony of the expert and concluded:

Thus, due to Agent Deaver's study of autopsy photographs in this case as well as in other cases, examination of the clothing of the victims and co-defendants in this case as well as in other cases, and participation in the examination of crime scenes where bloodstains did occur and other cases where bloodstains did not occur, we conclude his testimony was properly admitted to aid the jury in making its determination.¹⁷⁷

The court's failure to specifically set out how the *Bullard* factors applied to the facts of this case is unfortunate. Upon close examination, however, we can identify at least three of the *Bullard* factors that influenced the court's conclusion. First, the court was impressed with the training, experience, and qualifications of Agent Deaver as a bloodstain pattern interpretation expert.¹⁷⁸ *Bullard* recognizes the expert's experience as a significant factor in determining reliability.¹⁷⁹ Second, the court's reference to Agent Deaver's involvement in crime scenes and bloodstain patterns in other cases resembles *Bullard's* emphasis on the expert's research and work in cases other than the one at bar.¹⁸⁰ Finally, the *Bullard* court considered whether the expert used established techniques in reaching his opinion.¹⁸¹ The techniques Agent Deaver applied to form his opinion in *Goode* were the same techniques the court found sufficient to accept bloodstain pattern interpretation as a legitimate and reliable area of technical knowledge.¹⁸²

There is no discussion in *Goode* of whether the data upon which the opinion was based was verifiable through the use of visual aids or whether the expert had published any papers on the subject, two factors considered significant in *Bullard*. Arguably, whether the expert has published any papers on the subject is part of the expert's professional background and experience, a factor already considered.¹⁸³ Similarly, not all expert opinion testimony will lend itself to visual presentation like the footprint comparisons in *Bullard*.¹⁸⁴ That is

176. *Id.* at 642-43.

177. *Id.* at 643-44.

178. *Id.* at 642.

179. *State v. Bullard*, 322 S.E.2d 370, 382 (N.C. 1984).

180. *Goode*, 461 S.E.2d at 642.

181. *Bullard*, 322 S.E.2d at 379.

182. *Goode*, 461 S.E.2d at 641.

183. *See State v. Pennington*, 393 S.E.2d 847, 853 (N.C. 1990).

184. Presumably, the autopsy photographs relied upon by Agent Deaver were admitted and shown to the jury and served, to some extent, as visual aids that could have helped explain his opinion. The court, however, does not mention that. As a

especially true here, where the essence of the expert's opinion concerns the *absence* of blood spatter. In any case, the *Goode* court thought the reliability determination was a flexible inquiry and found the testimony admissible.

Three years after *Goode*, the North Carolina Supreme Court addressed the reliability of expert testimony again in *State v. Helms*.¹⁸⁵ In a prosecution for driving while impaired, the trial court admitted testimony from a state trooper who conducted a horizontal gaze nystagmus (HGN) test that, in the opinion of the trooper, indicated the defendant was intoxicated.¹⁸⁶ Citing *Daubert*, as well as *Bullard*, *Pennington*, and *Goode*, the North Carolina Court of Appeals held the trial judge erred in admitting the results of the HGN test without first determining its scientific reliability, but found the error harmless and affirmed the conviction.¹⁸⁷

The North Carolina Supreme Court reversed the court of appeals' holding that admission of the HGN test results was harmless and remanded the case for a new trial.¹⁸⁸ Interestingly, the court did not leave the court of appeals' admissibility standard for expert testimony unaddressed.¹⁸⁹ While agreeing that admitting the HGN test results without a showing of reliability was error, the supreme court based its analysis solely on *Bullard*, *Pennington*, and *Goode*.¹⁹⁰ The court did not refer to *Daubert*.¹⁹¹

matter of good trial practice lawyers should look for ways to engage all of the jurors' senses, not just their sense of hearing. While some testimony may not lend itself to illustrative or visual presentations, most will, and lawyers should take maximum advantage of visual exhibits to enhance the persuasive power of their case. See L. TIMOTHY PERRIN, H. MITCHELL CALDWELL & CAROL A. CHASE, *THE ART & SCIENCE OF TRIAL ADVOCACY* 247 (2003) ("Exhibits bring an extra dimension to all parts of trial. They are tangible; they can be seen, touched, smelled. And, of course, that which can be seen or even felt resonates more powerfully and more memorably than that which can only be heard.").

185. 504 S.E.2d 293 (N.C. 1998).

186. *Id.* at 293-94 ("In administering the HGN test, the subject is asked to cover one eye and then use the remaining eye to track the lateral progress of an object (usually a pen) as the officer moves the object at eye-level across the subject's field of vision. As the moving object travels toward the outside of the subject's vision, the officer watches the subject's eye for "nystagmus" – an involuntary jerking movement of the eyeball. If the person's eyeball exhibits nystagmus, and especially if the nystagmus occurs before the moving object has traveled forty-five degrees from the center of the person's vision, this is taken as an indication that the person is intoxicated.").

187. *State v. Helms*, 490 S.E.2d 565, 569 (N.C. Ct. App. 1997).

188. *Helms*, 504 S.E.2d at 296.

189. *Id.* at 295.

190. *Id.*

191. *Id.*

F. *The Reliability Standard Reaffirmed*

The *Bullard*, *Pennington*, *Goode*, and *Helms* line of cases, like *Daubert* and its progeny, impose gatekeeping responsibilities on the trial judge, vest wide discretion in the trial judge to determine admissibility of expert testimony, and condition admissibility upon a finding of reliability and relevance. But the North Carolina Supreme Court has applied its *Bullard* factors to determine reliability rather than adopting the *Daubert* factors. While the North Carolina Supreme Court's jurisprudence is consistent with *Daubert* in rejecting *Frye* and focusing on reliability, the reliability inquiry applied by the North Carolina Supreme Court is different, and less stringent, than the *Daubert* standard. The North Carolina Court of Appeals, however, failed to appreciate the difference and cited *Goode* for the proposition that *Daubert* governed the admissibility of expert testimony in state court.¹⁹²

The case of *Howerton v. Arai Helmet, Ltd.* provided the opportunity for the supreme court to set the record straight.¹⁹³ Dr. Howerton, a dentist and off-road motorcycle enthusiast, was riding his motorcycle at a motocross practice track when he collided with another cyclist.¹⁹⁴ Dr. Howerton was thrown over the handlebars of his bike and landed upside down on the back of his head.¹⁹⁵ He was wearing a motorcycle helmet with a flexible, removable guard across the chin and mouth that was secured on each side of the helmet by nylon screws.¹⁹⁶ The impact with the ground forced Dr. Howerton's head down, broke the chin guard off the helmet, and drove his chin into his chest.¹⁹⁷ The extreme forward rotation of Dr. Howerton's head and neck broke vertebrae in his neck and left him permanently paralyzed from the neck down.¹⁹⁸

Dr. Howerton sued the helmet manufacturer alleging the helmet was negligently designed and manufactured and was unreasonably dangerous under ordinary usage because the chin guard broke off at impact allowing the wearer's head to rotate too far forward.¹⁹⁹ Dr.

192. *State v. Bates*, 538 S.E.2d 597, 600 (N.C. Ct. App. 2000) ("An expert may testify about her opinion so long as her opinion is relevant, helpful to the jury, and based on an adequate scientific foundation." (citing N.C. R. Evid. 702, 705; *State v. Goode*, 461 S.E.2d 631 (N.C. 1995) (adopting *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579 (1993)))).

193. 597 S.E.2d 674 (N.C. 2004).

194. *Id.* at 677.

195. *Id.*

196. *Id.* at 677-78.

197. *Id.*

198. *Id.* at 677.

199. *Id.* at 678.

Howerton claimed the chin guard should limit the forward rotation of the head and neck by stopping against the wearer's chest, thus protecting the head and neck from over rotation.²⁰⁰ To support his claim that the defendant's helmet was defective and the defect caused his injury, Dr. Howerton produced four expert witnesses.²⁰¹

Professor Hugh Hurt, the president of the Head Protection Research Laboratory of Southern California at the University of California, was of the opinion the flexible chin guard on the helmet was defectively designed and manufactured so that it broke on impact and did not arrest the forward movement of Howerton's head and neck.²⁰² William C. Hutton, professor and director of orthopedic research at Emory University School of Medicine, believed the breaking of the flexible chin guard allowed Howerton's head and neck to travel beyond their normal range of motion, resulting in a hyperflexion and compression injury that produced the paralysis.²⁰³ The third expert, James Hooper, a design engineer of motorcycle helmets, was of the view that the design of Howerton's helmet offered no protection on impact and actually created a hazard of injury due to the flexible nature of the chin guard.²⁰⁴ The final expert, Dr. Charles Rawlings, a board-certified neurosurgeon, reviewed Howerton's medical records and was prepared to testify that Howerton's paralysis was caused by a flexion-compression injury to the cervical spine.²⁰⁵ Arai Helmet moved to exclude all of Howerton's experts because:

None of these experts have performed testing relevant to the causation issues in this case. None have undertaken independent research to support their hypotheses or subjected their hypotheses to peer-review via publication. Each has relied upon inadequate or non-existent data that renders their opinions subject to an unreasonably high rate of error. Finally, none of these experts have been able to demonstrate that their opinions are generally accepted within their own fields.²⁰⁶

The trial court conducted a brief hearing on defendant's motion and considered the argument of counsel, discovery materials, and pleadings.²⁰⁷ The court did not, however, take live testimony from the

200. *Id.*

201. *Id.* at 678-79.

202. *Id.*

203. *Id.* at 679.

204. *Id.*

205. *Id.*

206. *Id.*

207. *Id.*

experts.²⁰⁸ The court then excluded all four of the plaintiff's experts, holding, among other things:

Professor Hurt's opinion that a full-faced helmet would have prevented plaintiff's injury is not reliable. Professor Hurt's opinion was not developed through sound scientific or engineering methods. Professor Hurt has not performed relevant testing or independent research and has not subjected his hypothesis that full face helmets prevent neck injuries to peer-review by publishing that claim. Further, he was unable to demonstrate that his hypothesis is generally accepted in his field by pointing to any published support for his claim. Finally, to the extent that his methods represent a technique, it is clear that this technique is subject to an unacceptably high risk of error.

....

Mr. Hooper is not a medical doctor, an accident reconstructionist, an expert in biomechanics, or an engineer. He does not have a college degree. . . . Mr. Hooper was willing to testify about his own history of motorcycle accidents involving full-face helmets for the purpose of supporting the inference that a full-face helmet would have prevented plaintiff's injury. . . . However, [he was] . . . unaware of the salient details of plaintiff's accident . . . [and] was unable to relate the specific details of his own accidents. . . . His opinion that a full-faced helmet would have prevented plaintiff's injury was speculative and based on inadequate data. Further, Mr. Hooper did not have a reliable basis to offer any meaningful comparison between his own history of accidents and plaintiff's accident.

....

Dr. Charles Rawlings . . . never performed independent research or testing on the mechanisms of cervical fractures . . . has never published any medical article on the mechanisms of cervical fracture . . . [and] never published on hyperflexion neck injuries. . . . Dr. Rawlings never examined plaintiff and only reviewed a selected portion of his medical records . . . and he did not have adequate data to . . . [compare plaintiff's injuries to injuries he has treated in his medical practice]. . . . He could not point to any tests, measurements or literature supporting his opinion [that plaintiff's head rotated ten to twenty degrees beyond his normal anatomical range]. Dr. Rawlings's opinion that plaintiff's injury was caused by hyperflexion is speculative and based on inadequate data . . . [and] was not based on sound scientific or medical methods. He has not performed independent research or testing on cervical injury mechanisms or on hyperflexion. He has never subjected his related hypotheses to peer-review by publication. Moreover, the hypotheses underlying Dr. Rawlings's opinion are not generally

208. *Id.*

accepted. Finally, to the extent that his methods represent a technique, it is clear that his potential for error is inappropriately high.

. . . .

Dr. Hutton's opinion that plaintiff's injuries were caused by hyperflexion is not reliable. Dr. Hutton has not researched or tested the hypotheses that he relies on in support of his opinion. He has not subjected these hypotheses to peer-review by publication. Nor has he shown that these hypotheses are generally accepted in the field. To the extent that his methods represent a technique, it is clear that they incorporate an unacceptably high error rate.²⁰⁹

Finding the expert causation testimony "unreliable under the standard set out in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, and/or *State v. Pennington*," the trial court excluded all of plaintiff's experts and granted defendant's motion for summary judgment.²¹⁰

The North Carolina Court of Appeals affirmed, and claimed, "a thorough review of our case law . . . [made it] eminently clear that North Carolina has adopted the *Daubert* analysis."²¹¹ Accordingly, the court of appeals, applying the abuse of discretion standard of review, evaluated the plaintiff's proffer of expert testimony under the well recognized *Daubert* criteria and held the trial court's exclusion of all four experts was neither arbitrary nor an abuse of discretion.²¹² Despite the unanimous decision of the court of appeals, the North Carolina Supreme Court granted discretionary review to consider, among other issues, "whether this Court has adopted the *Daubert* standard for determining the admissibility of expert testimony."²¹³

After setting out the salient facts and quoting extensively from the trial judge's order excluding Howerton's four experts, the court surveyed the federal standard regarding admissibility of expert testimony.²¹⁴ Writing for the majority, Justice Wainwright summarized the United States Supreme Court's expert testimony decisions in *Daubert*,²¹⁵ *Joiner*,²¹⁶ and *Khumo Tire*.²¹⁷ Justice Wainwright also pointed out the significance of the holding in *Weisgram v. Marley Co.*,²¹⁸ that permits an appellate court to enter judgment against the

209. *Id.* at 679-82.

210. *Id.* at 683-84 (citations omitted).

211. *Howerton v. Arai Helmet, Ltd.*, 581 S.E.2d 816, 826 (N.C. Ct. App. 2003).

212. *Id.* at 827-30.

213. *Howerton*, 597 S.E.2d at 684.

214. *Id.* at 684-85.

215. 509 U.S. 579 (1993).

216. 522 U.S. 136 (1997).

217. 526 U.S. 137 (1999).

218. 528 U.S. 440 (2000).

verdict-winner when the appeals court finds expert testimony was erroneously admitted and without that testimony the verdict-winner is unable to support a prima facie case.²¹⁹ He noted the “mechanistic and rigorous” standards imposed by *Daubert*, the burden imposed on trial judges exercising their “gatekeeping” function, and the criticism of *Daubert* from both courts and commentators.²²⁰ He concluded the federal standard did not offer “the most workable solution to the intractable challenge of separating reliable expert opinions from their unreliable counterparts [or] of distinguishing science from pseudoscience.”²²¹

Justice Wainwright’s review of the federal standard set the stage for his explication of the North Carolina rule and his comparison of the two standards. He noted that the federal and state standards both admit evidence only if it is relevant and reliable, and under both the federal rule and state practice the trial judge has discretion to determine the reliability and relevance of the proffered testimony.²²² Under both systems, abuse of discretion is the standard of appellate review.²²³ While North Carolina and the federal standard use similar language to frame the admissibility test, the underlying meanings of the terms are, however, considerably different.

The court set out and explained the three principles that determine admissibility under North Carolina law: (1) the methods relied upon by the expert must be reliable; (2) the opinion testimony must come from a qualified professional; and (3) the testimony must be relevant.²²⁴ The second and third principles are rather straightforward. A “qualified” expert is one who “because of his expertise is in a better position to have an opinion on the subject than is the trier of fact.”²²⁵ “Relevance” of expert testimony is governed by the same provision as all other evidence: North Carolina Rule of Evidence 401.²²⁶ The relevancy requirement is met if the testimony has “any tendency to make the existence of any fact of consequence to the determination of the action more or less probable” and the witness “can assist the jury to

219. *Howerton*, 597 S.E.2d at 686.

220. *Id.* at 690.

221. *Id.*

222. *Id.* at 688.

223. *Id.* at 689.

224. *Id.* at 686 (quoting *State v. Goode*, 461 S.E.2d 631, 639-41 (N.C. 1995)).

225. *Id.* at 688 (quoting *State v. Goode*, 461 S.E.2d 631, 640 (N.C. 1995)).

226. *Id.* at 688 (quoting N.C. GEN. STAT. § 8C-1, Rule 401 (2003) “‘Relevant evidence’ means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.”).

draw certain inferences from facts because the expert is better qualified than the jury to draw such inferences.”²²⁷ Evidence is subject to exclusion if the probative value of the testimony is substantially outweighed by the risk of unfair prejudice.²²⁸ The North Carolina Supreme Court did not, however, impose a heightened relevancy or “fit” requirement, like the one found in the federal standard.²²⁹

Like the federal practice, the North Carolina rule limits expert testimony to only those opinions based on reliable methodology.²³⁰ In North Carolina, reliability must be established by the testimony of a qualified expert, by judicial notice, or a combination of the two.²³¹ Judicial notice is the most straightforward. If the courts of the state have already accepted the methodology, then there is no need to revisit that determination each time an opinion based on that methodology is offered.²³² The converse is also true. If the North Carolina Supreme Court has rejected a methodology as unreliable, the opinion based on that methodology is presumptively inadmissible absent some new and substantial improvements in the technique.²³³

When judicial notice is not available and precedent does not exist to support the reliability of the methodology at issue, the trial judge must look to the testimony of qualified experts in the field.²³⁴ In determining reliability, the *Howerton* court instructed the lower courts to:

[F]ocus on the following nonexclusive “indices of reliability” . . . the expert’s use of established techniques, the expert’s professional background in the field, the use of visual aids before the jury so that the jury is not asked “to sacrifice its independence by accepting [the] scientific hypothesis on faith,” and independent research conducted by the expert.²³⁵

The court was careful, however, to emphasize that the “foundational inquiry into basic methodological adequacy” does not require the proffered testimony “to be proven conclusively reliable or indisputably valid” before allowing the jury to hear and consider it.²³⁶ Noting that the “application of the ‘flexible’ *Daubert* standard has been any-

227. *Id.*

228. *Id.* at 688-89.

229. *Id.* See *supra* notes 35-40 and accompanying text.

230. *Howerton*, 597 S.E.2d at 686.

231. *Id.* at 687 (quoting *State v. Goode*, 461 S.E.2d 631, 641 (N.C. 1995)).

232. *Id.* at 687.

233. *Id.*

234. *Id.*

235. *Id.* (quoting *State v. Pennington*, 393 S.E.2d 847, 852-53 (N.C. 1990)).

236. *Id.*

thing but liberal or relaxed and that trial courts . . . have often been reluctant to stray from the original *Daubert* factors in their analysis of the reliability of expert testimony,”²³⁷ the court rejected the “‘exacting standards of reliability’ demanded by the federal approach”²³⁸ and reaffirmed North Carolina’s “decidedly less mechanistic and rigorous” test.²³⁹

Two overarching policy concerns drove the court’s consideration. First, the court was not convinced that imposing on trial judges the “onerous and impractical position of passing judgment on the substantive merits of the scientific or technical theories undergirding an expert’s opinion” was practical, desirable, or workable.²⁴⁰ Resolving complex, difficult, and technical issues at the cutting edge of science and technology is not an easy task for professionals trained in the various scientific or technical fields, much less for judges who have no special scientific or technical expertise.²⁴¹ As a result, trial judges have mechanically applied the *Daubert* factors and turned a decision intended to liberalize the admission of expert testimony²⁴² into a standard that “actually created a more stringent test for expert evidence admissibility”²⁴³

Second, the court was concerned with the “case-dispositive nature of *Daubert* proceedings, whereby parties in civil actions may use pre-trial motions to exclude expert testimony under *Daubert* to bootstrap motions for summary judgment that otherwise would not likely succeed.”²⁴⁴ Preliminary motions to exclude experts’ opinions are decided under North Carolina Rule of Evidence 104(a), where courts are not bound by the rules of evidence and are not required to view the evidence in the light most favorable to the non-moving party as required under North Carolina Rule of Civil Procedure 56.²⁴⁵ Accordingly, a court may resolve conflicting issues of material fact relative to the reliability of the proffered expert opinion adverse to the non-moving party in the *Daubert* hearing, exclude the testimony, and make it impossible for the party to survive the ensuing motion for summary

237. *Id.* at 691.

238. *Id.* at 690 (citing *Weisgram v. Marley Co.*, 528 U.S. 440, 455 (2000)).

239. *Id.*

240. *Id.*

241. *Id.* at 690-91.

242. *Id.* at 691 (quoting *Daubert v. Merrill Dow Pharm., Inc.*, 509 U.S. 579, 588 (1993)).

243. *Id.* (quoting 2 MICHAEL H. GRAHAM, *HANDBOOK OF FEDERAL EVIDENCE*, § 702.5 at 461-62 (5th ed. 2001)).

244. *Id.*

245. *Id.* at 692.

judgment.²⁴⁶ The court was concerned that this end run around the procedural requirements for summary judgment could “unnecessarily encroach upon the constitutionally-mandated function of the jury to decide issues of fact and assess the weight of the evidence.”²⁴⁷ What the *Howerton* court failed to appreciate, however, is the procedure used to determine the reliability of expert testimony contributes as much, or more, to the encroachment upon the function of the jury as does the substantive standard. Changing the substantive standard without changing the procedure does not completely solve the problems that concerned the court in the first instance.²⁴⁸

IV. DETERMINING RELIABILITY OF EXPERT OPINION AFTER *HOWERTON*
SHOULD BE A QUESTION OF CONDITIONAL RELEVANCE
UNDER RULE 104(B)

The holding of *Howerton* repudiating *Daubert* and affirming the *Bullard-Pennington-Goode* standard of admissibility of expert testimony is clear. The North Carolina standard for assessing the reliability of scientific or technical methodology is not as rigorous as the standard applied in federal courts. The *Howerton* decision left no question on that point. While telling us what the North Carolina standard was not,

246. *Id.*

247. *Id.*

248. Justice Parker concurred in the court’s holding that *Daubert* was not the standard in North Carolina. Because “none of plaintiff’s expert witnesses had done independent research or used established techniques to substantiate their respective . . . [opinions],” Justice Parker reasoned the evidence failed the *Bullard-Pennington-Goode* standard as well. *Howerton*, 597 S.E. 2d at 695 (Parker, J., dissenting). Justice Parker overlooked the fact that reliability under *Bullard-Pennington-Goode* is based on “testimony by an expert specifically relating to reliability, . . . judicial notice, or . . . a combination of the two.” *Id.* at 687. The *Howerton* trial judge determined reliability based on “arguments from counsel, discovery materials, and pleadings.” *Id.* at 679. In concluding the plaintiff’s experts were unreliable, the *Howerton* trial judge did not claim to take judicial notice and did not take testimony from any expert. *Id.* at 679-85. Expert depositions or reports were included in the discovery materials, but it is difficult, though perhaps not impossible, to assess credibility without seeing the witness testify. Furthermore, the “test enunciated in our prior case law” that Justice Parker purported to apply, is very deferential to the sworn testimony of the experts themselves. *Id.* at 694 (Parker, J., dissenting). *Bullard, Pennington, and Goode*, not to mention the early common law cases, all relied heavily on the in-court testimony of the challenged experts to establish reliability when judicial notice was not appropriate. *See supra* notes 98-191 and accompanying text. Thus, if reliability cannot be determined by judicial notice, the court may be obligated to take live testimony in order to properly apply the *Bullard-Pennington-Goode-Howerton* standard. *See, e.g., State v. McVay*, 606 S.E.2d 145 (N.C. Ct. App. 2004) (extensive voir dire of expert conducted to determine reliability of opinion).

the court failed to explain how its standard of admissibility fit within the larger structure of the rules of evidence and why it rejected the *Daubert* substantive test but retained the *Daubert* procedure. One commentator has suggested the *Howerton* court established a “presumption in favor of . . . admissibility” and placed the burden of establishing unreliability of expert opinion evidence on the opponent.²⁴⁹ Another post-*Howerton* analysis concluded that “*Howerton* will be read as a mandate to admit almost anything, in both civil and criminal cases.”²⁵⁰

In addition to the substantive standard under *Howerton*, the rules of evidence provide a procedural process to address the court’s concern that the *Daubert* standard placed too great a burden on trial judges and “unnecessarily encroach[ed] upon the constitutionally-mandated function of the jury to decide issues of fact and to assess the weight of the evidence.”²⁵¹ Applying the doctrine of conditional relevancy to the *Howerton* substantive test for admissibility will better achieve the court’s goals of reducing the burden on trial judges and protecting litigants’ rights to a jury trial. It will also establish a clear procedural process to guide judges and lawyers facing the myriad expert testimony issues the future will bring.²⁵²

A. *Determining Reliability Under Rule 104(b) is Consistent With the Rules of Evidence*

Daubert placed the responsibility for admitting reliable expert testimony squarely on the trial judge under Rule 104(a).²⁵³ The question of reliability, under *Daubert*, is a preliminary matter for the trial judge

249. Kenneth S. Broun, *Scientific Evidence in North Carolina After Howerton-A Presumption of Admissibility?* N.C. STATE B. J., Spring 2005, at 8, 11.

250. John M. Conley & Scott W. Gaylord, *We Are Not a Daubert State - But What Are We?* *Scientific Evidence in North Carolina after Howerton*, 6 N.C. J. L. & TECH. 289, 304 (2005).

251. *Howerton*, 597 S.E.2d at 692.

252. Judicial notice may be used to establish the reliability of a particular method or process. *Howerton*, 597 S.E.2d at 687. Whether established by judicial notice or the testimony of an expert, the reliable application of an otherwise reliable methodology is always *sui generis*. Ultimately, it is the reliability of the expert *testimony* that is important, not just the methodology. The procedural paradigm suggested here allows for consideration of both the methodology and its application in a given case. Should precedent or judicial notice establish a given methodology as reliable as a matter of law, the only reliability question for the jury under Rule 104(b) would be the reliability of the expert’s application of the methodology and the court should so instruct the jury. See *infra* note 348 for a suggested jury instruction.

253. *Daubert v. Merrel Dow Pharm.*, 509 U.S. 579, 592 (1993).

and in deciding reliability the judge is not bound by the rules of evidence.²⁵⁴

The court in *Howerton* was particularly concerned with the procedural advantage awarded to the opponent of expert testimony when scientific validity was determined by the trial judge under Rule 104(a).²⁵⁵ The “sweeping pre-trial ‘gatekeeping’ authority under *Daubert*,” the court said, “may unnecessarily encroach upon the constitutionally-mandated function of the jury to decide issues of fact and assess the weight of the evidence.”²⁵⁶ Avoiding this concern, in large measure, drove the court to reject *Daubert* and reaffirm the *Bullard-Pennington-Goode* standard. The court acknowledged at the outset of the *Howerton* opinion that “it is well-established that the trial court must decide preliminary questions concerning the qualifications of experts to testify or the admissibility of expert testimony,” but it did not specifically address the last clause of the first sentence of Rule 104(a) which subjects the judge’s function under Rule 104(a) to the conditional relevancy standard of Rule 104(b).²⁵⁷ When the relevancy of an item of evidence depends upon the fulfillment of a condition of fact, the trial judge merely screens the evidence offered to support the existence of the condition of fact; the jury ultimately decides whether the condition exists.²⁵⁸

The most common examples of conditional relevancy in operation are found in the requirement for authentication. Rule 901(a) of both the Federal Rules of Evidence and the North Carolina Rules of Evidence requires the proponent to produce “evidence sufficient to support a finding that the matter in question is what its proponent claims.”²⁵⁹ The judge does not decide if the article is really what the proponent claims. Rather, the judge screens the foundation evidence to determine whether it is sufficient to support a finding by the jury

254. FED. R. EVID. 104(a) (“Preliminary questions concerning the qualifications of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court, subject to the provisions of subdivision (b). In making its determination it is not bound by the rules of evidence except those with respect to privileges.”); see also N.C. GEN. STAT. § 8C-1, Rule 104(a) (2003).

255. *Howerton*, 597 S.E.2d at 692.

256. *Id.*

257. *Id.* at 686. See FED. R. EVID. 104(b) (“When the relevancy of evidence depends upon the fulfillment of a condition of fact, the court shall admit it upon or subject to, the introduction of evidence sufficient to support a finding of the fulfillment of the condition.”); see also N.C. GEN. STAT. § 8C-1, Rule 104(b) (2003) (same language as the federal rule).

258. N.C. GEN. STAT. § 8C-1, Rule 104(b) (2003).

259. FED. R. EVID. 901(a); N.C. GEN. STAT. § 8C-1, Rule 901(a) (2003).

that the article is what the proponent claims. If the foundation evidence is sufficient to support a jury finding that the article is authentic, the standard is met and the ultimate decision as to the authenticity of the item is for the jury.²⁶⁰

Importantly, in screening the foundation evidence for sufficiency, the judge does not have to resolve credibility battles between witnesses offering conflicting testimony on the authenticity issue. He does not have to make findings of fact nor decide the authenticity issue himself. The judge merely decides whether the proponent's evidence in support of the authenticity requirement is believable enough for a jury to find the article genuine. This critical distinction between the role of the judge and jury when conditional relevancy arises gives procedural structure to the *Howerton* standard. The distinction also explains how the North Carolina Supreme Court can use the same words—relevance and reliability—to describe the admissibility standards for expert testimony in state court as the United States Supreme Court used in *Daubert*, but apply a much less mechanistic and rigorous test.

There is no question the court in *Daubert* decided the reliability issue was assigned to the trial judge under Rule 104(a) and not a matter of conditional relevancy under 104(b). But this assignment of “gatekeeping” responsibility to the trial judge under Rule 104(a) is not demanded by the text of the rules of evidence. In fact, not long after enactment of Rule 702,²⁶¹ Professor Edward J. Imwinkelried, a recognized authority on evidence law, addressed the issue:

260. See KENNETH S. BROUN, BRANDIS & BROUN ON NORTH CAROLINA EVIDENCE, § 10 at 30 (“Although the rule as to the function of the judge is frequently stated in broad terms, it is inapplicable when the *relevancy* of the proffered evidence depends upon the existence of some other fact which also requires proof (a situation often labeled ‘conditional relevancy’). The determination of the preliminary fact question is then for the jury.”); see also ROBERT P. MOSTELLER, DONALD H. BESKIND, THOMAS W. ROSS & EDWARD J. IMWINKELRIED, NORTH CAROLINA EVIDENTIARY FOUNDATIONS 9 (“[W]here the admissibility of the evidence depends on showing preliminary facts, as noted in North Carolina Rule 104(b), the judge decides whether the proponent has provided enough evidence - viewed most favorably to the proponent - to permit the jury to decide that it is more probably true than not that the offered exhibit is authentic, or that the lay witness has firsthand knowledge.”).

261. Federal Rule of Evidence 702 provided: “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” FED. R. EVID. 702 (1975) (amended 2000). North Carolina adopted the same language in all material respects in 1981. N.C. GEN. STAT. § 8-58.13 (1981) (repealed 1984). The statutory provision was repealed in 1984 when the North

If the *Frye* rule is no longer valid, a showing of general acceptance is no longer necessary; the proponent of the evidence must show only the preliminary fact of the validity of the underlying scientific theory. In the parlance of preliminary fact finding, the issue of a theory's validity is a question of conditional relevance, in which the judge's limited role is to determine whether, as a matter of law, the proponent has presented evidence with sufficient probative value to support a rational jury finding that the fact exists. The jury then determines whether the fact does exist. Some courts and distinguished commentators agree that the validity of a scientific principle is a question of conditional relevance entrusted to the jury's final decision. Even more significantly, the Federal Rules of Evidence—rules that have been adopted in twenty-four states arguably allocate the question to the jury's final determination.²⁶²

Prof. Imwinkelried saw the requirement for reliability as an authentication issue:

The [scientific] principle's validity is as essential to the probative value of scientific evidence as the authenticity of a document is to the document's probative worth. The logical relevance doctrine requires validation of the underlying scientific principle just as it mandates authentication of a proffered document. The validity of the underlying principle, therefore, is a preliminary fact that conditions the admissibility of the scientific evidence.²⁶³

Rule 901(a), the rule governing authentication, provides: "The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims."²⁶⁴ The illustrations in Rule 901(b) include "[e]vidence describing a process or system used to produce a result and showing that the process or system produces an accurate result."²⁶⁵ Imwinkelried argued that expert opinion testimony is admissible under the federal rules only if the proponent can produce evidence sufficient to support the jury finding that the opinion is grounded in a process (principles or tech-

Carolina Rules of Evidence were adopted but the identical language was carried over to N.C. R. EVID. 702. N.C. GEN. STAT. § 8C-1, Rule 702 (2003).

262. Edward J. Imwinkelried, *Judge Versus Jury: Who Should Decide Questions of Preliminary Facts Conditioning the Admissibility of Scientific Evidence?* 25 WM. AND MARY L. REV. 577, 579 (1984) (citations omitted).

263. *Id.* at 598.

264. FED. R. EVID. 901(a); *see also* N.C. GEN. STAT. § 8C-1, Rule 901(a) (2003). The North Carolina rule is identical to the federal.

265. FED. R. EVID. 901(b)(9); *see also* N.C. GEN. STAT. § 8C-1, Rule 901(b)(9) (2003). The North Carolina rule is identical to the federal.

niques) or system (methodology) that produces an accurate result.²⁶⁶ Like the genuineness of a document, this is a matter of conditional relevancy under Rule 104(b) where the trial judge determines from the proponent's foundation evidence whether a reasonable jury could find the existence of the condition precedent.²⁶⁷ Like a document that is not relevant if not genuine, expert testimony is not relevant if not reliable. Reliability, therefore, is the factual predicate upon which the relevancy of the expert's opinion depends.

Professor Imwinkelried ultimately took the position that entrusting the scientific validity or reliability decision to the jury as a matter of conditional relevancy was not a desirable procedure and recommended amending the Federal Rules of Evidence to assign that task exclusively to the trial judge.²⁶⁸ But he reached that conclusion only after setting out a detailed and persuasive argument that the structure of the Federal Rules of Evidence treated reliability of expert opinion as a matter of conditional relevance.

The language of the rules that compelled Professor Imwinkelried to conclude scientific validity was a matter of conditional relevancy is the same language currently in effect in North Carolina. To be clear, *Daubert* assigned the reliability determination to the trial judge under Rule 104(a) and mooted Professor Imwinkelried's argument to amend the federal rules. But in assigning the trial judge the "gatekeeping" function under Rule 104(a), the court in *Daubert* did not address or analyze the alternative procedural option of treating reliability as an issue of conditional relevancy. The Supreme Court simply made a policy choice; a choice it claimed was grounded in the text of the Federal Rules of Evidence. The *Daubert* Court found the reliability and relevancy requirements located in Rule 702. "Scientific . . . knowledge," as that term is used in Rule 702, the Court said, implies a "grounding in the methods and procedures of science."²⁶⁹ Accordingly, the judge must scrutinize the proffered testimony to determine whether it is sufficiently reliable to meet the "scientific knowledge" requirement of Rule 702. The relevancy requirement of *Daubert* comes not from the general standard of logical relevancy in Rule 401, but from Rule 702's

266. Imwinkelried, *supra* note 262, at 607-12.

267. See, e.g., *State v. Wiggins*, 431 S.E.2d 755, 764 (N.C. 1993) ("It was not error for the trial court to admit the letter if it could reasonably determine that there was sufficient evidence to support a finding that 'the matter in question is what its proponent claims.' Defendant then, of course, would have been free to introduce any competent evidence relevant to the weight or credibility of Moore's testimony.") (citations omitted).

268. Imwinkelried, *supra* note 262, at 616.

269. *Daubert v. Merrel Dow Pharm.*, 509 U.S. 579, 590 (1993).

requirement that the opinion testimony “assist the trier of fact to understand the evidence or to determine a fact in issue.”²⁷⁰ This combination of substantive requirements imposed on expert opinion testimony by the language of Rule 702 is what necessitated the “gatekeeping” paradigm imposed in *Daubert*.

The *Howerton* court reached its “reliable and relevant” criteria in a significantly different way. First, relevancy under *Howerton* comes from Rule 401’s basic relevancy requirement that applies to all evidence.²⁷¹ The North Carolina Supreme Court did not say that North Carolina’s Rule 702 required a “fit” between the scientific validity of the opinion and the facts of the case that would require heightened relevancy analysis like *Daubert* imposed. Rather, the North Carolina reliability requirement came from pre-rule case law, minimal as it was, not the language of Rule 702.²⁷² As noted earlier, that pre-rule case law was deferential to the testifying expert and, essentially, conditioned admissibility on whether the expert knew more about the subject matter than the jury.²⁷³ Furthermore, the language of Rule 901(b)(9) lends textual support to the proposition that opinion testimony derived from some scientific or technical process or system only requires the proponent to produce evidence sufficient to support a finding by the jury that the process or system “produces an accurate result.”²⁷⁴

Daubert did not address the applicability of Rule 901(b)(9) to expert testimony because the Court found the relevance and reliability requirements in the language of Rule 702. It then implemented those requirements through the procedural matrix of Rule 104(a). The court in *Howerton*, on the other hand, held the relevance of expert testimony was no different than the relevance requirement imposed on all other evidence. The relatively low threshold of having “any tendency” to make the existence of a fact of consequence to the outcome of the case more or less likely is the same standard applied to all evidence.²⁷⁵ The straightforward language of Rule 401 cannot carry the burden of imposing a special “fit” on expert testimony without imposing it on all other evidence. While one could argue that North Carolina’s Rule 702 incorporated the reliability requirement in the rule’s “scientific . . .

270. *Id.* at 591 (quoting FED. R. EVID. 702). See *supra* notes 35-40 and accompanying text. R

271. *Howerton v. Arai Helmet, Ltd.*, 597 S.E.2d 674, 688 (N.C. 2004).

272. *Id.* at 686-89.

273. See *supra* notes 44-190 and accompanying text. R

274. N.C. GEN. STAT. § 8C-1, Rule 901(b)(9) (2003).

275. N.C. GEN. STAT. § 8C-1, Rule 401 (2003).

knowledge” language like its federal counterpart, it is equally plausible that the North Carolina pre-rule reliability requirement was incorporated into the Rule 901 requirement for authenticity. The fact remains that the court in *Howerton* did not specifically identify the locus of the reliability requirement in the rules but applied criteria that fits nicely into the authenticity model.²⁷⁶

The arguably different source of the relevant and reliable requirements in the North Carolina standard obviously produced a different substantive test for admissibility. What the court in *Howerton* failed to appreciate, though, was whether the different source of the relevant and reliable requirements, and the resulting different admissibility standard, warranted a different procedural mechanism as well. While *Howerton* rejected the “gatekeeping” role of the trial judge, it failed to consider alternative procedural options.²⁷⁷ The doctrine of conditional relevancy as embodied in Rule 104(b), and illustrated by Rule 901(b)(9), provides the procedural mechanism to implement the reliability requirement, especially when the indices of reliability are the sort of factors that jurors routinely consider when weighing expert testimony.

B. *Determining Reliability Under Rule 104(b) Eases the Burden on Trial Judges*

One assumption underlying assigning the reliability issue to the court under Rule 104(a) is that judges are better able than jurors to determine the issue. But as early as 1851 the North Carolina Supreme Court acknowledged that judges were in no better position than jurors

276. 5 WEINSTEIN'S FEDERAL EVIDENCE § 901.12[3] at 901-101 (2d ed.). In his treatise on evidence Judge Weinstein implicitly acknowledges FED. R. EVID. 901(b)(9)'s textual commitment of the reliability determination to the jury as an authentication issue, but notes the *Daubert* Court's holding otherwise:

The utility of Rule 901(b)(9) as a method for qualifying evidence of the results of a process or system has been undercut by the Supreme Court's decision in the *Daubert* case requiring trial courts to weigh the reliability of expert testimony prior to admitting it into evidence and the amendments to Rule 702 implementing that decision. Rule 702 [as amended in December 2000] requires the trial court to make its determination about the reliability of expert evidence, which is essentially the same determination required under Rule 901(b)(9), on a preponderance of the evidence, rather than on the basis of a prima facie showing, which is generally the applicable standard under Rule 901.

277. *Howerton*, 597 S.E.2d at 690 (“[W]e are unwilling to impose upon . . . [trial judges] an obligation to expend the human resources required to delve into complex scientific and technical issues at the level of understanding necessary to generate with any meaningfulness the conclusions required under *Daubert*.”).

to resolve the competing and complex issues often present in scientific testimony.²⁷⁸ Thus, qualified experts were able to give their opinions if they knew more about the subject matter than the jury and the testimony would aid the jury in deciding the case. Trial judges merely determined whether the expert was qualified in his or her respective field; the validity and reliability of the testimony was left to the jurors to analyze and use as they saw fit.²⁷⁹ While scientific knowledge and complexity have certainly increased since 1851, there is no reason to think the relative ability gap between jurors and judges has widened to the point that judges are now better able than jurors to resolve the complexities of modern scientific evidence. One of the justifications for the *Frye* general acceptance standard was precisely that: neither judges nor jurors are capable of resolving disputed scientific questions so the matter is left to the appropriate scientific community. While often couched in the context of the *Frye* standard versus the *Daubert* standard, many judges and commentators have expressed the difficulty, if not the futility, of placing the reliability determination with the trial judge.²⁸⁰ *Howerton* criticized *Daubert*'s gatekeeping approach precisely because "it places trial courts in the onerous and impractical position of passing judgment on the substantive merits of the scientific or technical theories undergirding an expert's opinion."²⁸¹ But "gatekeeping" has a procedural aspect as well as a substantive test.

Proponents of the "gatekeeping" role of the judge may argue that while the judge may not be any better qualified than the jury to make the reliability determination, the judge can become better equipped to make the decision. For example, the judge is not bound by the rules of evidence and can research, read, and ponder scientific and technical literature that would not be available to the jury. The court could appoint its own expert to review and advise the court on the matter. Law clerks can be assigned to research, gather, and brief materials germane to the decision.²⁸² Finally, the accumulated experience the

278. See *State v. Clark*, 34 N.C. 151, 153 (1 Ired. 1851) ("[P]erson[s] of ordinary avocations, including jurors and judges, are not generally capable of judging correctly upon many questions which must be determined in order to the decision of a legal controversy, and which depend upon scientific knowledge or skill in art . . .").

279. *Bullard* even alluded to the jury's role in assessing reliability. *State v. Bullard*, 322 S.E.2d 370, 385 (N.C. 1984) ("The reliability and credibility of Dr. Robbins's opinion were subject to refutation, and the weight of her testimony was fairly presented to the jury.").

280. *Howerton*, 597 S.E.2d at 690-91 (citations omitted).

281. *Id.* at 690.

282. Unlike federal judges, state trial judges in North Carolina do not have law clerks. It is conceivable, though perhaps highly unlikely, that at some point in the

judge gains over time by dealing with these issues will increase the efficiency of the court in deciding reliability as a preliminary matter under Rule 104(a). But this process seems to be the “onerous and impractical position” *Howerton* sought to avoid by rejecting *Daubert*.²⁸³

By imposing a less rigorous standard of reliability, *Howerton* moved closer toward its stated goal of easing the judges’ burden. Thus, it may be argued that a change in procedure is not necessary and the matter may be properly left as a Rule 104(a) issue. But changing the “indices of reliability” and lowering the standard of reliability without altering the procedure still leaves the judge in a “gatekeeping” role. Admittedly, the gate is now much wider and the gatekeeping function far less onerous, but as others have commented, “almost anything” will now be admitted.²⁸⁴ By assigning the reliability question to the jury under Rule 104(b) and instructing the jury on its obligation to determine reliability before using the evidence to decide the case, the collective wisdom of the jury is applied through the deliberation process. In this setting, twelve heads may be better than one. Furthermore, the opponent of the evidence gets the opportunity to present evidence of unreliability to the jury, ask the judge to instruct the jury on its role in determining reliability, and to argue the expert opinion is too unreliable for use in deliberations.²⁸⁵

C. *Determining Reliability Under Rule 104(b) Respects Juror Competence*

The factors relied upon by North Carolina courts in evaluating the admissibility of expert testimony are particularly suited to treating the reliability issue as one of conditional relevancy. When novel scientific theories, new techniques, new perspectives on established theories, or new methodologies underlie the proffered opinion, reliability becomes a foundational element.²⁸⁶ Drawing upon years of precedent, the

future law clerks may be authorized at the trial court level or that law students could perform the same function as part of a law school externship program.

283. *Howerton*, 597 S.E.2d at 690.

284. John M. Conley & Scott W. Gaylord, *We Are Not a Daubert State - But What Are We? Scientific Evidence in North Carolina after Howerton*, 6 N.C. J. L. & TECH. 289, 304 (2005).

285. Even under the *Daubert* procedure lawyers are free to argue the credibility of expert testimony. Under a Rule 104(b) procedure, however, they can ask the judge to instruct the jury on its role in determining reliability. See *infra* note 348 for a suggested instruction.

286. See *Howerton*, 597 S.E.2d at 687. Those areas of scientific inquiry determined to be reliable or unreliable as a matter of law pose little difficulty. “[W]hen specific precedent justifies recognition of an established scientific theory or technique

court in *Howerton* set out four “nonexclusive indices” of reliability: (1) the expert’s use of established techniques; (2) the expert’s professional background in the field; (3) the use of visual aids before the jury; and (4) independent research conducted by the expert.²⁸⁷ Two of the four indices, professional background and independent research, are important elements in determining whether the witness is a qualified expert in the first place. The language of Rule 104(a) makes that decision one for the judge,²⁸⁸ but those factors also go to the weight of any testimony given by the witness. If the judge determines reliability under Rule 104(a) and admits the evidence, the jury will evaluate these same factors in weighing the testimony.²⁸⁹ Thus, these factors are not so complex or technical that juries cannot properly evaluate and apply them to the reliability question in the first instance.²⁹⁰

The other two factors, the use of established techniques and the use of visual aids to explain the opinion, are more directly related to reliability than qualifications. They also support the jury’s role in determining whether the proffered opinion is reliable. Some commentators have questioned the value of the use of visual aids as an indicator of reliability.²⁹¹ Illustrative exhibits, in and of themselves, do not enhance reliability. Furthermore, if the objection to proffered expert

advanced by an expert, the trial court should favor its admissibility” If a given discipline has been determined by precedent to be unreliable, like polygraph evidence, the admissibility decision is treated as a matter of law and the evidence is excluded. “[S]cientific theories and techniques that have been recognized by this Court as inherently unreliable” are inadmissible. *Id.*

287. *Id.*

288. N.C. GEN. STAT. § 8C-1, Rule 104(a) (2003) (“Preliminary questions concerning the qualification of a person to be a witness . . . shall be determined by the court . . .”).

289. N.C. PATTERN JURY INSTRUCTIONS—CRIM. 104.94 (1970); N.C. PATTERN JURY INSTRUCTIONS—CIVIL. 101.25 (1999).

290. In those cases where judicial notice is not appropriate to answer the reliability question, the court must determine the existence *vel non* of the “indices of reliability” through the testimony of qualified experts. This becomes a basic credibility test. While judges are not bound by the rules of evidence if Rule 104(a) governs the matter and they could resort to affidavits, depositions, and even unsworn statements, it is difficult to see how such an important decision, grounded squarely on the credibility of experts, could be made without taking testimony from the experts. If testimony is required and credibility is the basis of determining whether the indices of reliability are met, judges are no better than jurors in assessing credibility. *See infra* notes 307-14 and accompanying text.

291. John M. Conley & Scott W. Gaylord, *We Are Not a Daubert State - But What Are We? Scientific Evidence in North Carolina After Howerton*, 6 N.C. J. L. & TECH. 289, 296 (2005) (“[T]he use of visual aids is difficult to understand as an indicator of reliability. Does something become more reliable if you put it on a PowerPoint slide?”).

testimony is made pre-trial there may not be any visual aids to examine because the expert has not yet testified.²⁹² The inclusion of visual aids as an indicator of reliability only makes sense if the jury, who will see the visual aids when the testimony is presented at trial, is charged with determining reliability as a matter of conditional relevancy under Rule 104(b).

Appropriately used, illustrative exhibits will help the jury understand the techniques employed and how those techniques produced the opinion being offered. Depending upon the case, real evidence may also be used as a visual aid. For example, the broken hydraulic line that allegedly caused the brakes of a car to fail, the bullet removed from the victim's body and a bullet test fired from a gun found in the defendant's possession, or the tire that blew out and caused the plaintiff to lose control of his car, can all be used to illustrate or explain various scientific techniques or principles and their application in the case at hand. All of these items may be helpful in explaining to the jury how and why the expert reached his opinion, but none may be present when the issue is litigated at a pre-trial hearing.²⁹³ As an indicator of reliability, the use of visual aids to explain the testimony only makes sense if the judge is performing a screening role under Rule 104(b) and deciding whether the proponent has offered evidence sufficient to support a finding that the proffered opinion is reliable, rather than making the reliability finding himself under Rule 104(a).

Whether a given technique relied upon by the expert is an established technique is a matter of proof that hinges upon credibility. Judges are not inherently better equipped than jurors to make that determination. In fact, juries in North Carolina are routinely instructed that they are the sole judges of credibility.²⁹⁴ For example, if the contested issue turns out to be whether the technique is established, jurors are just as capable as judges to determine that question based on admissible evidence produced by the parties. Under Rule 104(b), the proponent would have to present evidence that the technique is established, but the opponent could offer counter evidence. Resolving these factual discrepancies is what juries are routinely called

292. "Indices of reliability" are fine criteria for appellate courts to use in reviewing the decisions of trial judges. But admissibility standards must be useable and appropriate for application by the lawyers and the judge at trial.

293. See *Howerton v. Arai Helmet, Ltd.*, 597 S.E.2d 674, 679 (N.C. 2004). The trial judge did not take testimony on the reliability issue. Instead, he "conducted a brief hearing on the matter, considering arguments from counsel, discovery materials, and pleadings." *Id.*

294. N.C. PATTERN JURY INSTRUCTION—CIVIL 101.15 (1999); N.C. PATTERN JURY INSTRUCTION—CRIMINAL 101.15 (1970).

to do. Assigning the reliability determination to the judge out of fear that a jury would be unable to weigh and assess the competing claims raises issues beyond the admissibility of expert testimony; it amounts to an expression of distrust in the jury system as a whole. As the following section addresses, these fears are unfounded.

D. *Determining Reliability Under Rule 104(b) is Supported by Jury Research*

Related to the claim that judges are better qualified and equipped to decide reliability under the less rigorous North Carolina standard is the notion that juries are overly impressed and unduly influenced by scientific and technical evidence. One commentator suggests that “if the jury were exposed to the foundational testimony of the scientific evidence and found the evidence technically inadmissible, there would be a grave risk that the foundational testimony would nevertheless distort their subsequent deliberations.”²⁹⁵ There is also the fear that “the overtly probabilistic nature of the foundational testimony for scientific evidence increases the risk that the jurors would be unable to set aside the testimony during their deliberations even if at a conscious level they decided that the evidence was technically inadmissible.”²⁹⁶

These arguments assume the foundational testimony as to reliability would be presented under a *Daubert*-type standard, not the less rigorous, but more jury compatible, “indices of reliability” standard set out in *Howerton*. But the question remains, can the jury disregard expert testimony it finds unreliable? Available social science research suggests it can.

The classic and most comprehensive study of the American jury is the Chicago Law School Jury Project conducted in the mid-1950s.²⁹⁷ Professors Kalven and Zeisel analyzed the outcomes of 3,576 jury trials based upon extensive questionnaires completed by trial judges to determine the extent of, and reasons for, differences in verdict results between judges and juries in criminal cases.²⁹⁸ All cases were tried to jury verdict and the questionnaires asked each judge, among other things, whether he would have rendered a different verdict.²⁹⁹ The

295. Edward J. Imwinkelried, *Trial Judges—Gatekeepers or Usurpers? Can the Trial Judge Critically Assess the Admissibility of Expert Testimony Without Invading the Jury’s Province to Evaluate the Credibility and Weight of the Testimony?*, 84 MARQ. L. REV. 1, 13 (2000).

296. *Id.* at 14.

297. HARRY KALVEN, JR. & HANS ZEISEL, *THE AMERICAN JURY* (1966).

298. *Id.* at 10.

299. *Id.*

researchers found the judge and jury in agreement in 75.4% of the cases.³⁰⁰

Of course, a 75% agreement rate means 25% of the time the judge and jury reached different conclusions in the same case. If the judge was “right” in those cases where he disagreed with the jury, it would lend some objective support to the argument that juries may be less capable than judges in evaluating facts, understanding the law, and applying the law to the facts. The researchers hypothesized that “*if the jury has any propensity to misunderstand the case, it will be more likely to disagree with the judge in those cases it perceives as difficult.*”³⁰¹ Analysis of the data, however, resulted in “a stunning refutation of the hypothesis.”³⁰² This analysis revealed “virtually no difference between the frequency of disagreement when the case is easy and when the case is difficult”³⁰³ Furthermore, in only one of the 894 cases where the judge and jury disagreed did the judge himself attribute the disagreement to the jury’s inability to understand or follow the evidence.³⁰⁴ The researchers concluded that “contrary to an often voiced suspicion, the jury does by and large understand the facts and get the case straight . . . [and] the jury’s decision by and large moves with the weight and direction of the evidence.”³⁰⁵

Equally revealing is the Jury Project’s conclusion on the relative ability of judges and juries in assessing credibility of witnesses. This point is particularly important in a post-*Howerton* world where the indices of reliability of expert testimony are grounded upon the credibility of the testifying expert. The Jury Project considered whether the rate of disagreement between judges and juries could be attributed to a “gullibility of the jury” factor.³⁰⁶ The study found neither the judge nor the jury “distinctively gullible or skeptical.”³⁰⁷ The credibility gap, if any, between judge and jury seemed more centered on a particular type of witness: the criminal defendant with no prior record.³⁰⁸ Juries

300. *Id.* at 56-58. Of the cases surveyed, 5.5% ended in a hung jury, with 1.1% leaning toward acquittal and 4.4% leaning toward conviction. When the study’s authors considered a hung jury “half an acquittal,” and distributed those cases accordingly, the judge-jury agreement rate rose to 78%.

301. *Id.* at 157 (emphasis added).

302. *Id.*

303. *Id.*

304. *Id.* at 153.

305. *Id.* at 149.

306. *Id.* at 168.

307. *Id.* at 180.

308. *Id.* at 178.

seemed to believe this type of witness more often than judges did.³⁰⁹ The study concluded this may be the jury conscientiously applying the reasonable doubt standard.³¹⁰ While the Chicago Law School Jury Project focused mainly on criminal trials, a companion study considered the same questions in the civil trial context.³¹¹ Not surprisingly, the data from the civil trials matched that from the criminal trials almost exactly.³¹²

While the results of the Jury Project may give us confidence in the jury system as a whole, in the context of assigning expert testimony reliability determinations to the jury under Rule 104(b), we still must account for the fact the evidence heard by the jury was screened by the judge and the jury only evaluated information the court determined was admissible. Thus, the judge and the jury were really not deciding the same case. If the additional facts known only to the judge were known by the jury, would the incidence of disagreement been greater? Who is better at disregarding inadmissible evidence, the judge or the jury? Without interviewing every jury and sharing the additional information with them, it would be impossible to know. But asking judges to explain why they reached different conclusions does shed light on this important question. The Jury Project researchers identified cases in which judges themselves attributed the reason for their disagreement with the jury to information possessed by the judge but unknown to the jury.³¹³ In other words, judges actually relied upon otherwise inadmissible information to justify why they would have reached a verdict different from that reached by the jury in the case where they denied this information to the jury. While this category of cases amounted to only 2% of the disagreement cases, it does show that judges may be no more capable than juries when it comes to disregarding information inappropriate for consideration.³¹⁴

Subsequent studies have confirmed the Jury Project's findings and conclusions and refined the data even further.³¹⁵ In a comprehensive

309. *Id.*

310. *Id.* at 181.

311. See Harry Kalven, Jr., *The Dignity of the Civil Jury*, 50 VA. L. REV. 1055 (1964) (reviewing data from Jury Project's survey of civil jury trials).

312. *Id.* at 63-65. The incidence of judge-jury agreement in civil cases was 78%, the exact figure found in criminal cases when hung juries were taken into account.

313. KALVEN & ZEISEL, *supra* note 297 at 121-33.

314. *Id.* at 121 n.1.

315. See Theodore Eisenberg, Paula L. Hannaford-Agor, Valerie P. Hans, Nicole L. Mott, G. Thomas Munsterman, Stewart J. Schwab, & Martin T. Wells, *Judge-Jury Agreement in Criminal Cases: A Partial Replication of Kalven & Zeisel's THE AMERICAN JURY*, 2 J. EMPIRICAL LEGAL STUD. 171 (2005).

review of empirical research on what juries do and how well they do it, Duke University law professor Neil Vidmar concluded:

Research findings bearing on the performance of civil juries yield little support for the extreme claims charging juries with poor and irresponsible performance. Trial judges agree with jury decisions most of the time and strongly support the jury system. . . . [T]here is no evidence to support the claim that juries decide [negligence] cases less competently than judges and some reason to suspect that the combined judgments of jurors, enhanced through the deliberation process, may be as good or better than those that would be rendered by a randomly selected judge. Juries in medical malpractice trials . . . tend to render decisions that are consistent with independent assessments of health care providers.³¹⁶

Similarly, studies aimed specifically at evaluating jury competence in handling expert testimony soundly refute the notion that juries are unduly influenced by expert testimony. For example, one survey of jurors in civil jury trials with expert testimony found:

Jurors use criteria as rational and practicable as those suggested for use by trial judges in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* to assess the admissibility of scientific evidence. Indeed, when considered in light of doubts about the abilities of trial judges to apply *Daubert*, past research that finds that jurors tend to decide cases consistently with judges and an anecdotal collection of claims of error made by judges in admitting scientific evidence, juries may be as discerning as the judges who are charged with shielding them from certain expert testimony.³¹⁷

Perhaps the best explanation of why jurors perform as well or better than judges when dealing with complicated expert testimony lies with the dynamics of the jury deliberation process. Unlike a trial judge who must hear, remember, and evaluate the scientific evidence alone, the jury has the advantage of collective assessment. As one

316. Neil Vidmar, *The Performance of the American Civil Jury: An Empirical Perspective*, 40 ARIZ. L. REV. 849, 898 (1998); see also VALERIE P. HANS & NEIL VIDMAR, JUDGING THE JURY 245 (1986) ("Critics have charged that the jury falls short on three main grounds: it is incompetent, it is prejudiced, and it wages war with the law. However, when hard facts rather than anecdote and opinion are considered, the charges do not appear warranted.").

317. Daniel W. Shuman, Anthony Champagne & Elizabeth Whitaker, *Assessing the Believability of Expert Witnesses: Science in the Jurybox*, 37 JURIMETRICS J. 23, 30-31 (1996) (citation omitted); see also Craig Lee Montz, *Trial Judges as Scientific Gatekeepers After Daubert, Joiner, Khumo Tire, and Amended Rule 702: Is Anyone Still Seriously Buying This?*, 33 UWLA L. REV. 87 (2001) (arguing that *Frye* is a superior test for admitting scientific evidence because judges are not competent to perform the analysis *Daubert* requires).

study revealed, “[P]ooling the collective wisdom of six or twelve citizens in group deliberation, the jury reduces the chance that factual misunderstandings will lead to faulty verdicts.”³¹⁸

In 2001, Professors Vidmar and Diamond reviewed over thirty studies evaluating various aspects of jury handling of complex or expert testimony and concluded:

It seems clear from this review that claims about jury incompetence and irresponsibility in assessing and considering the testimony of scientific experts are not supported by research findings. There is consistent convergence in juror interview studies and experimental studies involving both civil and criminal juries. Jurors appear motivated to critically assess the content of the expert’s testimony and weigh it . . . as they are instructed . . . [R]ather than simply deferring automatically to experts, as critics have claimed, the trial process appears to make them aware of the fallibility of expert testimony. . . . [T]he deliberation process appears to result in closer examination of diverging views and understanding—just as the legal system assumes it does.³¹⁹

Equally important, the Vidmar and Diamond review found the assumption that judges are better at evaluating expert testimony than jurors “empirically unsupported,” and noted that “in complicated fields like DNA, epidemiology, or chemistry, judges are also laypersons.”³²⁰

The jury research literature refutes the oft-heard criticism that juries are incompetent or incapable of handling difficult or complex issues or that judges can put aside inappropriate information more easily than juries when deciding cases. Thus, recognizing the reliability of expert testimony as a matter of conditional relevancy does not raise the specter of runaway juries and incompetent verdicts. On the other hand, the apparent similarity between the judges’ and juries’ inability to put aside inappropriate information when deciding cases could be argued to support leaving the reliability determination with the judge under Rule 104(a). If the judge excluded the evidence, the argument goes, the jury would never hear it and there would be no risk of contaminating the jury’s verdict with an opinion the jury found unreliable but could not put out of its collective mind during deliberations.

318. Daniel W. Shuman, Elizabeth Whitaker, & Anthony Champagne, *An Empirical Examination of the Use of Expert Witnesses in the Courts—Part II: A Three City Study*, 34 *JURIMETRICS J.* 193, 198-99 (1994).

319. Neil Vidmar & Shari Seidman Diamond, *Juries and Expert Evidence*, 66 *BROOK. L. REV.* 1121, 1174 (2001).

320. *Id.* at 1167-69.

This argument not only ignores the language of the rules of evidence, it is inconsistent with established practice in analogous areas. For example, Rule 404(b) allows evidence of prior misconduct when offered for some purpose other than to prove the actor's propensity to behave in a certain way.³²¹ In *Huddleston v. United States*, the defendant was tried for selling stolen blank videotapes.³²² The only issue at trial was whether Huddleston knew the tapes were stolen when he sold them.³²³ To prove he knew the tapes were stolen, the United States offered evidence that on a prior occasion Huddleston sold stolen televisions he got from the same man who gave him the videotapes.³²⁴ Huddleston claimed he did not know the televisions or the videotapes were stolen.³²⁵ The Court noted the sale of the televisions was only relevant to Huddleston's knowledge that the tapes were stolen if the televisions were, in fact, stolen.³²⁶ If the televisions were stolen, then his involvement with the televisions would be probative of his knowledge of the stolen character of the videotapes he got from the same source.³²⁷ Huddleston claimed the stolen character of the televisions was a preliminary fact to be decided by the judge under Rule 104(a) and the trial judge erred by allowing the jury to determine the issue under Rule 104(b).³²⁸

The Supreme Court affirmed the trial judge's ruling.³²⁹ In a unanimous opinion, the Court agreed the relevance of the sale of stolen televisions to Huddleston's knowledge of the stolen character of the tapes was conditioned upon the fact the televisions were indeed stolen.³³⁰ Accordingly, the language of the rules assigned the matter to the jury under Rule 104(b). The trial judge merely screens the foundation evidence offered by the prosecution to see if the jury could find by

321. See also FED. R. EVID. 404(b); N.C. GEN. STAT. § 8C-1, Rule 404(b) (2003) ("Evidence of other crimes, wrongs, or acts is not admissible to prove the character of a person in order to show that he acted in conformity therewith. It may, however, be admissible for other purposes, such as proof of motive, opportunity, intent, preparation, plan, knowledge, identity, or absence of mistake, entrapment or accident.").

322. 485 U.S. 681, 682 (1988).

323. *Id.* at 683.

324. *Id.*

325. *Id.* at 684.

326. *Id.* at 686.

327. *Id.*

328. *Id.* at 686-87.

329. *Id.* at 692.

330. *Id.* at 686.

a preponderance of the evidence the televisions were stolen. In conducting this screening under Rule 404(b):

[T]he trial court neither weighs credibility nor makes a finding that the Government has proved the conditional fact by a preponderance of the evidence. The court simply examines all the evidence in the case and decides whether the jury could reasonably find the conditional fact—here, that the televisions were stolen—by a preponderance of the evidence.³³¹

In addressing Huddleston's argument that exposing the jury to evidence of prior misconduct, without requiring a preliminary finding by the trial judge that the misconduct actually occurred, exposed him to unfair prejudice, the Court noted the limited purpose of the evidence, the relevancy requirement enforced through Rule 104(b), and the balancing test of Rule 403 all combined to protect him from unfair prejudice.³³²

In the context of whether reliability of expert testimony is a matter of conditional relevancy, the essential point of *Huddleston* is that the jury is entirely capable of hearing evidence of a criminal defendant's involvement in a prior offense, determining whether the defendant was actually involved in the prior act, and then either disregarding the evidence or considering it for its offered purpose depending upon how it resolved the conditional fact.³³³ The Court was comfortable with the jury's ability to disregard potentially prejudicial evidence if it found the preliminary fact upon which the relevancy of the evidence was conditioned did not exist.³³⁴

North Carolina has adopted *Huddleston* and applies conditional relevancy to similar acts under Rule 404(b).³³⁵ Furthermore, the existence of and the defendant's participation in a conspiracy are facts upon which the relevancy of a co-conspirator's statement is conditioned. Before a co-conspirator's statement may be offered against the accused, "the state must produce sufficient evidence to authorize the jury to find that a conspiracy existed."³³⁶ Thus, the North Carolina

331. *Id.* at 690.

332. *Id.* at 691.

333. *Id.*

334. *Id.*

335. See *State v. Stager*, 406 S.E.2d 876, 890 (N.C. 1991) ("We find the reasoning of *Huddleston* compelling and conclude that evidence is admissible under Rule 404(b) . . . if it is substantial evidence tending to support a reasonable finding by the jury that the defendant committed a similar act or crime and its probative value is not limited solely to tending to establish the defendant's propensity to commit a crime such as the crime charged."); see also *State v. Moore*, 440 S.E.2d 797, 813 (N.C. 1994).

336. *State v. Nichols*, 365 S.E.2d 561, 570 (N.C. 1988).

Supreme Court, like the Supreme Court of the United States, is confident that juries can hear potentially prejudicial evidence, evaluate whether the predicate facts upon which the relevancy of the evidence depends actually exist, and disregard the information if it determines the predicate facts are not supported by the greater weight of the evidence. Fears of jury incompetence, lack of jury sophistication, or the claim that juries are unduly influenced by experts and could not ignore unreliable opinions are simply not supported by the growing body of social science research data and cannot justify assigning the reliability determination of expert testimony to the judge as a preliminary matter under Rule 104(a).

E. Determining Reliability Under Rule 104(b) Levels the Playing Field

The *Howerton* court expressed specific concern that the Rule 104(a) procedure used under *Daubert* to determine the reliability of expert testimony conferred an unfair advantage on the opponent of expert testimony.³³⁷ The judge, who is not bound by the rules of evidence, resolves conflicting facts over the reliability of proffered testimony. The proponent of the testimony, as the non-moving party in the motion to exclude, has the burden of establishing reliability, but the decision maker does not have to view the evidence in a light favorable to the non-moving party. Factual conflicts over reliability often boil down to basic credibility decisions the judge must resolve. Unlike a motion for summary judgment, the presence of a genuine dispute over a material issue of fact does not preclude the judge from granting the motion to exclude testimony. If the court finds the proponent of the testimony has not established the reliability of the expert opinion to the court's satisfaction, the evidence is excluded and summary judgment often follows. When the court's fact-bound and credibility-based decision is then appealed, the deferential standard of review of abuse of discretion almost guarantees an affirmance.³³⁸ Thus, under the *Daubert*-endorsed Rule 104(a) procedure, opponents of expert testimony can exclude the testimony and win summary judgment even

337. See *Howerton v. Arai Helmet, Ltd.*, 597 S.E.2d 674, 692 (N.C. 2004). In federal court, the foundation for admission of a co-conspirator's statement is a preliminary matter for the court under Federal Rule of Evidence 104(a) and the preponderance standard applies. *Bourjaily v. United States*, 483 U.S. 171, 175 (1987).

338. One analysis of affirmance rates throughout the federal system since 2000 put the affirmance rate for cases excluding expert testimony at 84.9%, the affirmance rate for cases admitting expert testimony at 88.3%, for a total affirmance rate of 86.8%. *Daubert on the Web*, <http://www.daubertontheweb.com/circuits.htm> (last visited Sept. 30, 2005).

when material facts are in genuine dispute. This procedural advantage places a premium on motions to exclude expert testimony and has made the “*Daubert* hearing” a staple of civil litigation.

Importantly, the advantage bestowed on the opponent of the evidence is a product of the procedure, not the substantive standard. By imposing a less rigorous reliability standard, *Howerton* arguably reduced the possibility that judges will exclude expert testimony and grant summary judgment to the opponent of that testimony. But rejecting the *Daubert* standard while keeping the *Daubert* procedural paradigm does not address the fundamental source of the inequity. Rule 104(a) allows the judge to resolve factual disputes, weigh the evidence, assess the credibility of witnesses, and use otherwise inadmissible evidence to determine whether to admit expert testimony. If the court does exclude expert testimony and grant summary judgment to the opponent of the expert testimony the procedural unfairness that so disturbed the court in *Howerton* will still be present.³³⁹ Under the *Howerton* indices of reliability, the exclusion and subsequent grant of summary judgment would be even more unfair because the criteria the judge will use is the same criteria the jury would use to weigh the evidence on the merits. Instead of having twelve citizens decide facts essential to the case, the *Daubert* procedure assigns that task exclusively to the trial judge. Thus, the retention of the *Daubert* procedure exacerbates the unfairness issue.

When reliability is treated as a matter of conditional relevancy under Rule 104(b), however, the procedural advantages to the opponent disappear. The judge no longer resolves material factual disputes or decides which expert is more credible. Instead, the judge performs the more traditional function of deciding whether the evidence of reliability is sufficient to support a finding. If so, the resolution of any factual dispute over reliability, the assessment of the witness’s credibility, and the weight to accord the reliability evidence is left to the jury. Furthermore, because the jury is acting as the fact finder, the rules of evidence will govern the admissibility of the foundational evidence of reliability and will tend to make that evidence more reliable.³⁴⁰

Because expert testimony has become such an integral part of the modern jury trial, many causes of action, charges, and damage claims

339. See, e.g., *Howerton*, 597 S.E.2d at 694-95 (Parker, J., dissenting) (stating that the court should affirm trial court’s grant of summary judgment because trial court properly excluded plaintiff’s experts under the North Carolina standard for reliability).

340. See, e.g., STEPHEN A. SALTZBURG, MICHAEL M. MARTIN, & DANIEL J. CAPRA, 4 FEDERAL RULES OF EVIDENCE MANUAL § 801.02[1][a] at 801-12 (2002) (“The hearsay rule is designed to exclude a certain type of unreliable evidence.”).

require expert opinion to support them. Absent expert testimony to support a cause, charge, or claim, the matter is resolved against the party with the burden of proof and the jury never gets to hear the case. A major criticism of *Daubert* is that it disposes of cases that should be decided by juries. The *Howerton* court was concerned the *Daubert* approach “may unnecessarily encroach upon the constitutionally-mandated function of the jury to decide issues of fact and to assess the weight of the evidence.”³⁴¹ Treating reliability as a matter of conditional relevancy under Rule 104(b) and applying North Carolina’s indices of reliability eliminates that concern without sacrificing accuracy or efficiency.

F. *Determining Reliability Under Rule 104(b) Does Not Open the Door to “Junk Science”*

Some argue that assigning the reliability question to the jury under Rule 104(b) will allow unreliable opinion testimony to infect the fact-finding process.³⁴² The North Carolina Rules of Evidence, however, give sufficient power to the trial judge to exclude “junk science” or other opinions that are not supported by credible evidence of reliability.

First, under Rule 104(b) the court must evaluate the evidence supporting reliability to determine whether it is sufficient to permit the jury to find by the greater weight of the evidence that the proffered opinion is reliable.³⁴³ When evidence of reliability is absent or is incredible as a matter of law, the judge has the obligation to exclude it. Furthermore, the court must take judicial notice of those techniques or methods that have been found to be unreliable as a matter of law and exclude opinion based on those methods.³⁴⁴

Second, if the evidence of reliability passes the sufficiency test of Rule 104(b) but is still suspect, Rule 403 provides a familiar mechanism for the court to evaluate the evidence and exclude evidence with doubtful reliability.³⁴⁵ In determining the probative value of the proffered opinion evidence under the Rule 403 balancing test, the judge

341. *Howerton*, 594 S.E.2d at 692.

342. See Imwinkelried, *supra* note 262, at 581; see also text accompanying notes 298-321 for a discussion of the ability of the jury to resolve conflicting testimony over reliability and the ability to disregard opinion testimony it finds unreliable.

343. N.C. GEN. STAT. § 8C-1, Rule 104(b) (2003).

344. See, e.g., *Howerton*, 597 S.E.2d at 687; *State v. Goode*, 461 S.E.2d 631, 641 (N.C. 1995).

345. N.C. GEN. STAT. § 8C-1, Rule 403 (2003) (“Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of

considers the reliability of the evidence. This will necessarily require the court to consider the quality and credibility of the evidence of reliability. Opinion testimony that is not reliable is not probative of the point it seeks to prove or the inference it suggests should be drawn. As the overall strength of the reliability evidence goes down, so does the probative value under Rule 403. Depending upon the issue in the case, the jury's reliance on suspect or shaky expert opinion, even though it passed the sufficiency screening by the judge under Rule 104(b), may reach the point where the danger of unfair prejudice or confusion substantially outweighs the probative value.

Third, application of the Rule 403 balancing test is the proper place to consider the "fit" or heightened relevance requirement the *Daubert* Court included in the admissibility equation under Rule 104(a).³⁴⁶ The closer the "fit" between the proffered opinion and the facts of the case, the greater the probative value. Conversely, the greater the gap between the opinion and the facts of the case, the lower the probative value and the greater the risk of unfair prejudice. Applying the "fit" requirement as part of the Rule 403 balancing test places the "relevancy" aspect of reliability in its proper perspective and, because Rule 403 is weighted toward admissibility instead of exclusion, lessens the danger that legitimate factual questions will be removed from the jury's consideration.

The court in *Howerton* properly noted the trial judge's power to exclude evidence under Rule 403. By assigning the basic reliability determination to the trial judge under Rule 104(a), however, the application of Rule 403 is actually subsumed in the Rule 104(a) determination. It will be an unusual trial judge who is satisfied under Rule 104(a) that proffered expert testimony is reliable and then find it not reliable enough to survive a Rule 403 challenge. The mental gymnastics required to conduct that sort of evaluation are as burdensome and onerous as the *Daubert* approach. If the trial judge merely screens the reliability evidence for sufficiency, however, he can still approach the Rule 403 test with a degree of objectivity and detachment that will facilitate more accurate assessment and balancing of probative value and prejudicial effect. By separating the sufficiency of the evidence and the probative value determinations under Rules 104(b) and 403, respectively, the judge can apply familiar concepts to novel issues in a clear and structured process. Thus, determining reliability under Rule 104(b) actually facilitates and encourages more accurate and intellec-

undue delay, waste of time, or needless presentation of cumulative evidence." FED. R. EVID. 403 is identical.

346. See *supra* text accompanying notes 35-40.

tually honest balancing under Rule 403 than occurs when reliability is decided by the judge as a preliminary fact under Rule 104(a).

Fourth, the Rule 104(b) procedure offers an additional check against junk science by instructing the jury on its responsibility under Rule 104(b) to first determine reliability before considering the merits of the opinion. *Daubert* dispenses with this mechanism because of the rigorous, exacting, and detailed scrutiny applied by the trial judge in determining reliability in the first instance. Testimony admitted under the *Daubert* procedure goes to the jury with an instruction on the jury's role in deciding weight and credibility.³⁴⁷ The jury is not instructed to consider, question, or resolve conflicting evidence as to the reliability of the opinion.

Limiting the jury to considering the weight of the opinion in an overall sense may be appropriate when the evidence has gone through the exacting scrutiny *Daubert* requires. The *Howerton* standard, though, is far less rigorous and less exacting. Specifically instructing the jury to consider the reliability of the evidence before considering its value to the case on the merits draws the jury's attention to this important aspect of expert testimony and allows the jury to bring its collective wisdom to bear on the issue.³⁴⁸

347. See, e.g., PATTERN CIV. JURY INSTR. 5TH CIR. § 3.1 (2005) ("When knowledge of technical subject matter may be helpful to the jury, a person who has special training or experience in that technical field—he is called an expert witness—is permitted to state his opinion on those technical matters. However, you are not required to accept that opinion. As with any other witness, it is up to you to decide whether to rely upon it. In deciding whether to accept or rely upon the opinion of an expert witness, you may consider any bias of the witness, including any bias you may infer from evidence that the expert witness has been or will be paid for reviewing the case and testifying, or from evidence that he testifies regularly as an expert witness and his income from such testimony represents a significant portion of his income."); MODEL CIV. JURY INSTR. 9TH CIR. § 3.7 (2001) ("You have heard testimony from [a] person[s] who, because of education or experience, [is] [are] permitted to state opinions and the reasons for those opinions. Opinion testimony should be judged just like any other testimony. You may accept it or reject it, and give it as much weight as you think it deserves, considering the witness's education and experience, the reasons given for the opinion, and all the other evidence in the case.").

348. When reliability of the principles, techniques, methods, or theories is challenged, or when the application of those principles, techniques, methods, or theories is challenged, the trial judge should instruct the jury on its role in resolving the reliability issue substantially as follows:

In this case you have heard evidence from [a witness] [witnesses] who [has] [have] testified as [an] expert witness[es]. An expert witness is permitted to testify in the form of an opinion in a field where he purports to have specialized skill or knowledge.

G. *Determining Reliability Under Rule 104(b) Reduces the Likelihood of Courts Resorting to a Mechanistic Application of “Indices of Reliability”*

One of the major faults *Howerton* found with *Daubert* and its progeny was the tendency of trial courts to apply the *Daubert* factors in a mechanistic and rigorous way.³⁴⁹ The *Daubert* factors became “legal principles established by the Supreme Court” and reduced, if not eliminated, the flexibility needed to determine reliability across the wide spectrum of expert opinion testimony.³⁵⁰ By rejecting *Daubert*’s substantive test but keeping the Rule 104(a) *Daubert* procedure, the North

[Omit this paragraph if the trial court finds the underlying methodology is reliable as a matter of law] In considering the testimony of the [these] expert witness[es] you should first determine whether the principles, techniques, methods, or theories relied upon by an expert are reliable. If you find by the greater weight of the evidence that the principles, techniques, methods, or theories relied upon by an expert witness are unreliable, you should disregard the testimony and not consider it in your deliberations. If [on the other hand] you find by the greater weight of the evidence that the principles, techniques, methods, or theories are reliable, you should then consider whether the expert applied those principles, techniques, methods, or theories correctly and reliably in reaching the opinion[s] given in this case.

You have heard testimony explaining the basis of the expert opinion and how the witness[es] reached [his] [her] [their] opinion[s]. If you find by the greater weight of the evidence that [the] [an] expert did not apply the principles, techniques, methods, or theories of [his] [her] [their] field of expertise in a reliable manner in reaching the opinion[s] in this case, you should disregard the opinion[s] and not consider [it] [them] in your deliberations. If, on the other hand, you find by the greater weight of the evidence that the expert witness did apply the principles, techniques, methods, or theories in a reliable manner you should give the opinion[s] whatever weight you think is appropriate in light of all the other testimony and facts of the case.

As I have instructed you, you are the sole judges of the credibility of each witness and the weight to be given to the testimony of each witness. In making this determination as to the testimony of an expert witness, you should consider, in addition to the other tests of credibility and weight, the witness’s training, qualifications, and experience or lack thereof; any independent research the witness may have conducted, the reasons, if any, given for the opinion; whether the opinion is supported by facts that you find from the evidence; whether the opinion is reasonable; and whether it is consistent with other believable evidence in the case. You should consider the reliable opinion of an expert witness, but you are not bound by it. In other words, you are not required to accept an expert witness’s opinion to the exclusion of the facts and circumstances disclosed by other testimony.

349. *Howerton*, 597 S.E.2d at 690.

350. *Id.* at 691 (quoting David Crump, *The Trouble with Daubert-Kumho: Reconsidering the Supreme Court’s Philosophy of Science*, 68 Mo. L. REV. 1, 40 (2003)).

Carolina Supreme Court has just replaced one set of “legal principles established by the Supreme Court” with another.

While the *Howerton* factors are different, and less demanding than the *Daubert* factors, they are still factors handed down from on high and can become rigid and inflexible legal principles. In fact, the post-*Howerton* commentary seems to say that, unlike *Daubert*, which excludes too much expert testimony, the *Howerton* factors will admit too much.³⁵¹ Furthermore, like the Court in *Daubert*, the court in *Howerton* expressly stated that the reliability factors were “nonexclusive ‘indices of reliability’” and flexibility was a desirable characteristic in this important area of the law.³⁵² But by replacing one set of “legal principles” with another and retaining the same procedural mechanism, *Howerton* runs the risk of swinging the pendulum too far in the other direction and admitting expert testimony of dubious reliability. The best way to avoid the unsatisfactory results of the *Daubert* approach, but maintain reliability as the touchstone of admissibility, is to reject the *Daubert* procedural model as well as the substantive standard. Otherwise, dubious testimony like that of Dr. Robbins in *Bullard*, will be routinely admitted in North Carolina courts without the cautionary instructions so important to properly evaluating the weight and worth of the testimony.³⁵³

V. CONCLUSION

Howerton made a policy choice to reject *Daubert*’s overly mechanistic and rigorous admissibility standards. The substantive limitations on expert testimony and the procedural mechanism employed by

351. See, e.g., Kenneth S. Broun, *Scientific Evidence in North Carolina After Howerton—A Presumption of Admissibility?* N.C. STATE B. J., Spring 2005, at 11; John M. Conley & Scott W. Gaylord, *We Are Not a Daubert State - But What Are We?* *Scientific Evidence in North Carolina after Howerton*, 6 N.C. J. L. & TECH. 289, 304 (2005).

352. *Howerton*, 597 S.E.2d at 687, 691.

353. The “indices of reliability” and procedure endorsed by *Howerton* were the same ones applied in *State v. Bullard*, 322 S.E.2d 370 (N.C. 1984), where, by all accounts, the expert opinion of Dr. Robbins was invalid, unreliable, and, perhaps, fraudulent. See Mark Hansen, *Believe it or Not*, A.B.A. J., June 1993, at 64, 64 (“Robbins was the only person in the world who claimed to do what she said she did. And her claims have now been thoroughly debunked by the rest of the scientific community.”). The defense in *Bullard* offered expert testimony from two expert witnesses who did not agree with Dr. Robbins’s opinion that the bloody footprint found on the bridge matched the defendant. The supreme court noted the defense experts’ opinions were properly admitted and “[t]he reliability and credibility of Dr. Robbins’s opinion were subject to refutation . . .” *Bullard*, 322 S.E.2d at 384-85. The jury, however, was not instructed to specifically consider the reliability of the opinion before considering the substance of Dr. Robbins’s testimony.

Daubert placed onerous burdens on trial judges, gave opponents of expert testimony an unfair advantage in winning summary judgment, and threatened litigants' constitutional right to have their cause determined by a jury. Merely rejecting the substantive limits of *Daubert* does not fully address the *Howerton* court's concerns. Rejecting *Daubert's* substance but keeping its procedure, not to mention the same language used by *Daubert* to describe the standard for admissibility, sends the message that North Carolina does not take reliability standards seriously and juries cannot be trusted to properly evaluate even those less exacting standards. Furthermore, retaining the Rule 104(a) procedure of *Daubert* and applying the *Howerton* factors instead of the *Daubert* factors substitutes one mechanistic process for another and could lead to the same evils *Howerton* sought to avoid.

Treating the reliability of expert testimony as a matter of conditional relevancy under Rule 104(b) gives lawyers and judges a clear structure and procedure to follow and allows for more efficient case preparation and presentation. Furthermore, it is consistent with the substance and structure of the rules of evidence, gives the trial judge appropriate standards and controls to exclude "junk science," encourages litigants to make sound tactical and strategic trial decisions regarding their presentation of reliability evidence, eliminates the opponent's unfair advantage the court in *Howerton* found existed under *Daubert*, protects litigants' right to a jury determination of their cases, and expresses confidence in North Carolina juries.

North Carolina never adhered exclusively to the *Frye* standard of general acceptance. It has now rejected *Daubert*, *Frye's* replacement. To some extent the *Howerton* standard avoids the substantive disadvantages of both *Frye* and *Daubert*, but retains their procedural disadvantage. While reliability can and should be the touchstone of admissible expert testimony, assigning that task exclusively to the trial judge under Rule 104(a) is only a partial solution to the problems identified by *Howerton*. Rule 104(b) provides an alternative procedure that is consistent with the language of the rules of evidence, makes better use of North Carolina's indices of reliability for expert testimony, and more completely addresses the *Daubert* failings identified by the court in *Howerton*.

