

Balancing Legal Process with Scientific Expertise: Expert Witness Methodology in Five Nations and Suggestions for Reform of Post-*Daubert* U.S. Reliability Determinations

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BALANCING LEGAL PROCESS WITH SCIENTIFIC EXPERTISE: EXPERT WITNESS METHODOLOGY IN FIVE NATIONS AND SUGGESTIONS FOR REFORM OF POST-*DAUBERT* U.S. RELIABILITY DETERMINATIONS

ANDREW W. JURS*

In a recent article on science and the law, Susan Haack suggested that “we could learn something from the experiences of other nations that are equally technologically advanced, but have different . . . legal arrangements.” Her suggestion is both appropriate and timely, as the evidence mounts on the problems with the current judicial management of complex science.

This Article starts with a simple, related premise, that the proper balance of legal process and scientific expertise is not a uniquely American problem. If this is true, then we should, as Haack suggests, seek inspiration for reform in the varying methodologies of other nations. After beginning with a critical examination of the U.S. expert witness system, this Article discusses the handling of expert witnesses in multiple common law nations (Canada and the United Kingdom) and in multiple civil law nations (Germany and Japan). After examining those systems, this Article makes recommendations as to which methodologies, currently in use and tested in those nations, offer the most promise in fixing the weaknesses exposed in our system.

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By reviewing the weaknesses in Daubert assessment of complex expert testimony, how other nations handle similar evidence, and how certain discrete areas of foreign law could address the weaknesses identified in the U.S. approach, this Article offers reform alternatives to assist judges in balancing the need for accuracy and reliability of the science presented in court with the need to maintain our traditions of legal process.

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I. INTRODUCTION

The reception of foreign legal institutions is not a matter of nationality, but of usefulness and need. No one bothers to fetch a thing from afar when he has one as good or better at home, but only a fool would refuse quinine just because it didn't grow in his back garden.

Rudolph von Jhering¹

As a necessity of modern tort litigation, expert witnesses commonly present complex evidence for parties in litigation.² Before the presentation of expert testimony at trial in a U.S. federal court, the expert has already maneuvered through the essential preliminary steps: the expert has been selected and retained by the party; assessed the primary materials; issued a report; given deposition testimony; and may have been evaluated for admissibility by the trial judge under the *Daubert* standard.³ Many of these steps are intended to ensure the reliability of the expert's opinion.

However, in the most complex and detailed tort cases, researchers and commentators have demonstrated significant problems and weaknesses in the appraisal of scientific testimony under *Daubert*.⁴ Even before the judge in a particular case addresses contested expert issues, systematic concerns may threaten the truth-seeking function of the proceeding.⁵ At the *Daubert* gatekeeping stage, the Federal Rules of Evidence require judges to screen experts for reliability, yet research suggests that judges often lack the skills to adequately assess the quality of science presented in court.⁶ Even with this concern, tools intended to

1. KONRAD ZWEIGERT & HEIN KÖTZ, INTRODUCTION TO COMPARATIVE LAW 17 (Tony Weir trans., 3d rev. ed. 1998) [hereinafter INTRODUCTION TO COMPARATIVE LAW] (quoting Rudolph von Jhering).

2. As a class of cases, toxic torts demonstrate high reliance for, and necessity of, expert witnesses. M. Neil Browne, Terri J. Keeley & Wesley J. Hiers, *The Epistemological Role of Expert Witnesses and Toxic Torts*, 36 AM. BUS. L.J. 1, 1, 3 (1998).

3. FED. R. EVID. 702; *see also* *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993); *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999).

4. *See infra* Parts II.B–E.

5. *See infra* Parts II.B–E.

6. *See, e.g.*, NAT'L RESEARCH COUNCIL, THE EVOLVING ROLE OF STATISTICAL ASSESSMENTS AS EVIDENCE IN THE COURTS 72 (Stephen E. Fienberg ed., 1989); Sophia I. Gatowski et al., *Asking the Gatekeepers: A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World*, 25 LAW & HUM. BEHAV. 433, 442 (2001) (demonstrating that judges were split on whether they had the necessary background to handle scientific

provide judges with help in their gatekeeping functions are rarely used.⁷ In this environment, reform of the expert witness system is often suggested but rarely implemented, while the judicial system maintains a tolerance for the potential for inaccurate results.⁸ We can do better.

Striking the proper balance of scientific expertise and legal process is not a uniquely American problem, and legal systems of other major industrialized nations necessarily address the same issue. Even if legal commentary may confine scholars within the intricacies of their own legal system, legal reform efforts should—and often appropriately do—consider alternative methods used by various legal systems.⁹ Combining the understanding that expert witness issues are not uniquely American with the idea that other nations offer alternatives, we can conclude that other major nations of the world may be able to supply methods to correct the problems of the American expert witness system.¹⁰

This Article will assess various approaches to balancing legal due process with the necessity of scientific expertise in modern tort litigation. In doing so, the role of expert witnesses within two nations of

evidence in their courtroom); Valerie P. Hans, *Judges, Juries, and Scientific Evidence*, 16 J.L. & POL'Y 19, 19–20 (2007); Richard Lempert, *Befuddled Judges: Statistical Evidence in Title VII Cases*, in LEGACIES OF THE 1964 CIVIL RIGHTS ACT app. 2, at 263, 278 (Bernard Grofman ed., 2000); see also *infra* Part II.D.1.

7. Joe S. Cecil & Thomas S. Willging, *Accepting Daubert's Invitation: Defining a Role for Court-Appointed Experts in Assessing Scientific Validity*, 43 EMORY L.J. 995, 1004–05 & tbl.1 (1994); Carol Krafska et al., *Judge and Attorney Experiences, Practices, and Concerns Regarding Expert Testimony in Federal Civil Trials*, 8 PSYCHOL. PUB. POL'Y & L. 309, 326 tbl.5 (2002); see also discussion *infra* Part II.E.

8. On the issue of the cyclical nature of reform efforts, see Edward K. Cheng, *Same Old, Same Old: Scientific Evidence Past and Present*, 104 MICH. L. REV. 1387, 1392–1400 (2005) (reviewing TAL GOLAN, LAWS OF MEN AND LAWS OF NATURE: THE HISTORY OF SCIENTIFIC EXPERT TESTIMONY IN ENGLAND AND AMERICA (2004)) (chronicling several recurring reform suggestions, from 1860 to the present era). Regarding the system's "extreme tolerance for low-accuracy results" when dealing with science, see Harold L. Korn, *Law, Fact, and Science in the Courts*, 66 COLUM. L. REV. 1080, 1115 (1966).

9. On comparative law as a fertile area for reform, see ALAN WATSON, LEGAL TRANSPLANTS: AN APPROACH TO COMPARATIVE LAW 9, 17 (2d ed. 1993); Bradley Bryan, *Justice and Advantage in Civil Procedure: Langbein's Conception of Comparative Law and Procedural Justice in Question*, 11 TULSA J. COMP. & INT'L L. 521, 537–39 (2004); Basil Markesinis, *Comparative Law—A Subject in Search of an Audience*, 53 MOD. L. REV. 1, 21 (1990).

10. See generally David Kinley & Alan Rose, *The Quest for the Truth: A Comparative Analysis of the Role of Experts in Litigation*, 31 AUS. J. FORENSIC SCI. 5, 16 (1999); John H. Langbein, *The Influence of Comparative Procedure in the United States*, 43 AM. J. COMP. L. 545, 552 (1995) [hereinafter Langbein, *The Influence of Comparative Procedure*].

the common law family—Canada¹¹ and the United Kingdom¹²—will be reviewed, followed by an assessment of the civil law tradition in Germany¹³ and Japan.¹⁴ This Article will identify those methodologies currently in use within other legal systems¹⁵ that offer the most promise for solving problems identified within our own system.¹⁶ Borrowing from other national systems addressing similar concerns, this Article proposes significant changes to the *Daubert* regime in order to promote reliability and preserve legal process.

To achieve these aims, this Article begins by examining the problems faced by judges in the United States when applying the *Daubert* test for scientific admissibility, focusing, in Part II, on empirical assessments of judicial perception of that system and its weaknesses. Then, in Part III, it will shift from the issues posed by expert witnesses in the United States to a discussion of comparative methodology in general, involving the theory behind comparison of different nations' systems. Next, Part IV will describe the rules, methods, and limits of expertise in legal systems of other major industrialized nations, both in common law and in civil law traditions. Finally, in Part V, this Article will assess specific areas of expert witness law from other nations that could address the weaknesses of the *Daubert* regime identified in Part II.

By reviewing the perceived weaknesses in the assessment of expert testimony in complex tort cases under *Daubert*, and examining how certain aspects of foreign law could address the weaknesses identified in the U.S. approach, this Article will offer suggestions for legal reform to assist judges in balancing the need for reliability of the science presented in court, with the need to maintain our key traditions of legal process.

II. EXPERT WITNESS MANAGEMENT IN THE UNITED STATES

In her recent article *Irreconcilable Differences? The Troubled Marriage of Science and Law*, Susan Haack assessed the current state of

11. See *infra* Part IV.A.

12. See *infra* Part IV.B.

13. See *infra* Part IV.D.

14. See *infra* Part IV.E.

15. See *infra* Part V.B.

16. As one commentator notes, “[i]f law is a means to an end, then it is something we can alter to fit our needs.” Bryan, *supra* note 9, at 554. As such, we can consider those institutions which accomplish things in various polities as rich “techniques for . . . understand[ing] differing ways to approach problems.” *Id.* at 538.

complex science in the legal system, and concluded: “Maybe we could learn something from the experiences of other countries that are equally technologically advanced, but have different regulatory and legal arrangements; certainly, we would do well to approach these problems in a more empirical, experimental—a more scientific—spirit.”¹⁷ A detailed review of other nations’ approaches to the issue of complex science, responding in part to Haack’s suggestion, forms much of the latter half of this Article.¹⁸ However, it is appropriate to first consider systematic constraints that create an environment where the validity and reliability of science presented in complex litigation may be in question.

A. *The Background and Basics of Daubert*

Since the 1993 decision in *Daubert v. Merrell Dow Pharmaceuticals*, federal judges screen contested expert evidence for admissibility under Federal Rule of Evidence 702, by assessing both its relevance to the case and the reliability of the scientific methodology.¹⁹ In the *Daubert* decision itself, the Justices were not entirely in agreement on the ability of federal judges to assess the reliability of expert methodologies. Writing for the seven-vote majority, Justice Blackmun expressed confidence in the federal judiciary’s ability to weigh competing methodologies of science, pronouncing that “[w]e are confident that federal judges possess the capacity to undertake this review.”²⁰ In dissent, Chief Justice Rehnquist, while affirming his confidence in federal judges, questioned whether they would be able to apply the majority’s unclear standard, and deplored their being asked “to become amateur scientists.”²¹ Almost immediately after the *Daubert* decision, there was debate regarding both the merits of judicial screening for scientific reliability and about the feasibility of judicial assessment of scientific merit.²²

17. Susan Haack, *Irreconcilable Differences? The Troubled Marriage of Science and Law*, LAW & CONTEMP. PROBS., Winter 2009, at 1, 23.

18. See *infra* Part IV.

19. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593 (1993). After the 2000 amendments, Rule 702 requires reliability screening. FED. R. EVID. 702.

20. *Daubert*, 509 U.S. at 593.

21. *Id.* at 601 (Rehnquist, J., dissenting).

22. Shortly after *Daubert* was issued in June 1993, articles assessed the impact of the decision on admissibility, debating the merits of the post-*Frye* evidentiary standard. See, e.g., Bert Black, Francisco J. Ayala & Carol Saffran-Brinks, *Science and the Law in the Wake of Daubert: A New Search for Scientific Knowledge*, 72 TEX. L. REV. 715, 745–50, 786–800 (1994); Susan R. Poulter, *Daubert and Scientific Evidence: Assessing Evidentiary Reliability in*

Before offering details of that debate, let me provide a brief overview of the screening process required by *Daubert*. The first requirement for any proposed expert evidence is that it be relevant to a contested issue in the case.²³ Relevance required no other definition, according to the Court's opinion in *Daubert*, than the "fit" of the expertise to the case.²⁴ On the issue of reliability, however, the Court provided guidelines to help courts assess the methodological soundness of the proposed expert testimony.²⁵ Justice Blackmun gave a non-exhaustive list of several factors that courts might consider in ensuring the reliability of scientific methodologies, including: "whether [the method] can be (and has been) tested," peer review, "known or potential rate of error," and general acceptance within the scientific community.²⁶ As the Supreme Court later observed, federal judges can thereby ensure that the expert "employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."²⁷

With these guidelines after *Daubert*, federal judges must assess the methodological soundness of proposed expert testimony before deciding whether to admit it. From the beginning, on the remand in *Daubert* itself, Judge Kozinski characterized the reliability assessment as "daunting."²⁸ The quality of judicial screening of complex science—and of the scientific evidence in general—presented in federal courtrooms remains controversial.²⁹

To assess the *Daubert* framework, and to evaluate its weakness, this Article will focus on a particular type of complex case—namely, the large civil damages case in federal court dependent on scientific

Toxic Tort Litigation, 1993 UTAH L. REV. 1307, 1320–35 (evaluating the impacts, meanings, and uncertainties of the *Daubert* decision); Joseph Sanders, *From Science to Evidence: The Testimony on Causation in the Bendectin Cases*, 46 STAN. L. REV. 1, 64–68 (1993); Symposium, *The Impact of Science and Technology on the Courts*, 43 EMORY L.J. 853 (1994) (symposium dedicated to science and technology, with a focus on *Daubert*).

23. *Daubert*, 509 U.S. at 589, 591.

24. *Id.* at 591.

25. *Id.* at 593–94.

26. *Id.*

27. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999).

28. *Daubert v. Merrell Dow Pharm., Inc. (Daubert II)*, 43 F.3d 1311, 1315 (9th Cir. 1995).

29. For example, commentary regarding varying specialties, including high tech/IP law, environmental disputes, forensic science, and epidemiology, is discussed in Andrew W. Jurs, *Science Court: Past Proposals, Current Considerations, and a Suggested Structure*, 15 VA. J.L. & TECH. 1, 23–24 (2010); see also *infra* Part II.D.2.

evidence for proof of the claims or defenses.³⁰ While necessarily excluding some facets of the *Daubert* system,³¹ this focus will permit assessment of several important criticisms of the current system.

If we want the judicial system to yield accurate results, there are several concerns about the current structure of expert selection and review that merit attention. One concern is selection bias—namely, the selection of partisan or outlying experts by litigators to support a preconceived position on the science.³² A second concern is the effect of legal methodology—the due process adversarial model—on the presentation of scientific materials in court.³³ A third concern is the issue raised in *Daubert* by the disagreement between Justice Blackmun and Chief Justice Rehnquist: the ability of lay judges to handle assessment of scientific methodologies.³⁴ Finally, current procedures to help judges in their *Daubert* review, as a check on the difficulties resulting from selection and adversarial biases, remain largely unused.³⁵

B. Selection Bias

Problems with the current adversarial model in complex litigation begin at the earliest stages of the expert involvement, from the bias inherent in partisan selection of experts. Partisan selection bias is not a problem created by *Daubert*; it existed well before the turn of the last

30. This subset is likely to have scientific issues that are fully litigated, contested, and case dispositive. Therefore, they provide detailed judicial assessment of complex science, allowing for detailed review of judicial management of those scientific issues. *See supra* note 2 and accompanying text. Regarding factors that could result in science being the dispositive issue in a case, see Jurs, *supra* note 29, at 30–31 (listing factors to consider for jurisdictional grant to one central “science court”).

31. Of course, many important cases assessing complex science under a Rule 702 reliability standard occur in state courts. *See, e.g., Merrell Dow Pharm., Inc., v. Havner*, 953 S.W.2d 706, 711, 714 (Tex. 1997) (noting that it was not the first court to address these issues and providing the factors for evaluating expert opinion evidence); *In re Lockheed Litig. Cases*, 23 Cal. Rptr. 3d 762, 774–78 (Ct. App. 2005). In addition, the issue of applying the *Daubert* standard in criminal prosecutions has gained attention following a recent report on forensics by the National Academy of Sciences. NAT’L ACAD. OF SCIS., COMM. ON IDENTIFYING THE NEEDS OF THE FORENSIC SCI. CMTY., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 95–110 (2009) (“The present situation, however, is seriously wanting, both because of the limitations of the judicial system and because of the many problems faced by the forensic science community.”).

32. *See infra* Part II.B.

33. *See infra* Part II.C.

34. *See infra* Part II.D.

35. *See infra* Part II.E.

century.³⁶ However, under *Daubert*, the problem gained additional attention, as the standard for admission changed from “general acceptance” under *Frye*—necessitating a review of the expert’s opinion as compared to the consensus of the overall field³⁷—to the gatekeeping relevance and reliability standard of Rule 702.³⁸ In this analysis, selection bias will be characterized in terms of two related but distinct problems: the problem of outlier enhancement and the problem of the professional witness in the marketplace of persuasion. If reliability or validity of scientific testimony are desired ends, then each type of selection bias causes distinct difficulties with the expert witness role under the present rules.³⁹

Outlier enhancement occurs when a litigant selects an expert witness outside the mainstream of the discipline. The reason why an expert is categorized as “outside the mainstream” varies. Some experts remain outliers because they use non-standard methodology inconsistent with the mainstream of the field.⁴⁰ Other experts may use traditional and accepted methodologies, but the conclusions they draw are outside mainstream thinking in the field.⁴¹ Haack notes that parties have an incentive to pick an expert “ready to accept an answer to some scientific question as warranted when others in the field still remain agnostic,” and that once an expert has testified repeatedly, a hesitant or nuanced

36. Ellen E. Deason, *Court-Appointed Expert Witnesses: Scientific Positivism Meets Bias and Deference*, 77 OR. L. REV. 59, 65–70 (1998) (reviewing nineteenth century expert witness issues).

37. The *Frye* analysis required federal judges to review the expert’s opinion as compared to the consensus of the overall field. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923) (articulating “general acceptance” standard).

38. See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993) (describing the *Frye* general acceptance test: “That austere standard, absent from, and incompatible with, the Federal Rules of Evidence, should not be applied in federal trials”).

39. Christopher Tarver Robertson, *Blind Expertise*, 85 N.Y.U. L. REV. 174, 182 (2010) (accuracy of outcomes intrinsically and instrumentally beneficial).

40. The unusual methodology may result from an ideological commitment to alternative methods. See Neil Vidmar & Shari Seidman Diamond, *Juries and Expert Evidence*, 66 BROOK. L. REV. 1121, 1133 (2001). Or it could form from a subjective judgment leaning toward one side or the other. See David E. Bernstein, *Expert Witnesses, Adversarial Bias, and the (Partial) Failure of the Daubert Revolution*, 93 IOWA L. REV. 451, 456–57 (2008).

41. See generally Haack, *supra* note 17, at 16–18. These experts are often selected exactly due to their willingness to “incline” toward one or the other position. See Bernstein, *supra* note 40, at 456 (explaining that “experts are selected ‘according as their opinion is known to incline’” (quoting *Abinger v. Ashton*, [1873] 17 L.R.Eq. 358, 374 (U.K.))); Joseph Sanders, *Expert Witness Ethics*, 76 FORDHAM L. REV. 1539, 1577 (2007) [hereinafter Sanders, *Expert Witness Ethics*].

opinion can harden from “initially more cautious attitudes into unwarranted certainty.”⁴² Sanders describes this phenomenon in his assessment of the decades-long Bendectin litigation, where expert opinion simplified over time to reduce uncertainty.⁴³ Outlying experts may offer sincere but idiosyncratic positions.

The genuine experts outside the mainstream serve as one type of outlier enhancement, which is in contrast to those experts with “conscious bias”⁴⁴ or who have succeeded in the professional-witness marketplace solely as a result of their persuasive force and ability to convey certainty.⁴⁵ Conscious bias may result from loyalty to a client that retains the expert,⁴⁶ or result from the expert’s metamorphosis over time to fit the needs of the professional witness market.⁴⁷ In her work on expert problems, Jennifer Mnookin identifies one source of professional witness bias in the competition for expert witness services to meet the needs of the partisan client.⁴⁸ As a result of competition within that market, the experts most likely to be repeatedly retained “will often not be those with the most knowledge or actual expertise in a particular area, but rather those whom parties believe will succeed in persuading the factfinder.”⁴⁹ As a result, these experts become marketable by “being a ‘team player,’ and telling potential employers (that is, parties) what they want to hear.”⁵⁰ Independent of the expert witness marketplace, the mere fact of payment alone could also result in expert bias.⁵¹

Outlier enhancement, by itself, may not be a concern—who can blame partisans for partisanship?—until its effects on the adjudication of disputes are measured. Under the current Federal Rules, the outlier enhancement problem has enormous potential to affect litigation

42. Haack, *supra* note 17, at 17; *see also* Robertson, *supra* note 39, at 186–87.

43. Sanders, *supra* note 22, at 37.

44. Bernstein, *supra* note 40, at 454–55.

45. Jennifer L. Mnookin, *Expert Evidence, Partisanship, and Epistemic Competence*, 73 BROOK. L. REV. 1009, 1011–12 (2008).

46. Bernstein, *supra* note 40, at 454–55; Mnookin, *supra* note 45, at 1010–11; Robertson, *supra* note 39, at 185; Sanders, *supra* note 22, at 37; Vidmar & Diamond, *supra* note 40, at 1133.

47. *See generally* Mnookin, *supra* note 45, at 1011–12 (explaining the phenomenon of “professional” expert witnesses).

48. *Id.*

49. *Id.* at 1011.

50. *Id.* at 1012.

51. Robertson, *supra* note 39, at 188 (discussing the bias effect of compensation).

outcomes. Experts become necessary when there are factual issues that the factfinder is unable to decide without the assistance of specialized knowledge.⁵² A judge or jury hearing the testimony of the outlying expert is therefore peculiarly unable to assess its meaning in context.⁵³ As a result, testimony by outlying experts puts the reliability of results at risk.⁵⁴

While outlier enhancement is a serious concern, particularly with complex expert evidence beyond the ability of a layperson to weigh, it is only one of several serious shortcomings of the current system under *Daubert*. Indeed, if the selection bias issue could be remedied by the parties, through the adversarial process or by the court, it would be easily cured and not affect outcome reliability. As discussed *infra*, however, neither of these two potential remedies succeeds.

C. Adversarial Methodology Bias

Selection bias would not threaten the reliability of outcomes if the adversarial process effectively screened away unreliable outliers—professional witnesses, and other patently biased testimony—from reliable, appropriate testimony. In the area of scientific or expert testimony, however, the adversarial method does not seem well-suited to achieve this end.⁵⁵

Joseph Sanders criticizes current adversarial methods by declaring that they “might as well have been designed to confuse, to leave the audience staring at an unresolved and apparently unresolvable

52. See, e.g., FED. R. EVID. 702.

53. Mnookin, *supra* note 45, at 1012; see also Deason, *supra* note 36, at 92–93; Sanders, *supra* note 22, at 38–39.

54. See Bernstein, *supra* note 40, at 457 (noting that the “jury will receive a false sense that the issue is a very close one”); Haack, *supra* note 17, at 17 (stating that the adversarial process may create “artificial scientific doubt, or artificial scientific certainty” (footnote omitted)); Mnookin, *supra* note 45, at 1012 (stating that the “marketplace for experts cannot . . . be trusted to produce reliable information”); Robertson, *supra* note 39, at 181 (discussing the “truth-deficit in litigation”); Sanders, *Expert Witness Ethics*, *supra* note 41, at 1578 (noting that “[f]ew deny the biasing effect of present arrangements”); Sanders, *supra* note 22, at 37 (noting that “[p]ersuasiveness is not always a useful indicator of truth”); see also Vidmar & Diamond, *supra* note 40, at 1135–1167 (reviewing research into lay jurors and their understanding of complex expert testimony).

55. The criticism of the adversarial method for scientific or expert witness disputes contrasts with the common assumption that “cross-examination” is the “greatest legal engine ever invented for the discovery of truth.” Robertson, *supra* note 39, at 189 (quoting *California v. Green*, 399 U.S. 149, 158 (1970)).

conflict.”⁵⁶ John Langbein agrees, stating further that “[s]hort of forbidding the use of experts altogether, we probably could not have designed a procedure better suited to minimize the influence of expertise.”⁵⁷ This is not a concern that arose from *Daubert*, since it existed before the turn of the last century.⁵⁸ But it became particularly troubling when the admissibility standard changed from *Frye* to Rule 702, resulting in a new era of judicial gatekeeping for reliability.⁵⁹

The potential for adversarial methods to affect reliability assessments has received much attention and study in recent years, particularly with analysis of the issue of cross-examination. Research on the effect cross-examination “dirty tricks” have on reliability determinations serves as an example of the concern. Kassin, Williams, and Saunders tested the effect of cross-examination questions containing a negative presumption on a mock jury’s perception of expert credibility.⁶⁰ The test involved a rape trial, in which a cross-examining attorney asked a question that implied the expert’s research was poorly regarded by colleagues or had been sharply criticized.⁶¹ The question resulted in one of three responses: an admission, a denial, or an objection by opposing counsel and a withdrawal of the question.⁶² The researchers evaluated credibility scores for the expert given by the mock jurors, and the data indicated that, regardless of the response to the question and even in cases involving denial or withdrawal of the question, the negative implication of the presumptive question harmed expert credibility.⁶³ This remained true even though the jurors also reported that they did not believe the negative fact contained within the presumptive question.⁶⁴ As a result, the researchers note that presumptive questions are regularly employed, and that “this study

56. Sanders, *supra* note 22, at 41 (quoting Samuel R. Gross, *Expert Evidence*, 1991 WIS. L. REV. 1113, 1175).

57. John H. Langbein, *The German Advantage in Civil Procedure*, 52 U. CHI. L. REV. 823, 836 (1985) [hereinafter Langbein, *The German Advantage*].

58. Ryan M. Seidemann et al., *Closing the Gate on Questionable Expert Witness Testimony: A Proposal to Institute Expert Review Panels*, 33 S.U. L. REV. 29, 67 (2005).

59. See *supra* note 37 and accompanying text.

60. Saul M. Kassin, Lorri N. Williams & Courtney L. Saunders, *Dirty Tricks of Cross-Examination: The Influence of Conjectural Evidence on the Jury*, 14 LAW & HUM. BEHAV. 373, 373–74 (1990).

61. *Id.* at 376.

62. *Id.*

63. *Id.* at 380–81.

64. *Id.*

suggests that the use of presumptuous questions is a dirty trick that can be used to distort jurors' evaluations of a witness's credibility."⁶⁵ So in cases of presumptive questions, at least, empirical study indicates that inappropriate cross-examination may have a dramatic effect on factfinders' perceptions of expert witnesses.

The problem of adversarial cross-examination techniques, however, cannot be confined to inappropriate presumptive questions or to dirty tricks alone. Rather, the basic procedure seems to be inconsistent with reasoned assessment of complex scientific material. Several aspects of cross-examination suggest that reliability may be affected by the standard methodologies of cross-examination.

First, cross-examination imposes on the opposing advocate a duty to find, explore, and even create doubt about an expert's opinions.⁶⁶ This duty remains "even if the advocate knows the testimony is accurate."⁶⁷ As a result, vigorous cross-examination, even of accurate testimony, may create an artificial "impression of conflict even when little or no disagreement exists in practice."⁶⁸ To avoid acknowledging weakness on cross, an expert may shade his or her testimony to the benefit of the client in order to eliminate or reduce doubts about the testimony.⁶⁹ Empirical research shows this effect to be pervasive. In one study, seventy-seven percent of experts agreed with the statement, "Lawyers manipulate their experts to weaken unfavorable testimony and strengthen favorable testimony."⁷⁰ A majority also agreed that "[l]awyers urge their experts to be less tentative" than they otherwise would.⁷¹ As a result, expert testimony may convey an artificial and unwarranted certainty. This can profoundly affect the perception of the reliability of complex scientific testimony.

65. *Id.* at 382.

66. See Herbert M. Kritzer, *The Arts of Persuasion in Science and Law: Conflicting Norms in the Courtroom*, LAW & CONTEMP. PROBS., Winter 2009, at 41, 50 (finding that "a party may shape and select evidence to its benefit").

67. *Id.* at 50 n.46 (emphasis removed).

68. Sheila Jasanoff, *What Judges Should Know About the Sociology of Science*, 32 JURIMETRICS J. 345, 353-54 (1992); see also Joseph Sanders, *Science, Law, and the Expert Witness*, LAW & CONTEMP. PROBS., Winter 2009, at 63, 67-68 [hereinafter Sanders, *Science, Law, and Expert Witness*].

69. Cheng, *supra* note 8, at 1392 (suggesting that "even a scrupulous expert will shade his testimony in his party's favor"); Sanders, *Expert Witness Ethics*, *supra* note 41, at 1577.

70. 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, 201 tbl.3 (1994).

71. *Id.*

Second, cross-examination often results in formulaic attack unrelated to the evidence in question. In his study of the expert testimony in the Bendectin cases, Sanders reported that expert cross-examination often revolved around the assertion that the expert witness fees made an expert a hired gun willing to say anything for the right price.⁷² In addition, the cross can involve minute distinctions between deposition testimony and trial testimony, which “rarely involve[] fundamental discrepancies that . . . significantly jeopardize the witnesses’ direct testimony.”⁷³ Even though it is unhelpful in assisting the trier on the merits, this kind of cross-examination seems common.⁷⁴

If cross-examination in these areas—attacking credibility on the basis of fees or small discrepancies—is universal, commentators suggest it has the effect of lowering overall systematic effectiveness.⁷⁵ In this model, cross-examination is merely a “ritual that does little to clarify the strengths and weaknesses of a witness’ testimony.”⁷⁶

Haack also suggests that the procedures of the adversarial method, and the legal standards of *Daubert*, combine to reduce expert testimony to a few “brief verbal formulae” that carry disproportionate weight in the legal world, beyond their meaning in the scientific community.⁷⁷ As one example, Haack notes that, in the scientific community, “peer review,” is not synonymous with “reliable.”⁷⁸ However, peer review is used by lawyers as one indicator of reliable science, because Justice Blackmun in *Daubert* listed it as a specific factor to consider in reliability assessments.⁷⁹ Haack points out that scientific concepts may diverge from their original meaning when used in a legal context, with a potential to affect the reliability of the results.⁸⁰ Reliability can be affected by adversarial methods, in particular cross-examination, which may feed an expert’s incentive to reduce uncertainty, shade testimony, or modify concepts beyond their scientific scope into legal buzzwords.

So, experts tend to become mouthpieces for the parties who retain them, reducing uncertainty, eliminating nuance, and adopting the

72. Sanders, *supra* note 22, at 47.

73. *Id.* at 48.

74. See Langbein, *The German Advantage*, *supra* note 57, at 836 (citations omitted).

75. *Id.*

76. Sanders, *supra* note 22, at 47.

77. Haack, *supra* note 17, at 19.

78. *Id.* at 19–20.

79. *Id.* (citing *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593–94 (1993)).

80. *Id.* (discussing further the issue of “statistical significance”).

language of the legal method—rather than the scientific one—presenting their conclusions.⁸¹ In this system, the factfinder may ultimately conclude that all experts are biased and confused, and thus discount them all.⁸² With no principled way to decide between the experts, jurors could decide on other factors rather than scientific validity.⁸³ As a result, jury verdicts may not reflect a principled assessment of merit, but instead serve a different, outcome-approving purpose, providing a pre-packaged justification for whichever verdict or decision the decisionmaker wishes to reach.⁸⁴

Adversarial procedure may undermine the reliability of complex scientific evidence. This concern is accentuated when adversarial bias and selection bias combine in a single case. Yet if alternative—rather than adversarial—legal processes provided an effective final check on reliability, then reliability might be less impacted. Instead of allowing a jury decision based on unreliable expertise, the judge may instead ensure reliability through vigorous vetting of all science.⁸⁵ So even in a world of selection bias and adversarial methodology, a strong gatekeeping system could save reliability by ensuring that only truly appropriate scientific evidence will be considered.⁸⁶ Of course, that requires an active judicial role and skilled judicial intervention.

D. Judicial Inexperience with Issues Central to Daubert Review

Underlying the *Daubert* gatekeeping structure lies an optimistic

81. See Sanders, *supra* note 22, at 38. Regarding the distinctions between legal factfinding and the scientific method, see Haack, *supra* note 17, at 7–15; Sanders, *Science, Law, and Expert Witness*, *supra* note 68, at 70–73. See generally Sander Greenland, *The Need for Critical Appraisal of Expert Witnesses in Epidemiology and Statistics*, 39 WAKE FOREST L. REV. 291, 292–94 (2004) (explaining the conflict between scientific values of uncertainty and the limited time available for courts and attorneys).

82. Robertson, *supra* note 39, at 192; Sanders, *Expert Witness Ethics*, *supra* note 41, at 1578 (“It is also likely that biased testimony contributes to the dilution effects by causing jurors to undervalue all expert opinions.”).

83. Robertson, *supra* note 39, at 192 (suggesting that “factfinders may also resort to more-or-less irrelevant proxies for the truth”); Sanders, *supra* note 22, at 38–39.

84. Sanders, *Expert Witness Ethics*, *supra* note 41, at 1578 (quoting a juror in an asbestos case—“The expert testimony was not a real factor in our decision, except in the very backhanded senses that it lent medical credence to any result” (quoting Jane Goodman et al., *What Confuses Jurors in Complex Cases*, TRIAL, Nov. 1985, at 65, 68)).

85. Regarding jurors relying on proxies for decisionmaking during a battle-of-the-experts, see *supra* note 83 and accompanying text.

86. See Robertson, *supra* note 39, at 189 (finding that the current system “allows judges to exclude the most biased experts”); Seidemann et al., *supra* note 58, at 68.

assumption about judicial skill in handling complex scientific evidence and distinguishing between better and worse scientific work.⁸⁷ The capacity of judges to handle this task has been the subject of major debate since 1993, but it is clear that *Daubert* reliability testing requires judges to critically assess the quality of proffered evidence and make judgments on scientific merit.⁸⁸

Part of the concern is that judges necessarily evaluate the reliability of particular scientific methodologies as performed by scientific experts,⁸⁹ but most judges have little, if any, training in any scientific discipline.⁹⁰ Recent empirical research demonstrates that judicial inexperience with scientific theory, and with statistics involved in many research fields, may threaten the ability of judges to do this successfully;⁹¹ judges “often lack the tools or expertise to make well-informed decisions.”⁹²

If judges lack appropriate scientific literacy, their ability to perform their gatekeeping role successfully remains in doubt.⁹³ Empirical data suggest these problems can affect admissibility decisions.⁹⁴

1. Judges and Their Scientific Background, Use of Statistics

Empirical study in the area of judges’ backgrounds in—and their capacity to undertake review of—scientific and statistical principles casts doubt on the assumption that judges will be able to adequately assess

87. See *supra* Part II.A and notes 19–22, 27 and accompanying text.

88. David S. Caudill, *Lawyers Judging Experts: Oversimplifying Science and Undervaluing Advocacy to Construct an Ethical Duty?*, 38 PEPP. L. REV. 675, 683 (2011).

89. See Michel F. Baumeister & Dorothea M. Capone, *Admissibility Standards as Politics—The Imperial Gate Closes Arrive!!!*, 33 SETON HALL L. REV. 1025, 1040 (2003) (quoting Samuel H. Jackson, Comment, *Technical Advisors Deserve Equal Billing with Court Appointed Experts in Novel and Complex Scientific Cases: Does the Federal Judicial Center Agree?*, 28 ENVTL. L. 431, 436 (1998)).

90. *Id.* at 1040–41 (referencing the survey results from Gatowski et al., *supra* note 6, at 442).

91. See Gatowski et al., *supra* note 6, at 433–44, 450–55.

92. Edward K. Cheng, *Independent Judicial Research in the Daubert Age*, 56 DUKE L.J. 1263, 1268 (2007); see also Stephen Breyer, *Introduction* to FED. JUDICIAL CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 1, 4 (2d ed. 2000) [hereinafter REFERENCE MANUAL ON SCIENTIFIC EVIDENCE] (“[M]ost judges lack the scientific training that might facilitate the evaluation of scientific claims or the evaluation of expert witnesses who make such claims.”).

93. Gatowski et al., *supra* note 6, at 454.

94. Joseph Sanders, *The Merits of the Paternalistic Justification for Restrictions on the Admissibility of Expert Evidence*, 33 SETON HALL L. REV. 881, 926–31 (2003) (citations omitted) (identifying, but scrutinizing, recent empirical research and independent evaluation of the effect of judicial background on admissibility decisions).

underlying scientific methodologies of experts.

Research shows that most judges have not had extensive mathematical or scientific training.⁹⁵ In her 2007 study, Valerie Hans assessed the skill of judges handling expert testimony on mitochondrial DNA presented in a hypothetical case.⁹⁶ The study first demonstrates that the judges' educational background in math and science was similar to that of the general jury pool.⁹⁷ Indeed, compared to the subset of jurors who had college degrees, judges had significantly fewer courses in math and science in their educational backgrounds.⁹⁸ Moreover, when compared to those jurors whose work involved math or science, Hans found the general pool of judges again had completed fewer classes in the relevant fields.⁹⁹ Finally, this study also showed that those judges who have the most exposure to math and science in their judicial work are not necessarily those who are the most trained in math and science.¹⁰⁰

While educational background is one concern, Hans also studied whether educational weakness translates into poor application of scientific principles. Hans's judges assessed expert testimony involving mitochondrial DNA,¹⁰¹ and after they were shown a videotape of testimony from a mock trial regarding DNA, Hans asked the judges to complete eleven true-false questions about the testimony.¹⁰² She found that the judges outperformed the overall jury pool on two questions, while the general jury pool did slightly better on one.¹⁰³ However, the college-educated jury pool scored higher than the judges on three of the

95. See Hans, *supra* note 6, at 28–31.

96. *Id.* at 28–29. Her study sample included sixty-five judges who volunteered to participate after Dr. Hans's presentation at a "Science for Judges" conference. *Id.* at 28. These responses were then compared to volunteer jury pool participants selected from New Castle County, Delaware. *Id.* at 27, 29–31.

97. *Id.* at 30 (noting that judges reported an average of 10.29 classes in high school and college, compared to 9.72 for the jury pool).

98. *Id.* (noting that college-educated juror subsets averaged 14.04 classes in science and math, compared to the 10.29 classes for judges).

99. *Id.* at 31.

100. *Id.* (concluding that "the judges who said they encountered 'a great deal' of scientific evidence in their judicial work did not report having more of a science and math background").

101. *Id.* at 31–38 (explaining and assessing judge and jury comprehension of expert testimony, based on questionnaire data).

102. *Id.* at 36.

103. *Id.* at 36–37.

eleven questions, while the judges scored higher on only one.¹⁰⁴ Hans's study demonstrates that judges perform worse than college-educated jurors in analyzing scientific evidence, which suggests that their capacity to perform their gatekeeping function is questionable.

A second study, performed by Sophia Gatowski and her colleagues in 2001, assessed judicial knowledge of basic scientific principles involved in *Daubert* gatekeeping.¹⁰⁵ Initially, Gatowski's study assessed the judges' background in science, and reported that judges themselves are split on whether they have adequate background to prepare them for their analyses of science in the courtroom.¹⁰⁶ When asked about the *Daubert* factors—falsifiability, error rate, peer review and publication, and general acceptance—a large majority of judges agreed that those factors were useful in assessing expert evidence.¹⁰⁷ However, the judges—who as a group agreed these concepts were useful in determining admissibility for expert evidence—were largely unable to provide a proper definition for the factors of falsifiability and error rate.¹⁰⁸ Based on the data, Gatowski and her colleagues concluded that “although judges overwhelmingly endorse the active gatekeeping role defined by *Daubert*, many may lack the scientific literacy necessitated by *Daubert*.”¹⁰⁹

Empirical research in the area of statistics shows similar results. In his 1982 assessment of judges' handling of statistical data, Dr. Stephen Fienberg reports that “[p]erhaps the most difficult task facing the courts is the evaluation and assessment of statistical analyses and opinions, especially in cases where there is conflicting statistical testimony.”¹¹⁰ After review of cases involving statistical data, Fienberg concluded that the resolution of conflicts between experts in statistical issues is clearly

104. *Id.* at 37–38.

105. Gatowski et al., *supra* note 6, at 438.

106. *Id.* at 442 (finding that 52% said background adequately prepared them for the range of scientific evidence in court and that 48% said background inadequately prepared them).

107. *Id.* at 444–47 (finding that 88%, 91%, 92%, and 93% reported each concept useful, respectively).

108. *Id.* at 444, 447 (concluding that 6% of responses showed an understanding of falsifiability and 4% showed an understanding of error rate). *But cf. id.* at 447–48 (finding that 71% of responses showed an understanding of peer review and 82% showed an understanding of general acceptance).

109. *Id.* at 453–54.

110. Stephen E. Fienberg, *The Increasing Sophistication of Statistical Assessments as Evidence in Discrimination Litigation*, 77 J. AM. STAT. ASS'N 784, 786 (1982).

“beyond the ken of even the most thoughtful and well-trained jurist.”¹¹¹ The National Research Council, in 1989, suggested the same in their assessment of the handling of statistical evidence in six case studies.¹¹² So even before *Daubert*, commentators expressed concern over statistical assessment by judges. Since *Daubert*, empirical research demonstrates that concerns over judicial skill in handling of statistics are not unfounded.¹¹³

Since statistics are essential to understanding the underlying methodological choices in many types of empirical research, unfamiliarity with the methods of statistical research can directly affect *Daubert* gatekeeping reliability choices.¹¹⁴ A brief examination of a particular field dependent on statistical analysis—epidemiologic evidence—demonstrates the practical effect of this concern over judicial training and handling of complex evidence.¹¹⁵

2. Review of Judicial Handling of Complex Expert Testimony: Epidemiologic Risk and the *Daubert* Standard

Epidemiology involves the study of “incidence, distribution, and etiology of disease in human populations,” and is often involved in attempting to show that disease is caused by certain substances or toxins.¹¹⁶ Assessment of the relationship between exposure and the

111. *Id.* at 787.

112. NAT’L RESEARCH COUNCIL, *supra* note 6, at 74 (“The case studies reveal that in dealing with statistical evidence courts can face substantial problems of institutional competence.”).

113. See CARL F. CRANOR, *TOXIC TORTS: SCIENCE, LAW, AND THE POSSIBILITY OF JUSTICE* 291–92 (2006) (stating that judges are not trained and lack the correct background to assess science done by the experts in the area); DAVID L. FAIGMAN, *LEGAL ALCHEMY: THE USE AND MISUSE OF SCIENCE IN THE LAW* 53–54 (1999) (“In most areas of the law, those using science have little or no training in the subject. This is true for judges, jurors, legislators, and to a lesser extent, administrators.”); Lempert, *supra* note 6, at 278.

114. Jennifer K. Robbenolt, *Evaluating Empirical Research Methods: Using Empirical Research in Law and Policy*, 81 NEB. L. REV. 777, 797 (2002) (“Those without a basic understanding of methods will be less likely to be able to identify the benefits of a particular methodological approach and will not be attuned to the drawbacks of the approach.”).

115. Andrew Jurs, *Judicial Analysis of Complex & Cutting-Edge Science in the Daubert Era: Epidemiologic Risk Assessment as a Test Case for Reform Strategies*, 42 CONN. L. REV. 49, 69–80 (2009). For more detail regarding this field of study, see *id.* at 53–69.

116. Michael D. Green et al., *Reference Guide on Epidemiology*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, *supra* note 92, at 333, 335 (defining epidemiology and noting the use in proof of causation); see also Bernard D. Goldstein & Mary Sue Henifin, *Reference Guide on Toxicology*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, *supra* note 92, at 401, 403 (defining toxicology as “the study of the adverse effects of chemicals on

incidence of disease involves informed analysis of data regarding the frequency of disease within the population, and multiple other factors, including statistical analysis.¹¹⁷ As a result, statistics often play a crucial role in establishing causation in cases involving epidemiologic evidence.¹¹⁸

In several studies of judges' performance in evaluating complex epidemiologic evidence, epidemiologists have rejected the conclusions reached by judges in evaluating causation by using statistics on disease.¹¹⁹ Epidemiologist Dr. Sander Greenland has sharply criticized the handling of probability data by judicial gatekeepers assessing causation evidence in toxic tort cases.¹²⁰ He suggests that the courts' focus on the relative risk analysis in epidemiology—often to the exclusion of other factors—oversimplifies the complexity of establishing causative effects in epidemiology.¹²¹ In addition, Greenland noted that relative risk—or incidence rate—will often be applied by courts in a manner beyond its meaning within the field of epidemiology.¹²²

In a separate analysis of judicial handling of epidemiological evidence, Dr. Jan Beyea and Daniel Berger are also critical.¹²³ Beyea and Berger suggest, as Greenland did, that the courts' assessment of risk ratio to establish causation oversimplifies the process of establishing

living organisms” (quoting David L. Eaton & Curtis D. Klaassen, *Principles of Toxicology*, in CASARETT AND DOULL'S TOXICOLOGY: THE BASIC SCIENCE OF POISONS 13, 13 (Curtis D. Klaassen et al. eds., 5th ed. 1996))).

117. Green et al., *supra* note 116, at 375–79 (defining nine factors to assess causation relationship).

118. *See id.* at 348 (“An association between exposure to an agent and disease exists when they occur together more frequently than one would expect by chance.”). *See generally id.* at 348–63, 369–73 (describing the use of statistics in epidemiology and potential sources of error in statistical analysis).

119. Jan Beyea & Daniel Berger, *Scientific Misconceptions Among Daubert Gatekeepers: The Need for Reform of Expert Review Procedures*, LAW & CONTEMP. PROBS., Spring/Summer 2001, at 327, 348, 350–57 (explaining how *Daubert* has created “Judicial Junk,” using the misapplication of the doubling-of-risk standard as an example); Sander Greenland, *Relation of Probability of Causation to Relative Risk and Doubling Dose: A Methodologic Error That Has Become a Social Problem*, 89 AM. J. PUB. HEALTH 1166, 1169 (1999).

120. Greenland, *supra* note 119, at 1166–69.

121. *Id.* at 1166–68.

122. *Id.* at 1168–69 (explaining that the “discrepancy between the rate fraction and the probability of causation has been overlooked by various experts in the legal as well as the scientific community, even though it undermines the rationale for a number of current legal standards”).

123. Beyea & Berger, *supra* note 119, at 349–50.

causation in epidemiologic analysis.¹²⁴ In addition, reliance on the risk ratio provides an unrealistic standard of “pure objectivity” that contrasts to other, necessarily more subjective, opinions.¹²⁵ The problem is that nearly all opinions in the area require some level of subjectivity, “based on past experience and best professional judgment.”¹²⁶ In so doing, Beyea and Berger expose that judicial use of risk-ratio assessment in the courtroom falls well short of epidemiological standards used in the work of researchers.¹²⁷ Thus, *Daubert* review aspires to ensure that scientists bring the same level of intellectual rigor to the courtroom as in their scientific work,¹²⁸ but the previous discussion shows how far the courts have fallen short of this goal.

3. Conclusion on Judicial Handling of Science

Considering the concerns regarding outlier enhancement and the adversarial methodology in assessment of complex science in court,¹²⁹ judges must evaluate proffered evidence closely to ensure that expert opinion evidence is based on reliable methods. However, to do so requires a detailed understanding of the “subtleties of scientific inquiry.”¹³⁰

Empirical assessment of judges’ background and ability to apply basic scientific and statistical principles suggests that they are not well-equipped for this task.¹³¹ Evaluation of the judicial handling of a specific area of complex evidence—epidemiological evidence in toxic torts—affirms this conclusion, as many epidemiologists reject the methodology used by judges in *Daubert* assessments regarding evidence from their field.¹³²

124. *Id.* at 353–55.

125. *Id.* at 355–56.

126. *Id.* at 356–57.

127. *Id.* at 355–57. See generally CRANOR, *supra* note 113, at 283 (“Admissibility decisions should be better founded scientifically than at present and comport better with how scientists themselves assess evidence.”).

128. See *supra* note 27 and accompanying text.

129. See *supra* Parts II.B–C.

130. Carl F. Cranor et al., *Judicial Boundary Drawing and the Need for Content-Sensitive Science in Toxic Torts After Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 16 VA. ENVTL. L.J. 1, 6 (1996); see also Baumeister & Capone, *supra* note 89, at 1039–41 (explaining that a major criticism of the *Daubert* standard is that the judge may not be qualified to accurately assess scientific evidence or methods).

131. Cheng, *supra* note 92, at 1270 & nn.17–18 (citing surveys and case law); Gatowski et al., *supra* note 6, at 454; see also *supra* Part II.D.1.

132. Beyea & Berger, *supra* note 119, at 348–50, 353–57; Greenland, *supra* note 119, at

With evidence demonstrating that judges lack the background to assess reliability in many fields, judges may, in cases involving the most complex and difficult science, require assistance. A judge might better perform *Daubert* reliability assessments by either appointing a Rule 706 independent expert, or performing independent judicial research to become more knowledgeable in the scientific field.¹³³

E. Current Unused Methodologies to Assist Judges

In *General Electric v. Joiner*, Justice Breyer wrote, in his concurrence, that “judges are not scientists and do not have the scientific training that can facilitate the making of such decisions” on subtle and sophisticated matters of scientific methodology, as required by *Daubert*.¹³⁴ Justice Breyer suggested that judges consider using other methodologies to assist them in the evaluation of scientific evidence, including the use of independent experts under Rule 706.¹³⁵ Breyer also mentioned other ways judges can further their analysis, including employing scientifically trained law clerks, more and more detailed Rule 16 pretrial conferences, and examination of experts by the court.¹³⁶

Unfortunately, these methodologies remain largely unused by judges.¹³⁷ This may threaten reliability of the outcomes reached within the system, because, as Justice Breyer suggested, these tools may be necessary to assist judges evaluating complex scientific evidence in the most difficult cases.¹³⁸

1. Independent Judicial Research

One way for a judge to become a more knowledgeable gatekeeper is for him or her to independently research into literature regarding the scientific issue in controversy in a pending case. Even before *Daubert*, commentators suggested independent judicial research as a method to

1166; *see also supra* Part II.D.2.

133. *See, e.g.*, David L. Faigman, *The Law's Scientific Revolution: Reflections and Ruminations on the Law's Use of Experts in Year Seven of the Revolution*, 57 WASH. & LEE L. REV. 661, 669 (2000) (“Having an expert from the field to discuss the complexities of the science greatly should improve judges’ comprehension of the research and relieve their fears of making a holding or writing an opinion that delves deeply into the subject.”).

134. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 148 (1997) (Breyer, J., concurring).

135. *Id.* at 149–50 (citations omitted).

136. *Id.* at 149.

137. *See infra* Part II.E.

138. *Joiner*, 522 U.S. at 149 (Breyer, J., concurring).

overcome judicial weakness in evaluating expert evidence.¹³⁹ Those suggestions continue after *Daubert*.¹⁴⁰ Some also suggest that the research should extend beyond investigation into existing studies and into the creation of new research in uncertain fields.¹⁴¹

Evidence suggests that for many judges the active research role is beyond their perception of the boundaries of the judicial role and adversarial litigation. In his article *Independent Judicial Research in the Daubert Age*, Edward Cheng evaluated judicial attitudes toward independent research by surveying state appellate judges.¹⁴² When asked about independent consultation with a medical school professor or a family physician to look into questions relevant to a pending case, judges overwhelmingly rejected the idea.¹⁴³ Judges were not as uniform on independent library research, disagreeing about whether consulting a medical journal or a medical treatise was appropriate.¹⁴⁴ In conclusion, Cheng suggested that “the drafters of the latest revision of the Model Code of Judicial Conduct should explicitly authorize independent research. Clarification of the evidentiary rules could be helpful as well.”¹⁴⁵ These changes would promote active judicial research.

Between the divergence of opinion on its desirability and the mixed statutory and legal basis for judges to perform independent research under current law, Cheng concludes that while independent judicial research may be desirable,¹⁴⁶ it remains unlikely to become either mandatory or universal.¹⁴⁷

139. See, e.g., John Monahan & Laurens Walker, *Social Authority: Obtaining, Evaluating, and Establishing Social Science in Law*, 134 U. PA. L. REV. 477, 497–98 (1986).

140. Cheng, *supra* note 92, at 1315.

141. Christine H. Kim, Essay, *Piercing the Veil of Toxic Ignorance: Judicial Creation of Scientific Research*, 15 N.Y.U. ENVTL. L.J. 540, 560, 582–83 (2007) (explaining that “it is time for courts to take a more active role in creating research by using the tools they already have at their disposal—most significantly, the authority to appoint neutral experts and the broad equitable power to craft innovative remedies”).

142. Cheng, *supra* note 92, at 1275–76.

143. *Id.* at 1278 (finding that 89% of the judges found family physician consultation undesirable and 88% found medical school professor consultation undesirable).

144. *Id.* at 1276, 1277 figs.1–2 (reporting that 25% of the judges said consulting a medical journal was very undesirable and 21% said consulting a medical journal was very desirable, whereas nearly 20% of the judges said consulting a medical treatise was very undesirable and nearly 18% said consulting a medical treatise was very desirable).

145. *Id.* at 1285–86, 1302–03.

146. *Id.* at 1315.

147. *Id.* at 1277, 1312, 1314 (finding that (1) a significant percentage of judges see independent research as very undesirable; (2) mandatory rules are unlikely to result in universal behavior; and (3) a discretionary approach is consistent with the overall character of

Independent judicial research could—if properly done—assist the judge in overcoming some of the inherent problems with *Daubert* gatekeeping, such as weak training in science or a poor ability to apply scientific principles.¹⁴⁸ But without additional use, it may not provide a systematic solution to the *Daubert* gatekeeping weaknesses.

2. Independent Experts

The use of independent experts under Federal Rule of Evidence 706¹⁴⁹ provides one additional and often-suggested solution to the problem of judicial inexperience with complex science.¹⁵⁰ Yet empirical research demonstrates that, similar to independent research, judges remain reluctant to appoint independent experts.¹⁵¹ As a result, the suggestion of Justice Breyer in *Joiner*, to use different measures to assist judges in evaluating complex science, goes largely unheeded.

There are, without question, multiple benefits to using independent experts under Rule 706, particularly in the area of *Daubert* review. Initially, a judge who lacks background training in science and math—as research demonstrates many do¹⁵²—could call upon an independent expert to provide a non-partisan analysis of the expert opinions and methodology of the experts retained by the opposing parties.¹⁵³ This could assist the judges in comporting their *Daubert* reliability decisions to the state of current research in the field, beyond the opinions and research presented by partisan outliers.¹⁵⁴ The judge could, with assistance from the expert, see which party's criticisms of the opposing expert actually affect reliability—and thus admissibility under *Daubert* screening—and which are merely adversarial attacks trying to create

the rules).

148. See *supra* Part II.D, notes 111–113 and accompanying text (judges lack scientific training).

149. There is also some support for the idea that independent experts can be appointed through a judge's inherent ability to assess evidence under Rule 104. FED. R. EVID. 104(b); *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1392 n.8 (D. Or. 1996) (using Rule 104, not Rule 706, to appoint independent experts).

150. See Cheng, *supra* note 8, at 1393–96.

151. Krafka et al., *supra* note 7, at 326 tbl.5; see also Shirley A. Dobbin et al., *Federal and State Trial Judges on the Proffer and Presentation of Expert Evidence*, 28 JUST. SYS. J. 1, 10 tbl.3 (2007).

152. See *supra* Part II.D.1.

153. For this reason, commentators see independent experts as a solution to many of these problems. See *supra* Parts II.B–D; see also Robbennolt, *supra* note 114, at 797.

154. See *supra* Part II.B (selection bias of experts favor outliers within field).

artificial doubt.¹⁵⁵ Finally, if the parties know the judge intends to employ a neutral expert to help review reliability, parties are more likely to initially offer an opinion within the mainstream of the field, to avoid loss of evidence.¹⁵⁶

With these potential benefits, it is not surprising that empirical research demonstrates that judges also view independent experts as helpful.¹⁵⁷ Two studies, one from 1989 and one from 1994, show that a large majority of judges agree that an independent expert is likely to be helpful in assessing cases.¹⁵⁸ But even with the substantial agreement by judges that independent experts may be beneficial, research also demonstrates that few judges actually use them.

Two empirical studies published after *Daubert* show judicial reluctance to use independent expert review.¹⁵⁹ In their 1994 survey of 431 federal judges, Cecil and Willging assessed judges' views about Rule 706 experts.¹⁶⁰ Even though the judges overwhelmingly believed experts could be helpful, very few had ever appointed an independent expert.¹⁶¹ The survey shows that only about 20% of their sample—86 of 431 judges—had ever appointed an expert under Rule 706.¹⁶² Of those who had appointed an independent expert, a majority had done so only once.¹⁶³ Of those who had appointed an independent expert, an overwhelming majority reported they were satisfied with the result.¹⁶⁴

The Cecil and Willging study results are consistent with the 2002 study by Carol Krafka and her colleagues.¹⁶⁵ In the Krafka study, the

155. See *supra* text accompanying notes 65–70.

156. Jurs, *supra* note 115, at 86 (citing Developments in the Law, *Confronting the New Challenges of Scientific Evidence*, 108 HARV. L. REV. 1481, 1590–91 (1995)).

157. See Cecil & Willging, *supra* note 7, at 995; Louis Harris & Associates, Inc., *Judges' Opinions on Procedural Issues: A Survey of State and Federal Trial Judges Who Spend At Least Half Their Time on General Civil Cases*, 69 B.U. L. REV. 731, 741 & tbl.3.6 (1989) [hereinafter Harris].

158. Cecil & Willging, *supra* note 7, at 1009 (finding that 87% of the judges responded that independent experts would be helpful); Harris, *supra* note 157, at 741 & tbl.3.6 (concluding that such support is held by 76% of federal judges and 70% of state judges).

159. Cecil & Willging, *supra* note 7, at 1005 tbl.1; Krafka et al., *supra* note 7, at 326 tbl.5.

160. Cecil & Willging, *supra* note 7, at 1004 n.33.

161. *Id.* at 1004, 1009.

162. *Id.* at 1004, 1005 tbl.1.

163. *Id.* at 1005 & tbl.1 (finding that 52% of the judges who had appointed an independent expert only did so on one occasion).

164. *Id.* at 1008 (concluding that 63 of 65 judges were satisfied with their independent experts).

165. See Krafka et al., *supra* note 7, at 326 tbl.5.

judges surveyed rarely used independent experts.¹⁶⁶ Only 26% of respondents had ever appointed an independent expert.¹⁶⁷ That 26% figure compared to the 41% who indicated they participated in independent research,¹⁶⁸ 64% who used pretrial hearings to define the scope of expert testimony,¹⁶⁹ or 77% who used *Daubert* hearings.¹⁷⁰ Cecil & Willging's research and the Krafka study both demonstrate the general picture of judicial unwillingness to use independent experts, even if believed to be helpful.¹⁷¹

If judges are reluctant to use a procedure they consider helpful, there must be some reason for this. Cecil and Willging's report suggests several reasons why judges are reluctant to appoint an independent expert, including adherence to the adversarial system, inability to identify an expert, and desiring to limit Rule 706 for use in extraordinary cases only.¹⁷² Recent commentators agree with those conclusions. Cheng believes judicial reluctance to appoint relates to judicial inability to find the right expert, concerns about maintaining adversarial procedures, and a desire to avoid case management delays.¹⁷³ Similarly, Robertson cites inability or difficulty in selecting and preparing proper experts, and adversarial norms.¹⁷⁴

Despite agreement that independent experts offer solutions to many of the problems of judicial review of scientific methodology under *Daubert*, use of Rule 706 experts remains rare. As currently configured, Rule 706 procedures fall short of their potential in assisting judges with *Daubert* reliability assessments.

166. *Id.* at 326 tbl.5, 327.

167. *See id.* at 326 tbl.5.

168. *See id.*; *see also* Cheng, *supra* note 92, at 1276, 1277 figs.1-2 (detailing survey results that many judges are unwilling to independently consult experts); *supra* notes 144-148 and accompanying text.

169. Krafka et al., *supra* note 7, at 326 tbl.5.

170. *Id.* at 325-26 & tbl.5.

171. *See* THOMAS E. WILLGING ET AL., FED. JUDICIAL CTR., SPECIAL MASTERS' INCIDENCE AND ACTIVITY: REPORT TO THE JUDICIAL CONFERENCE'S ADVISORY COMMITTEE ON CIVIL RULES AND ITS SUBCOMMITTEE ON SPECIAL MASTERS 16 (2000) (stating that independent experts are utilized at a rate of 2.7 appointments per 10,000 cases).

172. Cecil & Willging, *supra* note 7, at 1015, 1018.

173. Cheng, *supra* note 92, at 1271-72.

174. Robertson, *supra* note 39, at 200.

F. Conclusions Regarding Judicial Handling of Science in the Daubert Era

The combined effects of the above difficulties suggest systematic weakness in U.S. courts' assessment of complex science, and so it is appropriate to seek methods to resolve these concerns. In *Legal Transplants*, Alan Watson suggested that, as a general matter, other nations' legal systems provide a natural source for law reform methods.¹⁷⁵ The foreign experience with science in litigation is a natural place to find ways to improve our system, as Haack and others have suggested.¹⁷⁶

III. PROCEDURES USED IN COMPARATIVE LAW ASSESSMENT

Having reviewed both the methods used by courts in the United States to assess reliability of experts, and the problems of those methods, the question remains how to resolve those concerns. An examination of foreign systems provides insight into other tested procedures to address these weaknesses. However, before jumping directly into the foreign systems, one must first address the methodological perspective to be employed.

There are many different, sometimes incompatible, approaches to the study of comparative law.¹⁷⁷ The differences are stark, occasionally enough to affect the tenor of academic discourse in the field.¹⁷⁸ The methods discussed in these arguments, and the criticisms thereof, offer

175. WATSON, *supra* note 9, at 17.

176. Haack, *supra* note 17, at 23; Langbein, *The Influence of Comparative Procedure*, *supra* note 10, at 552.

177. Mathias Reimann, *The Progress and Failure of Comparative Law in the Second Half of the Twentieth Century*, 50 AM. J. COMP. L. 671, 686-90 (2002) (noting that "the subject consists of a multitude of bits and pieces that do not add up to a coherent whole").

178. Compare Langbein, *The German Advantage*, *supra* note 57, at 823, and John H. Langbein, *Trashing The German Advantage*, 82 NW. U. L. REV. 763, 764-65, 784 (1988) (stating that the Allen et al. article misrepresents his previous work, and further calling its response "thoroughly untrustworthy" and a "reckless trashing" of his work), with Ronald J. Allen et al., *The German Advantage in Civil Procedure: A Plea for More Details and Fewer Generalities in Comparative Scholarship*, 82 NW. U. L. REV. 705, 707-08, 761 (1988) [hereinafter Allen et al., *A Plea*] (responding to 1985 Langbein article on experts in Germany and stating, "We are also convinced, however, that to be useful comparative analysis must proceed beyond platitudes and generalities to address instead the realities of the systems being compared"), and Ronald J. Allen, *Idealization and Caricature in Comparative Scholarship*, 82 NW. U. L. REV. 785, 807 (1988) [hereinafter Allen, *Idealization and Caricature*] (stating that Langbein failed to respond to criticism of his work, but rather only responded to discredit critics).

insight into proper methodological choices for analysis of experts.

As a starting point, the traditional approach to comparative analysis is functionalism. In functionalist theory, a legal problem is not reviewed through the assessment of the geographic entity or its sociological context; rather, the focus is on a problem common to several nations and on investigation into legal responses to the problem.¹⁷⁹ A functionalist necessarily adopts several underlying premises: first, that law is “an instrument for channeling human behavior and . . . answers to social needs or interests;” second, that problems addressed by disparate legal systems “are similar or even identical across different . . . systems;”¹⁸⁰ and third, that legal systems “solve[] these problems by quite different means though very often with similar results.”¹⁸¹ With these principles, a functionalist may address a legal problem between nations, offering cross-national insight.

With this methodology, functionalists may promote development of the law through the adoption of institutions or procedures from foreign systems.¹⁸² The development of law through a functionalist process therefore includes several steps: identifying a common problem; examining solutions in different systems; and adoption of a foreign solution that addresses the problem.¹⁸³ With this methodology, functionalist assessment of varying legal systems can become a source

179. Oliver Brand, *Conceptual Comparisons: Towards a Coherent Methodology of Comparative Legal Studies*, 32 BROOK. J. INT’L L. 405, 409–10 (2007); Michele Graziadei, *The Functionalist Heritage*, in COMPARATIVE LEGAL STUDIES: TRADITIONS AND TRANSITIONS 100, 102, 111 (Pierre LeGrand & Roderick Munday eds., 2003) (citing INTRODUCTION TO COMPARATIVE LAW, *supra* note 1, at 34–35); Christopher A. Whytock, *Taking Causality Seriously in Comparative Constitutional Law: Insights from Comparative Politics and Comparative Political Economy*, 41 LOY. L.A. L. REV. 629, 636 (2008) (quoting INTRODUCTION TO COMPARATIVE LAW, *supra* note 1, at 34); Ruti Teitel, *Comparative Constitutional Law in a Global Age*, 117 HARV. L. REV. 2570, 2574 (2004) (book review).

180. Brand, *supra* note 179, at 409–10.

181. Graziadei, *supra* note 179, at 102 (quoting INTRODUCTION TO COMPARATIVE LAW, *supra* note 1, at 34).

182. See William Ewald, *Comparative Jurisprudence (II): The Logic of Legal Transplants*, 43 AM. J. COMP. L. 489, 502–03 (1995); William Ewald, *Comparative Jurisprudence (I): What Was It Like to Try a Rat?*, 143 U. PA. L. REV. 1889, 1979 (1995) [hereinafter Ewald, *Try a Rat*].

183. See, e.g., Brand, *supra* note 179, at 409–10; see also WATSON, *supra* note 9, 95–101; Michele Graziadei, *Legal Transplants and the Frontiers of Legal Knowledge*, 10 THEORETICAL INQUIRIES IN L. 723, 726–730 (2009) (stating that the similarities between the German and Japanese civil codes may be explained as “the Japanese government’s choice to rely on th[o]se Western models to change the law of Japan”).

for legal reforms.¹⁸⁴ Along these lines, the U.S. Supreme Court has often noted the usefulness of foreign law in domestic interpretation issues.¹⁸⁵ Justice Breyer has supported this approach: “Willingness to consider foreign judicial views in comparable cases is not surprising in a Nation that from its birth has given a decent respect to the opinions of mankind.”¹⁸⁶

Functionalism does have its critics, however. Mirjan Damaška notes that the transplantation of legal structures from one nation to another—often a part of functionalist reform—often has unintended consequences: “In seeking inspiration for change, it is perhaps natural for lawyers to go browsing in a foreign law boutique. But it is an illusion to think that this is a boutique in which one is always free to purchase some items and reject others.”¹⁸⁷

But Damaška’s criticism reveals an even larger point: the underlying premises of functionalism may not survive critical appraisal. Critics of the functional approaches to comparative methodology may operate from several perspectives. Among these, the culturalists reject assessment of legal methodology independent of the society and unique characteristics that created it.¹⁸⁸ As one commentator notes, culturalist

184. WATSON, *supra* note 9, at 118; Bryan, *supra* note 9, at 538; Mirjan Damaška, *The Uncertain Fate of Evidentiary Transplants: Anglo-American and Continental Experiments*, 45 AM. J. COMP. L. 839, 851–52 (1997); Markesinis, *supra* note 9, at 21.

185. *Roper v. Simmons*, 543 U.S. 551, 575–77 (2005) (Kennedy, J.) (examining United Nations, United Kingdom, and other nations’ laws to assess the use of juvenile death penalty; stating that “the Court has [previously] referred to the laws of other countries and to international authorities as instructive”); *Lawrence v. Texas*, 539 U.S. 558, 572–73, 576 (2003) (Kennedy, J.) (assessing European case law to examine sodomy law); *Foster v. Florida*, 537 U.S. 990, 992–93 (2002) (Breyer, J., dissenting) (assessing international decisions on delay in death penalty); *Knight v. Florida*, 528 U.S. 990, 997 (1999) (Breyer, J., dissenting) (citing cases which analyzed foreign law to interpret the Constitution, *inter alia*, *Washington v. Glucksberg*, 521 U.S. 702, 710 n.8, 718–19 n.16 (1997)); *Printz v. United States*, 521 U.S. 898, 976–77 (Breyer, J., dissenting) (1996) (citing examples of Switzerland, Germany, and the European Union, stating that “their experience may nonetheless cast an empirical light on the consequences of different solutions to a common legal problem”); *Thompson v. Oklahoma*, 487 U.S. 815, 830–31 (1988); *Enmund v. Florida*, 458 U.S. 782, 796–97 n.22 (1982) (citing *Coker v. Georgia*, 433 U.S. 584, 596 n.10 (1977)).

186. *Knight*, 528 U.S. at 997 (Breyer, J., dissenting) (internal quotation marks omitted).

187. Damaška, *supra* note 184, at 852; *see also* Langbein, *The Influence of Comparative Procedure*, *supra* note 10, at 552–53.

188. Brand, *supra* note 179, at 412–13, 428; *see also* Vlad F. Perju, 7 INT’L J. CONST. L. 170, 171 (2009) (reviewing *THE MIGRATION OF CONSTITUTIONAL IDEAS* (Sujit Choudhry ed., 2006)) (discussing comparative law polarization between perspectives of “borrowing” and “migration”). *See generally* Graziadei, *supra* note 179, at 126 (explaining the recent emergence of culturalists).

methodology requires a foreign system to be analyzed

from the inside and in socio-cultural context; and those who engage in something less are in essence practicing cognitive control over their readers and deluding themselves in the process. . . . [T]he researcher must *always* delve beyond judicial decisions, doctrinal writings and the black letter law of code and statute and reach into the ill-defined region of “deeper structures” where law perhaps meets philosophy, sociology, and social culture.¹⁸⁹

In a culturalist assessment then, only immersion within the greater contexts of the law allows for beneficial insight into foreign systems.¹⁹⁰

Other critics of the functionalist methodology pointedly reject the assumptions underlying functionalist theory,¹⁹¹ which they see as oversimplifying issues.¹⁹² Some see the weaknesses of functionalism as rooted in the problem that systems cannot be properly understood when unmoored from the philosophical bases of the law.¹⁹³ Other commentators criticize the traditional emphasis placed on a small number of systems, usually the “common law” and “civil law” Western European systems.¹⁹⁴ Another criticism of functionalism is that the assumption that problems are similar across different systems cannot be verified.¹⁹⁵ In combination, the anti-functionalists argue, these concerns lead to the conclusion that traditional comparative scholarship has often been shallow and unhelpful, if not misleading or simply wrong.¹⁹⁶

The anti-functionalist criticisms offer appropriate insights into the limits of functionalist theory. However, the responses of commentators to the anti-functionalist arguments forcefully reject many criticisms as

189. Vernon Valentine Palmer, *From Lertholi to Lando: Some Examples of Comparative Law Methodology*, 53 AM. J. COMP. L. 261, 266 (2005).

190. See Allen, *Idealization and Caricature*, *supra* note 178, at 788; Allen et al., *A Plea*, *supra* note 178, at 707–08; Ewald, *Try a Rat*, *supra* note 182, at 1977.

191. For the underlying assumptions of functionalism, see *supra* text accompanying notes 179–181.

192. Ewald, *Try a Rat*, *supra* note 182, at 1963–65 (citations omitted) (cataloguing criticisms of traditional comparative analysis).

193. *Id.* at 1896; Palmer, *supra* note 189, at 266.

194. Brand, *supra* note 179, at 414.

195. *Id.* at 417.

196. Ewald, *Try a Rat*, *supra* note 182, at 1968 (containing criticisms of traditional comparative law).

unrealistic and unhelpful. Palmer rejects the idea that foreign systems can only be assessed by someone totally immersed in foreign culture.

I believe these strictures (of immersion critics) are, in part, based on unrealistic assumptions that threaten to make the comparative law enterprise quite impractical. They establish standards of research that are generally unattainable, which means that no project is worth beginning, or if it was begun or accomplished, will not be safe from rigorous critique. And this only increases comparative law's reputation for being exotic and forbidding.¹⁹⁷

Accordingly, Palmer suggests that practical forms of research should be considered entirely appropriate.¹⁹⁸ This pragmatic approach rejects the “nearly insurmountable methodological hurdle” of culturalist methods.¹⁹⁹

Other commentators agree. In his analysis of the culturalist approach, Bradley Bryan writes that indeed cultural explanations often involve a uniquely American approach to law, but that does not mean there is nothing we can learn from civil law methods.²⁰⁰ Bryan argues that it is appropriate to examine the fundamental differences and similarities between systems, even if we cannot do an in-depth study of the rich and complex histories of systems.²⁰¹

John Langbein goes a step further than Palmer or Bryan. He attacks the culturalists' ulterior motive of shielding the American system from criticism based on comparative assessments.²⁰² He goes so far to say that arguments of American exceptionalism that defend the *status quo* against comparative assessment based on “cultural differences” are not based on an academic distinction, but rather demonstrate a tautological belief system: “What [this] argument boils down to is the claim that we Americans cannot aspire to such improvements because we are Americans and they are Germans.”²⁰³ Langbein, rejecting the

197. Palmer, *supra* note 189, at 266.

198. *Id.* at 264, 266.

199. *Id.* at 265 (quoting Janet E. Ainsworth, *Categories and Culture: On the “Rectification of Names” in Comparative Law*, 82 CORNELL L. REV. 19, 25 (1996)).

200. Bryan, *supra* note 9, at 535–36, 539, 542, 554.

201. *Id.* at 543; *see also* Graziadei, *supra* note 179, at 113 (discussing the role of functionalism as complementary to cultural approaches and noting that diversity in approaches is beneficial).

202. John H. Langbein, *Cultural Chauvinism in Comparative Law*, 5 CARDOZO J. INT'L & COMP. L 41, 48–49 (1997) [hereinafter Langbein, *Cultural Chauvinism*].

203. *Id.* at 45.

limitations imposed by immersion theorists, assures us that cross-cultural comparison from the functionalist perspective offers appropriate suggestions to the improvement of the American system.²⁰⁴

Even if those who counter the criticisms of functionalist theory—such as Bryan, Langbein, or Palmer—fail to convince, perhaps the focus can shift from theoretical generalities to the particular problem being addressed. Since functionalism retains its position as the dominant ideology of the comparative law realm,²⁰⁵ a functionalist approach must be more persuasive in some areas, even if it is less in other areas of the law. If that is true, the subject of experts fits squarely within the boundaries of the domain where a functionalist approach is appropriate. In particular, this Article examines four characteristics leading to this conclusion.

First, the function of and rules for experts discussed here involves private law rather than constitutional or public law concerns. Even critics of functionalism recognize that areas of private law such as tort, contract, and family law are areas that lend themselves more easily to cross-national comparison than public or constitutional areas,²⁰⁶ which are more closely associated with the unique historical and cultural context of the nation.²⁰⁷ More succinctly, Ruti Teitel notes, “Historically, functionalism assumed that legal problems could simply be excised from their political context, a notion easy to sustain in private law.”²⁰⁸ Teitel continues by saying that constitutional or public law was beyond the purview of traditional functionalism.²⁰⁹ Alan Watson further suggests that “no area of private law can be designated as being extremely resistant to change as a result of foreign influence.”²¹⁰ It seems that private law issues—such as experts—are more likely to be proper for functionalist assessment.

A second reason that expert witness issues are likely to be appropriate for functionalist analysis is the narrow nature of the issue being addressed. In general, commentators note that narrow problems

204. See *id.* at 41–42; see also Langbein, *The German Advantage*, *supra* note 57, at 825 (suggesting reforms to American judicial factfinding based on German examples).

205. Brand, *supra* note 179, at 408.

206. See WATSON, *supra* note 9, at 98; Ewald, *Try a Rat*, *supra* note 182, at 1987; Teitel, *supra* note 179, at 2575.

207. See *supra* text accompanying notes 188–191.

208. Teitel, *supra* note 179, at 2576.

209. *Id.*

210. WATSON, *supra* note 9, at 98 (emphasis added).

and institutions offer comparative scholars with readily-accessible areas for study.²¹¹ Scholars starting their research may, because of this, look to a discrete area familiar to the scholar that is also present within the foreign system.²¹² By examining a familiar but narrow issue, that comparative scholar's analysis may "lead to reflection—if not cross-fertilization of ideas and solutions" shaped by differences in structure from the foreign system.²¹³ Such differences may offer solutions that are "'packaged' . . . for exportation," and tailored to resolve narrow issues.²¹⁴ Expert reform fits this template, as a discrete transportable issue, and "the most obvious of the European-inspired improvements that Americans could make in their civil procedure."²¹⁵

A third reason why functionalist approaches seem appropriately applied to expert witness concerns is not as much an assessment of functionalism alone, but a response to those criticisms leveled against it. If immersion theorists and other anti-functionalists criticize functionalism partially based on attacking its underlying assumptions,²¹⁶ then a demonstration that those assumptions are valid may blunt that criticism. Expert concerns are one area where the functionalist assumption of similarity of problems appears valid.²¹⁷ Concerns in the proper use of experts in complex litigation are not limited to solely one national legal system, but are common to many. The common concerns include: how to balance expertise and legal process, how to preserve the role of the factfinder when necessity dictates the need for specialized evidence, and how to ensure the quality of the evidence being presented on an issue factfinders do not themselves know.²¹⁸ If these problems are

211. Michael Coester & Basil Markesinis, *Liability of Financial Experts in German and American Law: An Exercise in Comparative Methodology*, 51 AM. J. COMP. L. 275, 309 (2003).

212. *Id.*

213. *Id.*

214. *Id.*

215. Langbein, *The Influence of Comparative Procedure*, *supra* note 10, at 552.

216. *See supra* text accompanying notes 191–196.

217. *See supra* note 181 and accompanying text.

218. *See* CARL F. GOODMAN, JUSTICE AND CIVIL PROCEDURE IN JAPAN 364–67 (2004) [hereinafter GOODMAN, JUSTICE] (discussing changes to Japanese expert witness system to address previous weaknesses in expert witness role and operation); MIKE REDMAYNE, EXPERT EVIDENCE AND CRIMINAL JUSTICE 206–11 (2001) (reviewing and criticizing French methods for expert selection and role of experts in criminal litigation); Ian Freckelton, *Judicial Attitudes Toward Scientific Evidence: The Antipodean Experience*, 30 U.C. DAVIS L. REV. 1137, 1149–50 (1997) (explaining that balancing the role of judge, jury, and expert in cases involving complex evidence is a difficult problem, and has a long history in Australia).

similar between systems—and they appear to be—then the criticism of the anti-functionalists that problems cannot be assessed without detailed cultural or sociological assessments is unconvincing. Expert witness issues do appear to fit within the confines of appropriate applications of functionalist theory.

A final reason why functionalism may be appropriate to assess expert witness procedures involves the underlying basis of much expert witness testimony: that the scientific method aspires to achieve universal and objective truth, and so is transnational in that sense.²¹⁹ The scientific method is often defined by “universalism, communism, disinterestedness, [and] organized skepticism.”²²⁰ To these ends, commentators note that “[i]t offends science, which prides itself on both internationalism of cooperation and universality of truth, if its truths and authority cannot flow freely across borders.”²²¹ Of course, the goal of science is to maximize universality and precision, not to achieve it.²²² Even so, the subject matter similarity of expert evidence allows isolation of the legal structures in a way unavailable for, or more complicated in, differing subject areas. As such, the functionalist transnational assessment of problem-solving techniques seems particularly informative in this area.

and New Zealand); Petra van Kampen & Hans Nijboer, *Daubert in the Lowlands*, 30 U.C. DAVIS L. REV. 951, 970–88 (1997) (assessing the admissibility of expert testimony in complex tort litigation in the Netherlands); Sanders, *Science, Law, and Expert Witness*, *supra* note 68, at 73, 74 & n.53 (finding that when serving as an expert in litigation, expert witnesses must balance their duty to scientific convention with their duty to the court; United Kingdom civil procedure specifically states the expert’s duty to the court will outweigh its duty to the retaining party); Sven Timmerbeil, *The Role of Expert Witnesses in German and U.S. Civil Litigation*, 9 ANN. SURV. INT’L & COMP. L. 163, 179–85 (2003) (describing the role of judge and expert in German court and offering criticisms of the balance of these roles in German civil litigation). Many of these examples will be discussed in detail *infra* Parts IV.A–E.

219. Regarding science as a universal methodology, see Sanders, *Science, Law, and Expert Witness*, *supra* note 68, at 88 (scientific methods always include skepticism, empirical assessment, intellectual honesty, and disinterestedness); and see also *infra* note 217 and accompanying text.

220. ROBERT K. MERTON, *THE SOCIOLOGY OF SCIENCE: THEORETICAL AND EMPIRICAL INVESTIGATIONS* 270 (1973). For a general description of these “imperatives,” see *id.* at 270–78.

221. Charles Bazerman, *How Does Science Come to Speak in the Courts? Citations, Intertexts, Expert Witnesses, Consequential Facts, and Reasoning*, LAW & CONTEMP. PROBS., Winter 2009, at 91, 119.

222. Peter A. Alces, *Contract Reconceived*, 96 NW. U. L. REV. 39, 40 (2002) (quoting PAUL HOYNINGEN-HUENE, *RECONSTRUCTING SCIENTIFIC REVOLUTIONS: THOMAS S. KUHN’S PHILOSOPHY OF SCIENCE* 23 (Alexander T. Levine trans., 1993)) (suggesting that science seeks maximum precision and universality).

Combining all four considerations—expert witnesses contained within private law, the separation of a discrete issue from larger concerns, commonality of problems of balancing scientific expertise and legal process, and the basic universality of scientific inquiry—the conclusion is that functionalist methodology is an appropriate means to examine expert witnesses between foreign systems. This is not to say it is the sole method, but only to say that it is an appropriate and beneficial method to consider in reform efforts looking for possible ways to improve systematic handling of experts; indeed, “[a] deeper understanding of the theory and practice of another system” provides an opportunity to “allow us to reflect more thoroughly on the possible consequences of pursuing change in our own system.”²²³ As such, the systems of other major industrialized nations in handling experts should offer insight into the balancing of legal process and scientific expertise within the U.S. system.

IV. ANALYSIS OF OTHER NATIONS’ HANDLING OF EXPERT WITNESSES IN LITIGATION

All major legal systems must manage the competing concerns of legal process and scientific knowledge, preserving the role of the factfinder while ensuring access to reliable scientific expertise. How they do so may prove instructive to the American legal system, consistent with Haack’s suggestion to seek solutions to *Daubert’s* weaknesses in the handling of expert witnesses in other nations.²²⁴

To assess whether we may find useful tools in the foreign examples, this Article will assess procedures that apply to experts in complex tort cases²²⁵ in the common-law systems of Canada and the United Kingdom,²²⁶ and in the civil law systems of Germany and Japan.²²⁷ For each nation, this Article will describe the role and selection of experts, the methods used to ensure scientific reliability for expert evidence, and the preservation of the role of the factfinder from undue influences of the expert. Then, it will be possible to suggest which methodologies offer promise to address the weaknesses of the current management of

223. See Kinley & Rose, *supra* note 10, at 16 (discussing potential change to Australia’s system).

224. Haack, *supra* note 17, at 23.

225. See *supra* notes 30–31 and accompanying text.

226. See *infra* Parts IV.A–.B.

227. See *infra* Parts IV.D–.E.

experts within the *Daubert* framework of the United States.²²⁸

A. Canada

The Canadian system is a useful starting point for assessing other nations' handling of complex evidence in court, since the basic structure of tort liability and the basic test for judicial review of complex evidence will be familiar to the American audience. Yet, some significant differences in both substantive and procedural law provide an interesting contrast with the *Daubert* regime in the United States.

1. Basic Admissibility Standards Under Canadian Law

Historically, Canadian courts have used a minimal standard for admissibility of expert evidence, evaluating solely whether the evidence would be helpful to the jury.²²⁹ A judge deciding the admissibility of expert testimony under this prior system would merely decide whether the jury would be able to decide the issue for themselves, and if not, then a properly qualified expert could testify on the issue.²³⁰ Before 1994, Canadian courts consistently rejected *Frye*-type assessment of reliability in use in the United States until 1993.²³¹ However, in 1994, the Canadian Supreme Court issued a watershed opinion that significantly changed the previous standard for admission of expert testimony.

In *R. v. Mohan*, the Canadian Supreme Court adopted a four-part test for the admission of proposed expert testimony.²³² Explicitly rejecting the prior standard of helpfulness, the court determined that admission is measured by the following: relevance of the expert evidence, its "necessity in assisting the trier of fact," "the absence of any

228. See *infra* Part V.

229. Sidney N. Lederman, *Judges as Gatekeepers: The Admissibility of Scientific Evidence Based on Novel Theories*, in SPECIAL LECTURES 2003: THE LAW OF EVIDENCE 218, 221 (Law Society of Upper Canada, eds., 2004) (citing *Fisher v. R.*, [1961] O.W.N. 94 (Can. Ont. C.A.), *aff'd* [1961] S.C.R. 535 (Can.)).

230. Lederman, *supra* note 226, at 221.

231. Sophia I. Gatowski et al., *The Diffusion of Scientific Evidence: A Comparative Analysis of Admissibility Standards in Australia, Canada, England, and the United States, and Their Impact on Social and Behavioural Sciences*, 4 EXPERT EVIDENCE 86, 87–88 (1996) (citing *R. v. Beland*, [1987] 2 S.C.R. 398 (Can.) (Wilson, J., dissenting); *R. v. Johnston*, 1992 CarswellOnt 78 paras. 63–82 (Can. Ont. Gen. Div.)); see also P. Brad Limpert, *Beyond the Rule in Mohan: A New Model for Assessing the Reliability of Scientific Evidence*, 54 U. TORONTO FAC. L. REV. 65, 79–80 (1996). But see *R. v. Medvedew*, [1978] 6 W.W.R. 208, 221 (Can. Man. C.A.) (O'Sullivan, J.A., dissenting) (writing that "to me [the *Frye* standard] makes sound sense and expresses a view in accord with the principles of the common law").

232. *R. v. Mohan*, [1994] 2 S.C.R. 9, 20 (Can.).

exclusionary rule,” and whether there is “a properly qualified expert.”²³³ As a result, expert admissibility decisions need more rigorous assessment than before.²³⁴ While not explicitly citing *Daubert*, *Mohan* included reliability assessment as part of the determination of relevance within the four factors.²³⁵ For those expert opinions that are considered to be a “novel scientific theory or technique,” the court suggested a more rigorous test requiring “special scrutiny” to ensure reliability.²³⁶ Even with the four-part test, *Mohan* raised as many questions as it resolved.

In the years immediately following *Mohan*, Canadian courts made reliability assessments in a variety of ways.²³⁷ Some courts applied factors similar to *Daubert*—looking at peer review, general acceptance, and known or potential rate of error.²³⁸ Other courts applied vaguer standards.²³⁹ Still others applied a fourteen-factor reliability test from a precise inquiry predating *Mohan*, in *R v. Johnston*.²⁴⁰ While *Mohan* contained language clarifying the standard for judicial gatekeeping in Canada, its application remained uncertain following the decision.

The Canadian Supreme Court clarified the gatekeeping standard in the 2000 case of *R. v. J.-L.J.*²⁴¹ In *R. v. J.-L.J.*, a criminal case tried

233. *Id.*

234. Lederman, *supra* note 226, at 221–22; Paul Mitchell & Renu Mandhane, *The Uncertain Duty of the Expert Witness*, 42 ALTA. L. REV. 635, 641 (2005) (suggesting that “it is now more difficult to have expert testimony admitted in both criminal and civil proceedings”).

235. Robert S. Harrison & Emily E. Marrocco, *The Nuts and Bolts of Expert Evidence*, 25 ADVOC. Q. 157, 159–60 (2002); Lederman, *supra* note 227, at 222; David Paciocco, *Taking a “Gouge” out of Bluster and Blarney: An “Evidence-Based Approach” to Expert Testimony*, 13 CAN. CRIM. L. REV. 135, 147 (2009) (“Traditionally, ‘reliability’ of the expert’s theories or techniques has been tested under the ‘relevance’ branch of the *Mohan* inquiry.”).

236. *Mohan*, [1994] 2 S.C.R. at 25.

237. See Limpert, *supra* note 231, at 83 (citing *Petro-Can. v. Can.-Nfld. Offshore Petrol. Bd.*, [1995] 127 D.L.R. 4th 483, 504–05 (Can. Nfld. S.C.); and *R. v. J.E.T.*, 1994 CarswellOnt 3370, para. 75–87 (Can. Ont. Gen. Div.) (WL)).

238. *J.E.T.*, 1994 CarswellOnt 3370 para. 75 (citing *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589–94 (1993)).

239. Lederman, *supra* note 226, at 223–25 (citing *R. v. Terceira* (1998), 38 O.R. 3d 175 (Can. Ont. C.A.) and concluding that the Judge “decline[d] to enumerate a specific structure that must be adhered to in every case,” leaving it to court discretion for reliability analysis in each case).

240. *R. v. Johnston*, [1992] 12 C.R. 4th 99 (Ont. Gen. Div.); Lederman, *supra* note 226, at 225. Limpert states the *Johnston* standard, with its 14-point analysis, “may be somewhat helpful to a judge but it sets out a confusing, incoherent, and redundant legal standard.” Limpert, *supra* note 231, at 81–82.

241. *R. v. J.-L.J.*, [2000] 2 S.C.R. 600 (Can.).

without a jury, the court emphasized that the gatekeeping role is essential to keep out improper expert evidence and avoid its distorting effects on a trial²⁴²—and that remained true for cases with a judicial factfinder as well as jury cases.²⁴³ In addition to stressing the importance of gatekeeping, the court in *R. v. J.-L.J.* further clarified the reliability test for experts who testify to a new or novel scientific theory, subject to “special scrutiny” under *Mohan*.²⁴⁴ For such evidence, the court thought it especially important that courts ensure that improper evidence stays out of the case, by assessing reliability under the *Daubert* factors: testing, “peer review and publication,” “known or potential rate of error,” and general acceptance.²⁴⁵ In analyzing these factors, judges will determine if the new or novel science is reliable enough for consideration by the factfinder.²⁴⁶

Through the establishment of a test for gatekeeping in *Mohan*, and the clarification of that standard for novel science in *R. v. J.-L.J.*, the Canadian Supreme Court ensured trial judges assess scientific reliability of expert evidence prior to admission.

2. Application of the Standard—Role of Jury, Complex Case Law

So, since 1994, the Canadian Supreme Court has rejected the previous standard of helpfulness. Analysis of the scope, purposes, and application of the Canadian standard will help assess whether the system works, and also its similarity to gatekeeping in the United States.

When establishing uniform rules for Canadian gatekeeping, one initial consideration involves the different circumstances of civil jury trials in that nation. In Canada, trial by jury remains largely confined to criminal law cases, as guaranteed by the Canadian Charter of Rights and Freedoms.²⁴⁷ In civil cases, jury trials are rare, occurring only in some

242. *Id.* paras. 28–29, 61 (internal citations omitted).

243. *Id.* para. 25 (noting the need to “preserve and protect the role of the trier of fact—the judge or the jury” (emphasis added)); *id.* para. 56 (holding expert opinions to be outside the knowledge of the judge or jury and that the opinions must “enable the trier of fact to appreciate the matters in issue due to their technical nature” (quoting *R. v. Mohan*, [1994] 2 S.C.R. 9, 23 (Can.))).

244. *Id.* paras. 33–35 (citing *Mohan*, [1994] 2 S.C.R. at 25; *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593–94 (1993)).

245. *Id.* para. 33.

246. *See id.* paras. 34–35.

247. *See* Neil Vidmar, *The Canadian Criminal Jury: Searching for a Middle Ground*, LAW & CONTEMP. PROBS., Spring 1999, at 141, 146–47 (quoting Canadian Charter of Rights and Freedoms § 11(f), Part I of the Constitution Act, 1982, *being* Schedule B to the Canada

provinces and for certain claims.²⁴⁸ Even in provinces where civil jury trials are generally permitted, the judge may remove a case from consideration by a jury on the basis of significant complexity.²⁴⁹ With these rules, a trial regarding a civil claim based on complex scientific evidence is extraordinarily rare or nonexistent, and so one could conclude gatekeeping as established by *Mohan* is unnecessary since the court can consider, as factfinder, the ultimate conclusion. This unified approach is how complex evidence assessment occurs in the United Kingdom.²⁵⁰ For Canadian courts, however, the gatekeeping function remains significant and important at the admission stage.²⁵¹ The reason gatekeeping remains important, even in the absence of a civil jury trial, is the purposes it is intended to serve.

Gatekeeping clearly serves the function of ensuring that only reliable evidence gets considered at trial. Since only reliable evidence will be admitted, expert evidence is intended to help reach an accurate conclusion based on the current state of science.²⁵² Unreliable evidence is excluded, then, to ensure that it does not distort the factfinding

Act, 1982, c. 11 (U.K.)).

248. W.A. Bogart, “*Guardian of Civil Rights . . . Medieval Relic*”: *The Civil Jury in Canada*, LAW & CONTEMP. PROBS., Spring 1999, at 305, 306–07 (finding that some provinces prohibit jury trial, while some allow it for certain claims—for example, Alberta allows jury trial for tort claims and British Columbia and Ontario allow jury trials with certain exceptions).

249. *Id.* at 307–08 (citing Supreme Court Civil Rules, B.C. Reg. 168/09, R. 12–6(5) (Can.), permitting a judge to hear the trial without a jury when the case involves scientific investigation or is complex or intricate).

250. *See infra* Part IV.B.

251. *J.-L.J.*, [2000] 2 S.C.R. 600, paras. 25, 28–29 (intending gatekeeping to “preserve and protect the role of the trier of fact—the judge *or the jury*” (emphasis added)); *Taylor v. Liong*, 2007 CarswellBC 347 (Can. B.C.S.C.)(WL) (emphasizing gatekeeping role as envisioned by *J.-L.J.*); *Taylor*, 2007 CarswellBC 347, para. 197 (noting difference between threshold reliability and ultimate reliability); *Chan v. Erin Mills Town Centre Corp.*, 2005 CarswellOnt 6741, paras. 27, 31–33 (Can. Ont. S.C.)(WL) (internal citations omitted).

252. *R. v. Mohan*, [1994] 2 S.C.R. 9, 20–21, 24 (Can.) (finding that admission of expert evidence is based on the assessment of reliability versus effect to ensure that the probative value is worth its cost on the trial process and is reviewed for the potential to distort the factfinding process); *Gatowski et al.*, *supra* note 231, at 88; *Vidmar*, *supra* note 247, at 166–67 (“An important goal of the *Mohan* decision was to prevent juries from being influenced by unreliable expert evidence . . .”); *see also J.-L.J.*, [2000] 2 S.C.R. 600, para. 29 (expert evidence as part of the search for truth); *Graham D. Glancy & John M.W. Bradford, The Admissibility of Expert Evidence in Canada*, 35 J. AM. ACAD. PSYCHIATRY & L. 350, 351 (2007) (noting that the *Mohan* court “stated that expert evidence should not be admitted when there is a danger that it will be misused or distort the fact-finding process”).

process with an invalid conclusion.²⁵³ The gatekeeping function also underscores the role of the expert vis-à-vis the fact finder. Canadian courts repeatedly emphasize that an expert is to assist in finding the facts, but not to “usurp the functions of the trier of fact.”²⁵⁴

Two examples of courts applying the standards from *Mohan* and *R. v. J.-L.J.* underscore these purposes. In a 2005 case, *Chan v. Erin Mills Town Centre*, the Ontario Supreme Court assessed expert evidence regarding a link between the plaintiff’s post-polio syndrome and a slip-and-fall accident at the defendant’s store.²⁵⁵ The court noted the concern that reliability assessment in civil cases, when the judge sits alone as factfinder, lacks the rationale it has in the case of jury trials, where a jury may be overwhelmed by the expert’s testimony.²⁵⁶ While noting the difference, the court did not dismiss the gatekeeping function or deny that gatekeeping is mandated by Canadian law; it instead concluded that the gatekeeping standard had been met for the proposed expert.²⁵⁷

In 2007, in *Taylor v. Liong*, the Supreme Court of British Columbia faced the issue of admission of expert medical testimony claiming multiple sclerosis had been caused by an automobile accident.²⁵⁸ Initially, the court noted the *Mohan* test as the standard for the assessment of admissibility under Canadian law.²⁵⁹ *Taylor* cites *Chan* to underscore the importance of gatekeeping in the context of both

253. *J.-L.J.*, [2000] 2 S.C.R. para. 29 (searching for the truth excludes expert evidence that may “distort the fact finding process”); *Mohan*, [1994] 2 S.C.R. at 24; see also STEPHEN T. GOUDGE, INQUIRY INTO PEDIATRIC FORENSIC PATHOLOGY IN ONTARIO 470–71 (2008) (suggesting that “the judge must bear the heavy burden of being the ultimate gatekeeper in protecting the system from unreliable expert evidence”), available at <http://www.attorneygeneral.jus.gov.on.ca/inquiries/goude/index.html>.

254. Glancy & Bradford, *supra* note 252, at 351–52; *J.-L.J.*, [2000] 2 S.C.R. para. 56 (purpose of expert evidence “is not to substitute the expert for the trier of fact”); *Mohan*, [1994] 2 S.C.R. at 24 (stating that experts should not usurp the functions of the trier of fact); *Taylor*, 2007 CarswellBC 347, para. 183 (stating that it is improper for experts overtake judicial functions); *Chan*, 2005 CarswellOnt 6741, para. 35; *R. v. Dimitrov* (2003), 68 O.R. 3d 641, para. 56 (Can. Ont. C.A.) (noting that the lower court held that the expert evidence in question risked distorting the factfinding process, especially due to its weak relevance and reliability); see also Lederman, *supra* note 226, at 241–42 (noting concerns about usurpation of factfinder by either expert or by the judge).

255. *Chan*, 2005 CarswellOnt 6741, paras. 1–4.

256. *Id.* paras. 30–31.

257. *Id.* para. 33.

258. *Taylor v. Liong*, 2007 CarswellBC 347, paras. 1, 3 (Can. B.C. S.C.) (WL).

259. *Id.* paras. 58–60.

criminal and civil cases.²⁶⁰ The court then emphasized the need to be wary of overuse of experts, and preserving the role of expert as distinct from the role of judge or factfinder.²⁶¹ Finally, the court determined that in the case of novel science, the *R. v. J.-L.J.* factors are helpful in evaluating novel science.²⁶² In applying these tests, the court held that one expert proffered by the plaintiff failed to meet proper standards for reliability and should not testify.²⁶³ Thus, the court assessed the scientific merit and background of the expert opinion to reach its conclusions in both *Taylor* and *Chan*.²⁶⁴

Ultimately, the Canadian tests appear to operate similarly to the American *Daubert* standard, both assessing minimal reliability of the evidence prior to admission.²⁶⁵

3. Differences from the American *Daubert* System

If the Canadian standard operates in a roughly similar way to the American test under *Daubert*, then it is important to examine the distinctions between Canadian and U.S. gatekeeping.

Substantively, the Canadian system creates an explicit distinction between new and novel scientific theories requiring special scrutiny and those passing under the standard *Mohan* test.²⁶⁶ In *Daubert*, general acceptance is one of the reliability factors, but is not written so that all non-novel science is subject to lesser scrutiny.²⁶⁷ Of course, *Daubert* assessments of new, untested, or cutting-edge theories may be more elaborate, but the same factors have been approved for all gatekeeping questions.²⁶⁸ With *Mohan* and *R. v. J.-L.J.*, the differentiation between new and other scientific evidence allows for an explicit recognition that

260. *Id.* paras. 63–64 (citing *Chan*, 2005 CarswellOnt 6741, para. 31).

261. *Id.* paras. 66–73 (citing *R. v. J.-L.J.*, [2000] 2 S.C.R. 600, paras. 25, 28, 30, 33, 34 (Can.)).

262. *Id.* para. 72 (citing *J.-L.J.*, [2000] 2 S.C.R. 600, para. 33).

263. *Id.* para. 189 (stating that the expert’s opinion lacked reliability due to “logical frailty and lack of coherence.”).

264. *Id.* para. 74–176; *Chan v. Erin Mills Town Ctr.*, 2005 CarswellOnt 6741, paras. 46–77 (Can. Ont. Sup. Ct. of Justice)(WL).

265. Vidmar, *supra* note 247, at 166 (concluding that the Canadian *Mohan* test is “roughly similar” to the tests used in *Daubert* and *Joiner*).

266. *J.-L.J.*, [2000] 2 S.C.R. 600, para. 35; *R. v. Mohan*, [1994] 2 S.C.R. 9, 25 (Can.). See text accompanying notes 233, 241–243 (describing *Mohan* test).

267. See text accompanying notes 25–27 (describing that reliability factors apply to all forms of expert evidence).

268. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593–94 (1993).

this type of evidence will be subject to special scrutiny.²⁶⁹

Beyond the substantive tests, Canadian courts offer some procedural tools not utilized by American courts in order to assist gatekeepers and factfinders assess expert evidence. One of these involves the courts expressing an

increasing recognition . . . that experts owe . . . a fiduciary duty to the courts and tribunals they seek to enlighten; it is expected that experts will make every effort to give their evidence objectively and independently of the interests of the party who called them and of other tainting influences.²⁷⁰

While necessarily paid by a retaining party, the expert is expected to “don a scientist’s hat,” and, in doing so, the opinions expressed will be considered by a court.²⁷¹ However, if the expert loses objectivity, the courts “will be reluctant to give much weight to [his or] her opinion.”²⁷² While in the United States experts are normally intended to provide the trier of fact with scientific or expert information,²⁷³ courts can—but often do not—consider partisan pressures in the admissibility decision.²⁷⁴

269. *J.-L.J.*, [2000] 2 S.C.R. para. 35; *Mohan*, [1994] 2 S.C.R. at 25 (Can.).

270. David M. Paciocco, *Unplugging Jukebox Testimony in an Adversarial System: Strategies for Changing the Tune on Partial Experts*, 34 QUEEN’S L.J. 565, 570 (2009); see also *Morgan v. Metropolitan Toronto*, 2006 CarswellOnt 7866, para. 276 (Can. Ont. Sup. Ct. of Justice) (“Expert witnesses must be objective and independent. They must present their evidence in the style of scientists, not cheerleaders.”); Mitchell & Mandhane, *supra* note 234, at 643–44 (describing that even though Canadian courts deal with the problem differently, all “Canadian courts and tribunals have indicated a greater willingness to scrutinize the role played by expert witnesses”). But see Mitchell & Mandhane, *supra*, at 644 (noting that Canadian courts lack a uniform method to handle or sanction expert witness bias); Paciocco, *supra*, at 586 (finding that “the existence of [special expert] duties remains controversial”).

271. *Morgan*, 2006 CarswellOnt 7866, paras. 277–278 (internal citations omitted).

272. *Id.* para. 279 (citations omitted). Paciocco states that “[o]rdinarily, courts simply take bias, partiality and influence into account when weighing the testimony.” Paciocco, *supra* note 270, at 571. He then calls for exclusion of patently biased evidence, using a formalized rule-based system for compliance. *Id.* at 585–89, 595–99; see also Mitchell & Mandhane, *supra* note 234, at 644 (“Where an expert is partial or lacks independence, his or her evidence may be given less weight or deemed inadmissible despite satisfaction of the four *Mohan* criteria.”).

273. See 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 . . .” (emphasis added)).

274. Generally, the *Daubert* factors do not directly connect concerns regarding witness partisanship to the admission decision for the proposed expert evidence. See text accompanying notes 19–27. It is precisely the lack of inquiry into partisanship that led Judge

Rather, the partisanship of the evidence remains largely independent of its reliability under the *Daubert* test, a subject likely to result in cross-examination after admission but unlikely in and of itself to result in exclusion.

A second Canadian procedure utilized to assist gatekeepers and factfinders assess expert evidence (which is also not used in U.S. courts) relates to the summation of the evidence by the judge at the end of the trial. In the context of jury trials—in Canada, mostly criminal cases²⁷⁵—the court summarizes the evidence for the jury prior to the deliberations.²⁷⁶ The summation will involve judicial clarification of the contested issues and facts, but not repeat the entire state of all evidence.

The judge need not provide the jury with an oral replay of the evidence of each witness, but must relate the most important evidence to the key factual and legal issues. The object is to leave the jury with a sufficient understanding of the value and effect of the most significant evidence as it relates to the relevant issues.²⁷⁷

The obligation to summarize the evidence prior to the deliberation is binding on the judge, and may result in trial error if improperly done.²⁷⁸ The summation can include lengthy assessment of key evidence from experts, as evinced by the detailed summations of psychiatric testimony in a case involving a defense of mental disorder.²⁷⁹ Ultimately, in the summary, the court must “review the substantial parts of the evidence, and give the jury the theory of the defence, so that they may appreciate the value and effect of that evidence, and how the law is to be applied to the facts as they find them.”²⁸⁰ The judge should define for the jury those issues critical to the case and separate out those that may be

Kozinski to add an additional factor to the Supreme Court’s reliability factors in *Daubert II*: whether the research was done independently of the litigation in question. *Daubert II*, 43 F.3d 1311, 1317–18 (9th Cir. 1995).

275. See *supra* notes 247–249 and accompanying text.

276. Vidmar, *supra* note 247, at 165; see also Michael Hall, *Judicial Comment and the Jury’s Role in the Criminal Trial*, 11 CAN. CRIM. L. REV. 247, 267–68 (2007) (quoting *Azoulay v. R.*, [1952] 2 S.C.R. 495, 498 (Can.)).

277. *R. v. Smith*, 2007 CarswellAlta 938, para. 77 (Can. Alta. C.A.)(WL) (Frazer, C.J. & Fruman, J., concurring) (citing *R. v. Jacquard*, [1997] 1 S.C.R. 314, para. 14 (Can.); and *Azoulay*, [1952] 2 S.C.R. at 497–98).

278. *R. v. Karabrahimovic*, 2002 CarswellAlta 550, paras. 32, 34, 37, 47 (Can. Alta. C.A.)(WL).

279. See, e.g., *Jacquard*, [1997] 1 S.C.R. 314, para. 15 (including a judicial summary fifteen pages long, which summarized the evidence of the mental disorder claimed by the accused).

280. *Azoulay*, [1952] 2 S.C.R. at 498.

uncontested or tangential. The jury will deliberate only after the judge's summation.

Beyond the summation of evidence, which is intended to objectively assess the issues and evidence in the case, Canadian courts have a third procedure to assist in assessing the expert evidence: the court's comment on the evidence. Judicial comment goes a step beyond the mere summation, which remains free of expressions of opinions on the evidence; it involves the express statement of the judicial belief about the evidence.²⁸¹ The judge can express an opinion to the jury regarding the "importance of various pieces of evidence and may even offer an opinion regarding the credibility of a witness."²⁸² The limit on judicial comment is unclear, although courts have held that the commenting judge must inform the jury that comment is "given as advice and not direction,"²⁸³ so that the jury is less likely to be "overawed" by the judge's views.²⁸⁴ This judicial comment is a separate judicial power related to, but distinct from, the judicial summation.²⁸⁵

Like American courts, Canadian courts screen evidence prior to admission to preserve minimal standards of reliability. However, the Canadian system does offer some differences that contrast with the American system with *Daubert*, and provides a useful starting point for the study of comparative expert methodology in foreign legal systems.

B. United Kingdom

The handling of expert witnesses in the United Kingdom is substantially different from the U.S. system. Many of the distinctions are based on procedural differences between tort systems, but the Canadian example demonstrates that differences in tort procedure need not result in completely different systems for expert management. In the U.K. example, however, the bulk of expert review is not at the gatekeeping stage at all, but occurs instead at the merits stage. Review

281. Hall, *supra* note 276, at 249–50.

282. Vidmar, *supra* note 247, at 165. In contrast, such comments are specifically prohibited under American judicial standards. See MODEL CODE OF JUDICIAL CONDUCT Canon 3, R. 3.3 (2011), available at <http://www.abanet.org/cpr/mcjc/toc.html>; CODE OF CONDUCT FOR U.S. JUDGES, Canon 3(A)(6) (2009), available at <http://www.uscourts.gov/RulesAndPolicies/CodesOfConduct/CodeConductUnitedStatesJudges.aspx>.

283. R. v. Gunning, [2005] 1 S.C.R. 627, para. 27 (Can.); see also Hall, *supra* note 276, at 249–53.

284. R. v. Garofoli, 1988 CarswellOnt 68, para. 111 (Can. Ont. C.A.)(WL).

285. See *supra* text accompanying note 278.

of management of experts in the United Kingdom again reveals a legal system struggling with the proper balance of reliability, assistance to the factfinder, and legal process.

1. Basics of Case Management in the United Kingdom

Evaluation of the role of the expert witness in the U.K. cannot begin without a preliminary assessment of the management of tort cases within the system.²⁸⁶ While U.K. tort law includes considerations of duty and breach by negligence—as in the United States and Canada—the differing procedural management of these cases has a large effect on the level of judicial management of expert witnesses.²⁸⁷

In the United Kingdom, jury trials are much less common than in the United States. In England, juries are required for certain enumerated criminal offenses,²⁸⁸ but a civil jury is limited to only certain claims, such as slander and libel, fraud, malicious prosecution, and false imprisonment.²⁸⁹ Dr. Richard Goldberg notes that personal injury actions in tort are generally decided by bench trials, and that the last reported jury trial for personal injuries occurred in 1965.²⁹⁰ In modern litigation, a civil jury trial in England for a personal injury claim remains possible, but for only “exceptional” cases.²⁹¹ Even within the few areas

286. This review will continue for all remaining examples, *infra* Parts IV.D–E.

287. See Richard Goldberg, *Scientific Evidence, Causation and the Law—Lessons of Bendectin (Debendox) Litigation*, 4 MED. L. REV. 32, 42 (1996) (describing the connection of the jury rules to the issue of evidentiary standards). Regarding tort law in the U.K. generally, see TONY WEIR, *TORT LAW* (2002) (providing an overview of substantive tort law in the U.K.).

288. Sally Lloyd-Bostock & Cheryl Thomas, *Decline of the “Little Parliament”: Juries and Jury Reform in England and Wales*, LAW & CONTEMP. PROBS., Spring 1999, at 7, 15 (explaining how offenses are classified into indictable offenses tried only to a jury, summary offenses with bench trials, and those “triable either way”). Lloyd-Bostock and Thomas state that only 1%–2% of criminal cases are tried to a jury, and only 18% of cases before the Crown Court are “indictable only” and triable only in that court. *Id.* at 15–16; see also GARY SLAPPER & DAVID KELLY, *THE ENGLISH LEGAL SYSTEM* 127–49, 482 (6th ed. 2003) (noting similar numbers and describing offenses tried to the judge in Magistrate courts, indictable offenses tried to a jury in Crown Court, and those that may be tried either way).

289. Goldberg, *supra* note 287, at 41 (citing Supreme Court Act, 1981, c. 54, § 69 (Eng.)); see also SLAPPER & KELLY, *supra* note 288, at 478.

290. Goldberg, *supra* note 287, at 41 (citing *Hodges v. Harland & Wolff, Ltd.*, [1965] 1 W.L.R. 523 (C.A.)).

291. *Id.* at 41 (citing *Ward v. James*, [1966] 1 Q.B. 273 (C.A.)) (only exceptional circumstances allow jury trial). Exceptional circumstances include punitive or exemplary damages claimed in response to a deliberate abuse of authority, per Goldberg, *supra* note 287, at 41 (citing *H. v. Ministry of Def.*, [1991] 2 Q.B. 103, 112 (C.A.)); see also SLAPPER & KELLY, *supra* note 288, at 481 (discussing jury trials in exemplary damages cases); Nancy S.

where a civil jury trial is permitted, a claim involving complex evidence (such as difficult scientific evidence on causation) would also be considered to be inappropriate for jury trial.²⁹² As a result, civil jury trials for complex personal injuries torts are technically possible, but extraordinarily rare.

Scottish law is more permissive than English law regarding jury trials in personal injury actions,²⁹³ as Dr. Goldberg notes, based on differences in Scottish statutory law that allows juries in these actions.²⁹⁴ But, he notes, a jury is “invariably used in personal injury actions where no special difficulties of law or fact are involved . . . [and i]t would seem, therefore, that cases involving questions of causation and medicinal products would rarely come before a jury in the English courts, and would only do so in the Scottish courts at the damages stage.”²⁹⁵ Complexity of evidence may not be permitted as the sole basis for removal of a case from a jury, but can be one consideration in removal decisions.²⁹⁶ As a result, complex tort cases in Scotland are also unlikely to be decided except by bench trial.

Independent of the statutory framework, practical considerations may also limit a litigant’s access to a jury trial. In the U.K., contingency fee contracts for attorneys were, until recently, forbidden and “unthinkable.”²⁹⁷ In addition, both attorneys’ and other fees shift based

Marder, *Beyond Gender: Peremptory Challenges and the Roles of the Jury*, 73 TEX. L. REV. 1041, 1101 n.257 (1995) (discussing the paucity of civil jury trials in England).

292. Goldberg, *supra* note 287, at 41 (citing *Singh v. London Underground, Ltd.*, (1990) Independent, 25 April (Q.B.)). See generally *Taylor v. Anderson*, [1995] 1 W.L.R. 447 (C.A.) (discussing complexity exception to jury trial); *Beta Constr., Ltd., v. Channel Four Television Co.*, [1990] 1 W.L.R. 1042 (C.A.) (same).

293. Goldberg, *supra* note 287, at 42.

294. *Id.* (citing Court of Session Act, 1988, c. 36, § 11 (Scot.)).

295. *Id.* (footnotes omitted).

296. *Id.* at 42 n.67 (citing DAVID MAXWELL, *THE PRACTICE OF THE COURT OF SESSION* 299 (1980)).

297. Richard L. Abel, *An American Hamburger Stand in St. Paul’s Cathedral: Replacing Legal Aid with Conditional Fees in English Personal Injury Litigation*, 51 DEPAUL L. REV. 253, 253 (2001) (discussing new rules for fees in the U.K. since 1995). See generally Peter Karsten, *Enabling the Poor to Have Their Day in Court: The Sanctioning of Contingency Fee Contracts, A History to 1940*, 47 DEPAUL L. REV. 231 (1998) (providing an analysis of the basis for the use and nonuse of contingency fees). Regarding the modern “conditional fee” system, see Virginia G. Maurer et al., *Attorney Fee Arrangements: The U.S. and Western European Perspectives*, 19 NW. J. INT’L L. & BUS. 272, 307–16 (1999); see also ROBIN M. WHITE & IAN D. WILLOCK, *THE SCOTTISH LEGAL SYSTEM* 344 (3d ed. 2003) (describing the contingency fee ban in Scotland).

on a “loser pays” system.²⁹⁸ Even in the event of a successful verdict, damage awards seldom include punitive damages, reducing the availability of larger recovery to litigants.²⁹⁹ The combined effect of these considerations is further reduction in the potential for jury trials.³⁰⁰

Without the civil jury to consider the merits of a claim, the bench trial necessarily will involve the judicial assessment of the merits of the litigants’ evidence at the final adjudication phase of the trial. The combined effect of these rules lessens the need for judicial gatekeeping at the admissibility stage.³⁰¹ The admission stage generally does not then, in the United Kingdom, involve consideration of the reliability of the evidence, as it has in the United States under *Daubert* or in Canada under *Mohan* and *R. v. J.-L.J.*³⁰²

2. Basic Expert Procedure Within the United Kingdom

Since civil jury trials are extraordinarily rare, the admissibility stage has generally not been used as a time for the judge to assess expert testimony.³⁰³ So the standard for admission of expert evidence for jury trials, such as it is, is almost entirely discussed in the context of criminal

298. CIV. PROC. R. 44.3(2)(a) (Eng.) (“[T]he general rule is that the unsuccessful party will be ordered to pay the costs of the successful party”); LORD JUSTICE JACKSON, REVIEW OF CIVIL LITIGATION COSTS: PRELIMINARY REPORT 467–68 (2009), available at <http://www.judiciary.gov.uk/NR/rdonlyres/642936FA-292D-4432-8CF2-B2A44C7FC4FB/0/jacksonvol2low.pdf> (concluding that the loser pays as a general rule in England). See generally David A Root, Note, *Attorney Fee-Shifting in America: Comparing, Contrasting, and Combining the “American Rule” and “English Rule.”* 15 IND. INT’L & COMP. L. REV. 583, 589–91, 601–10 (2005) (reviewing history and effect of the English fee-shifting rule). Regarding Scottish fee shifting, see LORD JUSTICE JACKSON, *supra*, app. 9, at 550 (citing *Howie v. Alexander & Sons*, (1948) S.C. 154, 157 (Scot.)) (noting that costs generally follow the suit); see also *McGregor v. Alpha Airports Grp. PLC*, (2010) CSOH 51 [30] (Scot.) (noting that costs follow suit, and citing *Howitt*, (1948) S.C. at 157).

299. See Andrew Tettenborn, *Punitive Damages—A View from England*, 41 SAN DIEGO L. REV. 1551, 1551–56, 1551 n.1 (2004) (noting that English punitive damages were extremely limited from 1963–2001 and that Scottish law disallows punitive damages awards (citing 2 DAVID M. WALKER, PRINCIPLES OF SCOTTISH PRIVATE LAW 160 (3d ed. 1983))).

300. See ERICA BEECHER-MONAS, EVALUATING SCIENTIFIC EVIDENCE: AN INTERDISCIPLINARY FRAMEWORK FOR INTELLECTUAL DUE PROCESS 57 n.1 (2007) (suggesting that these factors reduce the chance of toxic tort cases being brought).

301. See REDMAYNE, *supra* note 218, at 98 (qualifications as sole issue for pre-admission reliability testing; argues for reliability-based exclusionary rule for expert evidence) (citations omitted); Goldberg, *supra* note 287, at 52.

302. Regarding reliability assessment under *Daubert*, see text accompanying notes 25–27. Regarding reliability assessment under *Mohan* or *R. v. J.-L.J.*, see text accompanying notes 232–246.

303. See *supra* Part IV.B.1.

cases, where jury trials do continue. But, in these cases the standard for admission remains extraordinarily low.

The basic admissibility standard in English criminal law comes from the case of *R. v. Turner*.³⁰⁴ In *Turner*, the court held that the test for admission of expert witness testimony should hinge on whether the expert can “furnish the court with scientific information which is likely to be outside the experience and knowledge of a judge or jury.”³⁰⁵ Since the evidence in *Turner* was largely within the ordinary human experience of the jury, the court deemed that the psychiatrist’s testimony should not have been offered.³⁰⁶

Case law since *Turner*—decided in 1975—confirms that the admissibility standard of English criminal case law is mainly concerned with the expert’s helpfulness to an issue outside the range of the jury’s knowledge. In the case of *R. v. Robb*³⁰⁷ in 1991, Lord Justice Bingham focused on the determination of qualifications of the expert, holding that the issue should involve “whether study and experience will give a witness’s opinion an authority which the opinion of one not so qualified will lack,” and whether the witness is skilled and has experience.³⁰⁸ As a result, the court admitted expert voice-identification evidence over a defense objection, without verification by acoustic analysis as requested by the defense.³⁰⁹ Lord Justice Kennedy used a similar approach in his opinion in a 2002 case, *R. v. Dallagher*,³¹⁰ formulating the test for admission of expert evidence as “whether the issue [was] one on which the jury could be assisted by expert evidence, and whether the expert tendered had the expertise to provide such evidence.”³¹¹ Some U.K. case law—notably *R. v. Gilfoyle* and *R. v. O’Doherty*—indicates some interest in assessing reliability of the expert evidence prior to admission; in *Gilfoyle* the court drew an analogy to *Frye* and *Daubert*.³¹² However,

304. [1975] Q.B. 834 (C.A.).

305. *Id.* at 841.

306. *Id.* at 842.

307. [1991] 93 Crim. App. R. 161, at 165 (Eng.).

308. *Id.* at 165.

309. *Id.* at 165–67.

310. [2002] EWCA (Crim.) 1903, [2003] 1 Crim. App. R. 12 (Eng.).

311. *Id.* para. 25 (quoting *R. v. Stockwell*, [1993] 97 Crim. App. R. 260, 264).

312. *R. v. O’Doherty*, [2002] N.I. 263, [2003] 1 Cr. App. R. 5, ¶60 (appeal from Northern Ireland) (rejecting expert evidence, but also rejecting *Gilfoyle* stringent standard); *R. v. Gilfoyle*, [2001] 2 Cr. App. R. 5, ¶ 25 (citing *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923)); see also William E. O’Brian Jr., *Court Scrutiny of Expert Evidence: Recent Decisions Highlight the Tensions*, 7 INT’L J. EVID. & PROOF 172, 172–73 (2003).

commentators on the state of expert review agree that the less stringent standard represents the current state of the law in the U.K.³¹³

In civil cases, English law permits the admission of expert evidence when it meets the statutory requirements of the Civil Evidence Act of 1972.³¹⁴ Pursuant to Section 3(1), an expert in a civil case may state an “opinion on any relevant matter on which he is qualified to give expert evidence.”³¹⁵ As will be discussed below, most commentators consider the standard created by this statutory formula to be minimal, and not inconsistent with the lax standard for the criminal cases discussed above.

Legal scholars assessing the standard for review of expert admission agree that the reliability review of expert testimony in England—whether in civil or criminal cases—is minimal. In his article *Court Scrutiny of Expert Evidence*, William O’Brian notes that the “English cases appear to require nothing more than that the expert testimony in question [be] relevant and that the witness [be] more knowledgeable than the jury on the subject.”³¹⁶ Such minimal standards provide no reliability standard, and as such, “put further strain on the potential for miscarriages of justice.”³¹⁷ David Ormerod agrees that these standards allow evidence without significant reliability assessment.³¹⁸ Without any tests to assess the reliability of the evidence, Ormerod notes that English law will admit questionable expert evidence “despite its inherent defects,”³¹⁹ and that “there is little to prevent a court [from] receiving this evidence as expert opinion evidence.”³²⁰ With admission of questionable expert evidence, Ormerod decided these standards result in few checks to protect “the integrity and accuracy of the trial process.”³²¹

Since admissibility review involves such minimal assessment of an expert’s qualifications and the relevance of his or her testimony, nearly all of the reliability assessment of expert evidence in tort cases from the

313. See text accompanying notes 315–321.

314. Civil Evidence Act, 1972, c. 30 (Eng.).

315. *Id.* § 3(1).

316. O’Brian, *supra* note 312, at 180.

317. *Id.* at 184.

318. David Ormerod, *Psychological Autopsies: Legal Implications and Admissibility*, 5 INT’L J. EVID. & PROOF 1, 18–21 (2001).

319. *Id.* at 20.

320. *Id.*

321. *Id.* at 30.

U.K. occurs at the adjudication stage.³²² Examples of English judicial decisions demonstrate extraordinarily detailed review of highly complex scientific evidence in determining whether a claimant has proven a claim.³²³ In one case, *XYZ v. Schering Health Care*, Mr. Justice Mackay noted that, as adjudicator of the dispute, he must determine which evidence was reliable and which was not; he then reviewed forty-two days of testimony involving complex epidemiological studies for scientific merit.³²⁴ Scottish case law also shows similar assessments of complex science, with judges reviewing the evidence in detail at the adjudication phase.³²⁵ For example, in *Dingley v. Chief Constable of Strathclyde*, Lord Dawson assessed epidemiological studies in the assessment of injury causation, and held that the relationship of trauma to multiple sclerosis had not been proven by the plaintiff.³²⁶ Dawson's skill in evidence review in *Dingley* has been described as a "master class in legal exposition of very complex matters."³²⁷

Yet for all the skill demonstrated by the Justices in *Scherling* or *Dingley*, the issue of reliability tests remains one in dispute within the U.K.

3. Potential for Change to System

Considering the current standard for admissibility in case law, some commentators suggest that a reliability standard should be adopted in the U.K. In this regard, some suggest adoption of the American *Daubert* standard—even with its potential weaknesses—due to its potential to sort out reliable evidence.

The problem with low admission standards is that, once deemed a qualified expert, nearly any evidence from the expert gets admitted and considered by the court. As a result, the potential for "junk science" to invade the courthouse remains a persistent problem, which

322. Goldberg, *supra* note 287, at 52; *see also supra* note 302 and accompanying text.

323. *See, e.g., XYZ v. Schering Health Care Ltd.*, [2002] EWHC 1420 (Q.B.); *Reay v. British Nuclear Fuels*, [1994] P.I.Q.R. P171 (Q.B.).

324. *Schering Health Care*, [2002] EWHC, ¶ 34; *see also Reay*, [1994] P.I.Q.R. para. 178–207 (detailed assessment of epidemiological evidence in personal injury case involving radiation exposure).

325. *Smith v. McNair*, [2008] CSOH 154 (Scot.); *McTear v. Imperial Tobacco Ltd.*, [2005] CSOH 69 (Scot.); *Dingley v. Chief Constable of Strathclyde* (No. 1), (1998) S.C. 548 (Scot.).

326. *Dingley*, (1998) S.C. at 585.

327. *Smith*, [2008] CSOH 154, para. 24 (reviewing handling of complex evidence in *Dingley*).

commentators like O'Brian suggest will lead to "miscarriages of justice."³²⁸ To remedy this problem, O'Brian and others call for reliability assessment similar to a U.S.-style reliability test.³²⁹

One approach, suggested by Tony Ward in *English Law's Epistemology of Expert Testimony* is to create a reliability test based on another nation's standard.³³⁰ He suggests the Australian test from *R. v. Bonython* as the appropriate standard, and notes it has gained some support in English decisions.³³¹ Ward suggests this test may offer reliability standards, while preserving the relative roles of the judge and jury.³³² In *Expert Evidence and Criminal Justice*, Mike Redmayne looks to *Frye* and *Daubert* as a model for U.K. reliability assessments.³³³ At this point, however, it appears that no particular reliability standard exists, and evidence gatekeeping is virtually nonexistent in the U.K.

One additional procedure that has recently been added to English trial procedure involves the use of single experts, when the court deems it appropriate. In certain cases, the court may request that a single expert address an issue rather than each party address it separately.³³⁴ The selection of the expert may be done by the parties or, if they cannot agree, by the judge based on a list provided by the parties.³³⁵ While the procedure may allow for single experts, the current use is mainly in "routine cases where the claims involved are modest."³³⁶ As for now, the procedure is less likely to be applied in complex cases,³³⁷ but with the rule there is the potential for a nonadversarial expert procedure in complex cases in English courts.

With the creation of the Supreme Court of the United Kingdom in

328. O'Brian, *supra* note 312, at 184.

329. *Id.* at 181 (citing REDMAYNE, *supra* note 218, at 94–139); *see also* REDMAYNE, *supra* note 218, at 98 & n.34 ("In this chapter I argue that English law should create a reliability-based exclusionary rule for expert evidence.").

330. Tony Ward, *English Law's Epistemology of Expert Testimony*, 33 J.L. & SOC'Y 572 (2006).

331. *Id.* at 579–80 (quoting and discussing *R. v. Bonython*, (1984) 38 S.A. St. R. 45, 47, which held that the court should assess if an opinion is "part of a body of knowledge or experience which is sufficiently organized or recognized to be accepted as a reliable body of knowledge or experience").

332. Ward, *supra* note 330, at 595.

333. REDMAYNE, *supra* note 218, at 113–38; *see also* O'Brian, *supra* note 312, at 184.

334. CIV. PROC. R. 35.7 (Eng.).

335. *Id.* R. 35.7(2).

336. NEW SOUTH WALES LAW REFORM COMM'N, REPORT 109: EXPERT WITNESS 49–50 (2005) (commenting on the English use of joint experts).

337. *Id.*

2009, at least there is the potential for adoption of a single new standard within the U.K., by common law development through precedent.³³⁸ The Supreme Court—as the final court of appeal for all civil cases in the U.K.—has jurisdiction to hear the appeals on those cases of “the greatest public and constitutional importance.”³³⁹ It remains to be seen if the new Supreme Court will take on the issue of expert testimony and reliability standards.

The United Kingdom offers a contrast to the U.S. and Canadian examples of evidentiary screening, both of which have some assessment of reliability prior to admission of the evidence. While some case law from the U.K. shows judicial skill in handling expert evidence at the merits phase, the effect of minimal gatekeeping is an expertise free-for-all, where all evidence gets admitted for consideration. The resulting standards of admission mirror a debate on “junk science” that occurred in the United States in the years leading to *Daubert*.³⁴⁰

Having reviewed two common law systems, it appears that Canadian judges may perform gatekeeping when unnecessary (in civil cases tried to a judge),³⁴¹ while English judges may not screen expert evidence when it does seem helpful and appropriate (in criminal cases tried to a jury).³⁴²

C. Civil Law Procedures Offer Appropriate Points of Comparison

In this Article’s review of expert procedures, other common-law nations could be the sole examples used. And it is common for

338. Constitution Reform Act, 2005, c. 4 (U.K.), available at http://www.legislation.gov.uk/ukpga/2005/4/pdfs/ukpga_20050004_en.pdf (describing the Act creating Supreme Court of the United Kingdom). See generally *The Supreme Court*, JUDICIAL COMMITTEE OF THE PRIVY COUNCIL, <http://www.supremecourt.gov.uk/about/the-supreme-court.html> (last visited June 5, 2012).

339. *Role of the Supreme Court*, JUDICIAL COMMITTEE OF THE PRIVY COUNCIL, <http://www.supremecourt.gov.uk/about/role-of-the-supreme-court.html> (last visited June 5, 2012).

340. See Gary Edmond & David Mercer, *Trashing “Junk Science,”* 1998 STAN. TECH L. REV. 3, ¶¶ 4–8 (1998), <http://stlr.stanford.edu/pdf/edmond-mercerc-trashing-junk-science.pdf> (reviewing history of the junk science debate and discussing PETER W. HUBER, GALILEO’S REVENGE: JUNK SCIENCE IN THE COURTROOM (1991)); see also CRANOR, *supra* note 113, at 46–47 (describing the perception of tort crisis in years prior to *Daubert*). In *Daubert* itself, the Court specifically addressed the concern that abandonment of the *Frye* standard would result in a “free-for-all” of junk science overwhelming judges and juries, deciding that conventional legal tools like summary judgment, cross-examination, and careful instruction negate the concern. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 595–96 (1993).

341. See *Chan v. Erin Mills Town Ctr.*, 2005 CarswellOnt 6741, paras. 30–33; text accompanying notes 252–57.

342. See *R. v. Robb*, [1991] 93 Crim. App. R. 161; text accompanying notes 304–306.

practitioners in common law systems to be unfamiliar with civil law systems beyond the basics: it is foreign, code based, and non-adversarial.³⁴³ These common limitations may result from attorneys in American and other common law systems often learning solely points of contrast between civil and common law, if they are exposed to civil law at all.³⁴⁴ Even with many differences between common and civil law methods, they are not completely incompatible systems of law.³⁴⁵

Borrowing from other legal systems has softened traditional differences to some extent.³⁴⁶ Procedures that initially fit within civil law may have a place in common law systems, and vice versa.³⁴⁷ If true, civil law systems may offer some alternative procedures that could help fix problems in expert witness rules in the United States.³⁴⁸ The handling of expert witnesses seems likely to be an area particularly well suited to transnational adoptions,³⁴⁹ as recognized by commentators such as Langbein.³⁵⁰

D. Germany

Before discussing specific reforms based on civil law procedures, this Article will examine the role of the expert witness in civil law systems in Germany and Japan. To start, review of expert witness procedures in Germany provides an example of a system struggling with proper balancing of reliability, assistance to the factfinder, and legal process.

343. JAMES G. APPLE & ROBERT P. DEYLING, FED. JUDICIAL CTR., A PRIMER ON THE CIVIL LAW SYSTEM 1 (1995).

344. *Id.*; see also Linda S. Mullenix, *Lessons from Abroad: Complexity and Convergence*, 46 VILL. L. REV. 1, 4–11 (2001) (providing examples of areas of comparative difference taught in United States).

345. Regarding the basic differences between systems, see APPLE & DEYLING, *supra* note 344, at 35–38; and Peter Alldridge, *Scientific Expertise and Comparative Criminal Procedure*, 3 INT'L J. EVID. & PROOF 141, 143 (1999) (dismissing the categorization of the two systems).

346. APPLE & DEYLING, *supra* note 343, at 39 (suggesting that “the distinctions between the two systems have blurred” as one system adopts characteristics from the other).

347. See Alldridge, *supra* note 345, at 150–51 (noting two methodologies for reform of common law legal systems originating from the civil law tradition, which are repeatedly suggested by commentators).

348. Regarding the deficiencies in the handling of experts under *Daubert*, see *supra* Parts II.B–E. Regarding civil law as a source of law reform, see *supra* text accompanying notes 9, 175–176.

349. *Supra* text accompanying notes 204–220.

350. Langbein, *The Influence of Comparative Procedure*, *supra* note 10, at 552; see also Bryan, *supra* note 9, at 526; Haack, *supra* note 17, at 23.

1. Basics of Judicial Structure and Tort Case Management in Germany

Because of significant differences from the U.S. system, it is necessary to provide a brief description of the management of tort cases in Germany, to place the expert role in context.³⁵¹ To do so, this Article will examine the basic structure of the judicial system in Germany, the basis of tort liability under the *German Civil Code*, and then the management of tort cases.

The judicial system in Germany is bifurcated between the courts of general jurisdiction and courts handling specialized issues.³⁵² Within individual German states, courts of general jurisdiction include two basic courts, the *Amtsgerichte*, or lower-level courts, and the *Landgerichte*, the first instance courts for larger claims.³⁵³ Most appeals of the lower-level *Amtsgerichte* decisions occur at the *Landgerichte*, while a higher-level appellate court—the *Oberlandesgericht*—hears appeals from the *Landgerichte*.³⁵⁴ The highest appellate court is the *Bundesgerichtshof*, which may hear appeals from the *Oberlandesgericht* or, rarely, directly from the *Landgerichte*.³⁵⁵ Certain claims, such as trademarks, labor and employment, or tax, have specialized courts and appellate structures independent of the general-issue court system.³⁵⁶ For complex tort litigation,³⁵⁷ the main courts involved would be the *Landgerichte* in the first instance, with appeals at the *Oberlandesgericht*.

General tort liability within the German legal system is based on

351. The specific issue of the expert witness within this system is handled separately. *See infra* Part IV.D.2.

352. *See generally* GRUNDGESETZ FÜR DIE BUNDESREPUBLIK DEUTSCHLAND [GRUNDGESETZ] [GG] [Basic Law], May 23, 1949, BGBl. I, art. 92–96; NIGEL G. FOSTER & SATISH SULE, GERMAN LEGAL SYSTEM & LAWS 66–79 (3d ed. 2002) (describing the general structure of the German court system); Edward M. Andries, *On the German Constitution's Fiftieth Anniversary: Jacques Maritain and the 1949 Basic Law (Grundgesetz)*, 13 EMORY INT'L L. REV. 1, 44 n.167 (1999).

353. FOSTER & SULE, *supra* note 352, at 69–71; ANKE FRECKMANN & THOMAS WEGERICH, THE GERMAN LEGAL SYSTEM 138–40 (1999). The statute currently sets the dividing line between jurisdiction in the *Amtsgerichte* and the *Landgerichte* at 5,000. *See* Gerichtsverfassungsgesetz [GVG] [Court organizational statute], Sept. 12, 1950, Bundesgesetzblatt, Teil I [BGBl. I], at 455, as amended, July 12, 2011, BGBl. I. at 2582, § 23 ¶ 1, 74; FOSTER & SULE, *supra*, note 352, at 69–70.

354. FRECKMANN & WEGERICH, *supra* note 353, at 140.

355. *Id.*

356. Allen et al., *A Plea*, *supra* note 178, at 713–14; Langbein, *The German Advantage*, *supra* note 57, at 851–52.

357. *See supra* text accompanying notes 30–31.

several code provisions of the *German Civil Code*—the *Bürgerliche Gesetzbuch* (BGB).³⁵⁸ Written in the late 19th century with an effective date of 1900, the code establishes a series of duties, violation of which may result in civil liability.³⁵⁹ The BGB provision on general duties holds that “[a] person who intentionally or negligently injures the life, body, health, freedom, property or other right of another unlawfully is obliged to compensate the other for the harm arising from this.”³⁶⁰ In addition, liability may attach to one who offends a specific civil code provision established for another’s protection, so long as there is fault.³⁶¹ Intentional acts also may result in liability under a separate code provision.³⁶² In addition to the general provisions, the code contains many subject-specific provisions establishing duty.³⁶³

Should a person violate a duty and be found liable, he must pay damages to “restore the position that would exist if the circumstance obliging him to pay damages had not occurred.”³⁶⁴ The loser in litigation also pays the costs of the litigation, including court costs and attorney’s fees.³⁶⁵ With regard to complex torts—which often involve pharmaceutical or products liability claims—the German system does not contain provisions equivalent to a general “class action” lawsuit, as

358. BASIL S. MARKESINIS & HANNES UNBERATH, *THE GERMAN LAW OF TORTS: A COMPARATIVE TREATISE* 24–26 (4th ed. 2002); CEES VAN DAM, *EUROPEAN TORT LAW* 61 (2006).

359. Harald Koch, *The Law of Torts*, in *INTRODUCTION TO GERMAN LAW* 205, 207–21 (Mathias Reimann & Joachim Zekoll eds., 2d ed. 2005); MARKESINIS & UNBERATH, *supra* note 358, at 24–26 (suggesting that BGB civil code provisions may establish tort liability).

360. *Bürgerliches Gesetzbuch* [BGB] [Civil Code], Aug. 18, 1896, *Reichsgesetzblatt* [RGBl.] 195, as amended, § 823 para. 1, *translated in* RAYMOND YOUNGS, *SOURCEBOOK ON GERMAN LAW* 435 (2d ed. 2002) [hereinafter BGB].

361. *Id.* § 823, para 2.

362. *Id.* § 826; *see also* VAN DAM, *supra* note 358, at 70 (discussing BGB § 826).

363. *See, e.g.*, VAN DAM, *supra* note 358, at 67 (discussing BGB § 824 (financial trustworthiness), BGB § 825 (infringement on sexual integrity), and BGB § 839 (breach of official duty)).

364. BGB § 249; *see also* Ronald J. Scalise Jr., *Why No “Efficient Breach” in the Civil Law?: A Comparative Assessment of the Doctrine of Efficient Breach of Contract*, 55 *AM. J. COMP. L.* 721, 744 (2007) (discussing damages provisions in Germany).

365. Astrid Stadler & Wolfgang Hau, *The Law of Civil Procedure*, in *INTRODUCTION TO GERMAN LAW*, *supra* note 359, at 365, 377 (citing *Zivilprozeßordnung* [ZPO] [German Code of Civil Procedure], Jan. 30, 1877, *RGBl.* at 83, § 91, *translated in* *GERMAN COMMERCIAL CODE & CODE OF CIVIL PROCEDURE, IN ENGLISH* (Charles E. Stewart trans., 2001) [hereinafter ZPO]); FRECKMANN & WEGERICHT, *supra* note 353, at 170. The payment can be divided with a partial verdict for both parties. FRECKMANN & WEGERICHT, *supra*, at 170 (citing ZPO § 92).

in American law.³⁶⁶ Without mass tort methodologies, each claimant must prove his or her damages independently, and risk having to pay costs.³⁶⁷

In addition to court structures and claim bases, the third necessary area to review is the procedural management of tort claims in German courts, particularly the Landgerichte. A legal claim begins in Germany, as in the United States, with the filing of a complaint that includes a theory of recovery and a request for relief.³⁶⁸ From this similar starting point, however, the case management structure diverges from typical U.S. procedures, in that the judge alone becomes the manager of the case and factfinder.³⁶⁹ Initially, the Plaintiff's complaint—and the Defendant's response—must allege not only the basic theory of liability, but also the “means of proof for its main factual contentions.”³⁷⁰ Only after the exchange of initial documents, and an initial determination that the claim could—if all the facts are proven as alleged—result in liability, will the judge begin the process of collecting, and then evaluating, the evidence.³⁷¹ The judge's role is to do “justice between the parties; it is not to ascertain some independent truth,” but the court is also to determine what is true based on evidence suggested by the parties for judicial review.³⁷²

When the judge is collecting evidence in the case, there is not a clear distinction between “trial” and “discovery.” All collection of evidence

366. William B. Fisch, *European Analogues to the Class Action: Group Action in France and Germany*, 27 AM. J. COMP. L. 51, 75–78 (1979); Mullenix, *supra* note 344, at 7 (noting that there is no German-law provision for representing class interests (citing Harald Koch, *Class and Public Interest Actions in German Law*, 5 CIV. JUST. Q. 66, 77 (1986))); Gerhard Walter, *Mass Tort Litigation in Germany and Switzerland*, 11 DUKE J. COMP. & INT'L L. 369, 372–73 (2001).

367. One exception to this rule is that individual cases may be joined if they involve the same or essentially similar factual or legal grounds, but each party remains an active participant. Fisch, *supra* note 366, at 75. Another exception occurs when private claimants associate with a criminal prosecution for payment of claims. *Id.* at 71–74 (noting Thalidomide litigation example).

368. Langbein, *The German Advantage*, *supra* note 57, at 827.

369. Compare this to the rate of bench trials in torts in U.S. District Court, *infra* text accompanying note 487—currently fewer than 30%.

370. Langbein, *The German Advantage*, *supra* note 57, at 827 (citing ZPO § 130, para. 5); see also Burkhard Bastuck & Burkard Göpfert, *Admission and Presentation of Evidence in Germany*, 16 LOY. L.A. INT'L & COMP. L.J. 609, 610–11 (1994).

371. FRECKMANN & WEGERIC, *supra* note 353, at 146.

372. Hein Kötz, *Civil Justice Systems in Europe and the United States*, 11 DUKE J. COMP. & INT'L L. 61, 66–67 (2003) (rejecting idealization of the German system as inquisitorial, without adversarial influences).

in Germany, including examination of witnesses, is part of the process leading to judgment.³⁷³ One additional contrast to the American system involves the German judicial role, which is more active than the American judicial role in the selection of which order to address issues in the case, the examination of the witnesses, and the selection of an expert witness, if needed, after consulting with the parties.³⁷⁴

Witness examination involves the judge asking questions, and then allowing an opportunity for the parties to follow-up with additional examination, without the cross-examination that is universal in U.S. courts.³⁷⁵ Witness testimony is not recorded or transcribed, but “rather, the judge pauses from time to time to dictate a summary of the testimony” for the court file.³⁷⁶ Through a series of hearings as needed, the judge will collect summaries of witness testimony and other evidence for the court’s file.³⁷⁷ The court file is the official case record to be used in issuing judgments and, if applicable, for any appeals.³⁷⁸ During or after the period of evidence collection, the court can issue a judgment if a claim is established or rejected, or for other case management purposes.³⁷⁹ German courts, therefore, can dismiss claims or cases on procedural grounds at any stage when the evidence shows a claim is unsubstantiated.³⁸⁰

Within the constraints of the German legal system, expert witnesses operate to assist the court in the determination of the case.

2. The Role and Function of Experts Within the German Legal System

An expert witness in Germany fulfills the same function as in the United States—providing the decisionmaker with information of a

373. *See id.* at 72 (crediting this structure to the absence of juries in German civil litigation, which eliminates the need for all evidence to be heard at once).

374. *Id.* at 63–64.

375. *See* Kötz, *supra* note 372, at 63; *see also* Langbein, *The German Advantage*, *supra* note 57, at 828.

376. Langbein, *The German Advantage*, *supra* note 57, at 828.

377. *Id.*; Kötz, *supra* note 372, at 64.

378. Langbein, *The German Advantage*, *supra* note 57, at 828.

379. FRECKMANN & WEGERICHT, *supra* note 353, at 161–63.

380. *Id.*; *see also* Howard M. Erichson, *Mass Tort Litigation and Inquisitorial Justice*, 87 GEO. L.J. 1983, 2008 (1999) (“By taking testimony on particular issues, rather than taking the testimony for the entire case during a single trial, an inquisitorial court can focus initially on those issues most likely to be dispositive.”); Langbein, *The German Advantage*, *supra* note 57, at 830 (finding that “in German procedure the court ranges over the entire case, constantly looking for the jugular—for the issue of law or fact that may dispose of the case”).

scientific or technical nature to assist in resolution of the claim. Yet, because of varying case management procedures, an individual expert witness in Germany has more influence over the case resolution than his or her counterpart in the United States. The role is not limitless, however, and the German courts have ways to balance the scientific expertise with necessary limits of legal process.

After both parties make claims in the pleadings stage of the case, the judge must determine whether an expert will be necessary to decide a contested issue.³⁸¹ If so, the judge will appoint an expert to assist him or her in the determination of the contested issue.³⁸² To determine who to select, the judge may request the parties to nominate an expert, but more often will select the expert himself or herself.³⁸³ Once selected, the expert's role is to assist the court to resolve the issues on which technical or scientific information is required.³⁸⁴

After choosing an expert, the court "propound[s] the facts that [the expert] is to assume or to investigate, and . . . fram[es] the questions that the court wishes the expert to address."³⁸⁵ Once instructed, the expert should examine all issues necessary to render an opinion, within the scope of his or her expertise and the court's direction.³⁸⁶ An expert has a duty to assess the case neutrally, with a commitment to finding the truth.³⁸⁷ After review, the expert often prepares a written report for the court, explaining his or her opinion on the issues presented.³⁸⁸ Once the

381. Langbein, *The German Advantage*, *supra* note 57, at 837.

382. *Id.*

383. *Id.*; see also Timmerbeil, *supra* note 218, at 173–74; Bastuck & Göpfert, *supra* note 370, at 616.

384. Kötz, *supra* note 372, at 64 (demonstrating that an expert serves to "assist the court to the best of [the expert's] ability in reaching a correct result"); Stadler & Hau, *supra* note 367, at 374 (stating that the expert's task is "to help the judge to ascertain facts . . . based on their expert knowledge"); see also Wolfgang Zeidler, *Court Practice and Procedure Under Strain: A Comparison*, 8 ADEL. L. REV. 150, 156 (1983) (concluding that German experts serve as neutral assistants to the court, to supply the court with technical knowledge not otherwise available to the court).

385. Langbein, *The German Advantage*, *supra* note 57, at 839; see also ZPO, Jan. 30, 1877, RGBL. at 83, § 403 ("The evidence shall be presented by designation of the points requiring expert opinion."); ZPO § 404a, para. 3 ("In cases of disputed facts, the court shall determine the facts on which the expert is to base his or her report.").

386. ZPO § 404a, para. 4 (court directions limit expert ability to investigate facts).

387. ZPO § 410, para. 1, sentence 2 (oath to perform duty to the expert's best knowledge and conscience).

388. Bastuck & Göpfert, *supra* note 370, at 616 (suggesting that "[m]ost expert opinions are submitted to the court in writing"); Langbein, *The German Advantage*, *supra* note 57, at 839 ("The expert is ordinarily instructed to prepare a written opinion." (citing ZPO § 411,

report is filed, the court may call the expert to testify or to answer questions on his or her findings.³⁸⁹ After the court takes oral testimony, it enters the opinion and a summary of testimony into the court's file, and then may rely on it in deciding the claim.³⁹⁰ In a vast majority of cases, the court follows the expert opinion of the court's expert.³⁹¹

Within the scope of these rules, there are few methods that a litigant can use to challenge an expert's conclusions. Initially, a party can challenge the expert under the high standard of recusal for lack of neutrality.³⁹² Once an expert issues a report, the court may call the witness to testify; while most of the questioning is done by the court, the parties may ask questions to clarify testimony.³⁹³ After the initial report and testimony, a party may—if asserting the initial expert is unconvincing—request the court appoint a new expert, although it is solely within the judge's discretion to do so.³⁹⁴ Even if the court refuses to appoint a second expert, a party may offer a private expert to supplement the record and provide an additional opinion.³⁹⁵ A final method to challenge the expert's opinions would be by appeal, as the

para. 1, allowing written opinions)).

389. Bastuck & Göpfert, *supra* note 370, at 616; Langbein, *The German Advantage*, *supra* note 57, at 839; *see also* ZPO § 411, para. 3 (“The court may order the appearance of the expert to explain his or her written opinion.”).

390. Timmerbeil, *supra* note 218, at 175.

391. *Id.* at 175–76 (suggesting that judges are unlikely to reject expert report as courts lack scientific knowledge in expert fields); *see also id.* at 176 n.83 (citing Horst Sandler, *Richter und Sachverständige*, NJW, Nov. 18, 1986, at 2907, 2909 (describing research finding that courts follow experts 95% of the time)).

392. *Id.* at 174 (citing ZPO §§ 42–45 (describing recusal standards for judges) and ZPO § 406 (concluding that the judicial recusal rule applies to experts)).

393. *Id.* at 175 (citing ZPO § 411, para. 3, which states, “The court may order the appearance of the expert to explain his or her written opinion”); Kötz, *supra* note 372, at 64; Langbein, *The German Advantage*, *supra* note 57, at 839. Timmerbeil explains this is not American-style cross-examination, but “polite questioning in a non-confrontational atmosphere.” Timmerbeil, *supra* note 218, at 175.

394. Timmerbeil, *supra* note 218, at 175 (discussing ZPO § 412, para. 1, which states “The court may order that the same or another expert render a new expert opinion in the event that it considers that the expert opinion is inadequate”); Langbein, *The German Advantage*, *supra* note 57, at 839. Langbein notes this would be done in cases where the initial report is “sloppy or partial, [such] that it rests upon a view of the field that is not generally shared, or that the question referred to the expert is exceptionally difficult.” Langbein, *The German Advantage*, *supra*, at 840 (citing KURT JESSNITZER, *DER GERICHTLICHE SACHVERSTÄNDIGE* 231–32 (7th ed. 1978)).

395. Timmerbeil, *supra* note 218, at 177–78 (noting that private experts do not have the “same value” as the court's expert, as their conclusions are assertions of the party, not evidence); Langbein, *The German Advantage*, *supra* note 57, at 840 (court discounts party expert for want of neutrality).

litigant challenges the judgment on a claim of legal or factual error.³⁹⁶

With so few methods to challenge, the expert role has been criticized in Germany as being one of “*de facto* decision-maker” for the judge.³⁹⁷ Necessarily without knowledge to decide the issue requiring technical expertise, the judge is ill-suited to challenge the report of an expert.³⁹⁸ Because the judge is unable to challenge the expert in the field of expertise, the acceptance rate of expert opinion by the judges exceeds 90%!³⁹⁹ The high level of influence the court’s expert has on cases makes the selection of an expert essential to preserving legitimacy of the process, by ensuring selection of an expert who the parties will accept as fair.⁴⁰⁰

A German judge faced with the issue of selection of an expert in a complex tort follows certain procedures to ensure a qualified expert. Initially, the judge may consult with the parties on who is to be selected, and if the parties agree, the judge must appoint that expert.⁴⁰¹ Barring agreement, the judge will need assistance to select someone who is skilled in a field differing from the judge’s own. In Germany, the official regulatory agency overseeing licensed professionals maintains lists of persons “deemed especially suited to serve as experts.”⁴⁰² For other fields, the state may delegate to the relevant trade or industry group the responsibility of maintaining the list of appropriate and qualified

396. Regarding the procedure for appeals in Germany, see Stadler & Hau, *supra* note 365, at 377–78; FOSTER & SULE, *supra* note 352, at 133–34 (citing ZPO § 538, allowing appeal for a defect in the underlying judgment); and Langbein, *The German Advantage*, *supra* note 57, at 855–57 (reviewing German appellate procedure). Regarding appeals and experts, see Timmerbeil, *supra* note 218, at 174 (appeal of final judgment allows appeal of expert issues).

397. Timmerbeil, *supra* note 218, at 180 (citation omitted); see also Allen et al., *A Plea*, *supra* note 178, at 738 (concern that experts become “secret judges”); Neil Netanel Weinstock, *Expert Opinion and Reform in Anglo-American, Continental, and Israeli Adjudication*, 10 HASTINGS INT’L & COMP. L. REV. 9, 40 (1986) (“Continental judges have been criticized frequently for using the *expertise* procedure as a means to delegate their judicial responsibilities.”).

398. Timmerbeil, *supra* note 218, at 175–76, 180; Weinstock, *supra* note 397, at 42 (noting that civil law judges lack technical training to challenge expert reports). Other criticisms include the debate over the role of experts vis-à-vis the court, per Allen et al., *A Plea*, *supra* note 178, at 738, or the court using experts to reach results already decided upon by the judge, per Coester & Markesinis, *supra* note 211, at 306.

399. See *supra* note 391 (and sources cited); Weinstock, *supra* note 397, at 42.

400. See generally THOMAS M. FRANCK, FAIRNESS IN INTERNATIONAL LAW AND INSTITUTIONS 316–46, 477–85 (1995).

401. Timmerbeil, *supra* note 218, at 174 (citing ZPO § 404, para. 4).

402. Langbein, *The German Advantage*, *supra* note 57, at 837–38 (methodology of expert list creation).

experts.⁴⁰³ Both the professional list and the trade or industry list will be available to the judges when the need for an expert arises, allowing for a selection of a person well qualified and respected among his or her peers.⁴⁰⁴

While the German expert system is not without criticism, it has struck a balance between the need for scientific and technical expertise, the parties' ability to challenge expertise, efficiency, and the legitimacy of litigation outcomes. These decisions provide contrast to the American-style adversarial expert system.

E. Japan

If Germany provides a basic and long-standing example of a civil law system handling scientific expertise, then Japanese management of expert witnesses serves as an example of a civil law nation experimenting with reform. Japan serves as an interesting counterpoint to Germany because, in addition to the reforms, German models have significantly influenced the Japanese judicial system.⁴⁰⁵

1. Basics of Judicial Structure and Tort Case Management in Japan

To examine the role of the expert witness in Japan in detail, this Article will first—as with Germany—examine the overall structure of the judicial system in Japan, the bases of tort liability under the *Japanese Civil Code*, and case management of torts within that system. Only after reviewing those areas will the expert witness role, and the balancing of scientific and technical expertise with legal process, be examined in detail.

Like the German system, the Japanese legal system has two levels of courts for civil claims, based on the amount in dispute. Lower-level

403. *Id.* (noting that the list is compiled of qualified experts, who also swear to render impartial assistance). Regarding experts' duty to render impartial advice, see *supra* text accompanying notes 271–274 (addressing same issue in Canada and the United States), and note 384 (finding that German experts are obligated to render impartial, objective opinions); see also Bastuck & Göpfert, *supra* note 370, at 616.

404. Langbein, *The German Advantage*, *supra* note 57, at 837–38.

405. GOODMAN, JUSTICE, *supra* note 218, at 50 (stating that Japanese prewar jurisprudence “was completely dominated by the German approach”); Takeshi Kojima, *Japanese Civil Procedure in Comparative Law Perspective*, 46 U. KAN. L. REV. 687, 689 (1998) (“Basic Japanese civil procedure is patterned mainly upon German civil procedure.”); Shozo Ota, *Reform of Civil Procedure in Japan*, 49 AM. J. COMP. L. 561, 563–64 (2001) (describing Japanese civil procedure based on German codes). Regarding the development of prewar Japanese law, see GOODMAN, JUSTICE, *supra*, at 25–75.

claims with disputed claims under ¥1,400,000 are heard by a Summary Court.⁴⁰⁶ Summary Courts are intended to provide streamlined procedures for efficient adjudication of smaller disputes.⁴⁰⁷ For disputes involving larger sums, Japan uses District Courts.⁴⁰⁸ Analogous to German Landgerichte, Japanese District Courts serve as first instance venue for claims over ¥1,400,000 but also as an appellate court for cases heard at a Summary Court.⁴⁰⁹ A case appealed from the District Court will be heard at the High Court,⁴¹⁰ with a final appeal to the Supreme Court of Japan.⁴¹¹ Also analogous to the German system, some claims—family or domestic issues, patent disputes, trade, or labor—use specialized courts or administrative review processes independent of the courts of general jurisdiction.⁴¹² In the context of complex tort

406. Saibansho Ho [Court Organization Act], Law No. 59 of 1947, art. 33(1)(i) (Japan), available at <http://www.japaneselawtranslation.go.jp/law/detail/?ft=5&re=02&dn=1&gn=99&sy=1947&ht=A&no=&x=40&y=14&ky=&page=10>. The value of ¥1,400,000 is slightly over \$17,000 U.S.; this is based on the current exchange rate of 82 Yen to 1 U.S. Dollar. *Exchange Rates: New York Closing Snapshot*, WALL ST. J., available at http://online.wsj.com/mdc/public/page/2_3021-forex.html (last visited June 5, 2012).

407. MERYLL DEAN, JAPANESE LEGAL SYSTEM 346–47 (2d ed. 2002) (explaining the specific procedures that allow for efficient handling through the court system).

408. *Id.* at 348.

409. Saibansho Ho [Court Organization Act], Law No. 59 of 1947, art. 24 (setting District Court jurisdiction); DEAN, *supra* note 407, at 348; GOODMAN, JUSTICE, *supra* note 218, at 240–41.

410. DEAN, *supra* note 407, at 351; GOODMAN, JUSTICE, *supra* note 218, at 237. Note also that in rare instances, a case in Summary Court may “leapfrog” to the High Court without intermediate appeal to the District Court. DEAN, *supra*, at 352; *see also* GOODMAN, JUSTICE, *supra*, at 237.

411. DEAN, *supra* note 407, at 352. Like a Summary Court appeal skipping the District Court and going to the High Court instead, a District Court case may—in rare instances—skip the High Court level and be heard at the Supreme Court. *Id.* at 352–53, 365.

412. *See generally* CARL F. GOODMAN, THE RULE OF LAW IN JAPAN: A COMPARATIVE ANALYSIS 162–67 (2d rev. ed. 2008) [hereinafter GOODMAN, THE RULE OF LAW] (describing the Japanese legal system); Akira Mikazuki, *Saibansho Seido (Judicial System)*, in THE JAPANESE LEGAL SYSTEM: INTRODUCTORY CASES AND MATERIALS 444, 453–58 (Hideo Tanaka ed., 1976) (same). Regarding family court, *see* DEAN, *supra* note 407, at 349–51; YOSIYUKI NODA, INTRODUCTION TO JAPANESE LAW 129–32 (Anthony H. Angelo ed., trans., 1976) (describing the different agencies of the district courts, as well as family and summary courts). Regarding patent courts, *see* GOODMAN, JUSTICE, *supra* note 218, at 238; Yoshinobu Someno & Keiko Someno, *Patent Office and Court Procedures in Japan*, in PATENT AND KNOW-HOW LICENSING IN JAPAN AND THE UNITED STATES 110, 120–21 (Teruo Doi & Warren L. Shattuck eds., 1977) (describing the adjudication of patent denials); Yasuhei Taniguchi, *The 1996 Code of Civil Procedure of Japan—A Procedure for the Coming Century?*, 45 AM. J. COMP. L. 767, 782 (1997) (describing special venue for patent litigation). Regarding trade disputes, *see* MITSUO MATSUSHITA, INTERNATIONAL TRADE AND COMPETITION LAW IN JAPAN 98–116 (1993) (describing the Fair Trade Commission

litigation,⁴¹³ the initial court involved would usually be the District Court, followed by appellate assessment at the High Court level.

Japan's legal system bases its general tort liability in its *Civil Code*, which was initially based on the *German Civil Code*.⁴¹⁴ As with the German code, the *Japanese Civil Code*—the Minpō—contains a general provision on tort liability, declaring “A person who has intentionally or negligently infringed upon any right of others, or legally protected interest of others, shall be liable to compensate any damages resulting in consequence.”⁴¹⁵ In addition to the general provision, the code also provides for subject-specific provisions establishing duty for specific situations.⁴¹⁶

If a claimant establishes a violation of the civil code provisions, then the defendant must pay damages. Damages in Japan include monetary payment to compensate for losses resulting from the wrong, and may include compensation for pain and suffering,⁴¹⁷ but not punitive damages.⁴¹⁸ Just as with the German system, the *Japanese Civil Code* contains no general “class action” procedure similar to U.S. law,⁴¹⁹ meaning that each claimant must file suit to prove his or her damages.⁴²⁰

procedures). Regarding labor courts, see GOODMAN, JUSTICE, *supra* note 218, at 244–45. More detailed review of specialized courts is beyond the scope of this Article.

413. See *supra* text accompanying notes 30–31.

414. Eri Osaka, *Reevaluating the Role of the Tort Liability System in Japan*, 26 ARIZ. J. INT'L & COMP. L. 393, 394 (2009); Eric A. Feldman, Essay, *Law, Society, and Medical Malpractice Litigation in Japan*, 8 WASH. U. GLOBAL STUD. L. REV. 257, 262 (2009). See generally Ronald Frank, *Law of Obligations*, in HISTORY OF LAW IN JAPAN SINCE 1868, at 227, 234–36 (Wilhelm Rohl ed., 2005) (describing law of obligations in civil code; obligations are “a right to claim performance or omission of a definite act from a definite person” and civil code provides remedies for non-performance).

415. MINPŌ [MINPO] [CIV. C.], art. 709, available at <http://www.japaneselawtranslation.go.jp/law/detail/?printID=&printID=&re=02&ky=gratuitously&page=3&vm=02>.

416. See, e.g., *id.* arts. 715 (revealing the liability of employers), 717 (revealing the liability of landowner), 718 (revealing the liability of possessor of an animal), 723 (defamation), available at <http://www.japaneselawtranslation.go.jp/law/detail/?printID=&printID=&re=02&ky=gratuitously&page=3&vm=02> (last visited December 20, 2010).

417. *Id.* art. 722 para. 1; GOODMAN, JUSTICE, *supra* note 218, at 371; Osaka, *supra* note 414, at 395.

418. Osaka, *supra* note 414, at 395–96. This policy extends to prohibiting enforcement of foreign punitive damages awards. *Id.* at 395 & n.12; see also GOODMAN, JUSTICE, *supra* note 218, at 373 (noting that Japan does not permit punitive damages).

419. GOODMAN, JUSTICE, *supra* note 218, at 414. Goodman explains that there is a new “representative action” available under Japan's 1996 code, but it contains limits on claims inconsistent with American class actions. *Id.* at 414–15.

420. Regarding other reasons why Japan has few tort claims when compared to the

Even without class actions amalgamating claims, the total amount of litigation in Japan is relatively small. In 2008, the total number of pending civil claims in Japanese District Courts was nearly 110,000, after approximately 220,000 cases had been filed and a similar number had been resolved.⁴²¹ Unlike many other nations, Japan has adopted the American Rule, where parties each pay their own attorneys.⁴²² Commentators suggest—since the explanation of a “loser pays” system is not possible—there are other bases for low litigation rates in Japan, including: few attorneys, high court filing fees, small damage awards, slow-paced litigation, high burdens of proof, and prevalence of Alternative Dispute Resolution.⁴²³ These factors mean that few cases

United States, see *infra* note 423 and accompanying text.

421. SUPREME COURT OF JAPAN, STATISTICAL TABLES 2004–2008, available at http://www.courts.go.jp/english/info/statistical_table/index.html (last visited Mar. 24, 2012). This compares to approximately 271,000 civil cases pending in U.S. Federal District Court in 2008, with approximately 245,000 filings and approximately 238,000 terminations. ADMIN. OFFICE OF THE U.S. COURTS, FEDERAL JUDICIAL CASELOAD STATISTICS, at tbl.C (2008) available at <http://www.uscourts.gov/uscourts/Statistics/FederalJudicialCaseloadStatistics/2008/tables/C00Mar08.pdf>. This number does not include the case loads of the state courts; for those, see R. LAFOUNTAIN ET AL., NAT'L CTR. FOR STATE CTS., EXAMINING THE WORK OF STATE COURTS: A NATIONAL PERSPECTIVE FROM THE COURT STATISTICS PROJECT 1–9 (2009) (describing civil caseload statistics for 2007 spanning various states and subject matters).

422. Carl F. Goodman, *Japan's New Civil Procedure Code: Has It Fostered a Rule of Law Dispute Mechanism?*, 29 BROOK. J. INT'L L. 511, 532 n.87 (2004) [hereinafter Goodman, *Japan's New Civil Procedure*] (citing TAKAAKI HATTORI & DAN FENNO HENDERSON, CIVIL PROCEDURE IN JAPAN REVISED, at § 2.04(3) (2002)). See generally Matthew J. Wilson, *Failed Attempt to Undermine the Third Wave: Attorney Fee Shifting Movement in Japan*, 19 EMORY INT'L L. REV. 1457 (2005) (evaluating and explaining why attorney fee-shifting movement has failed in Japan). Compare the above sources with the German rules, *supra* note 365 and accompanying text, and those in England, *supra* note 298 and accompanying text.

423. See generally John Owen Haley, *The Myth of the Reluctant Litigant*, 4 J. JAPANESE STUD. 359 (1978) (describing that judicial system fees and delays result in low litigation prevalence rates); J. Mark Ramseyer & Minoru Nakazato, *The Rational Litigant: Settlement Amounts and Verdict Rates in Japan*, 18 J. LEGAL STUD. 263 (1989) (finding that low litigation prevalence rates are related to encouragement of settlement); Nobutoshi Yamanouchi & Samuel J. Cohen, *Understanding the Incidence of Litigation in Japan: A Structural Analysis*, 25 INT'L LAW. 443 (1991) (noting low litigation prevalence rates related to the structure of Japanese civil system).

Regarding the effects of the number of attorneys in Japan, see Edward I. Chen, *The National Law Examination in Japan*, 39 J. LEGAL EDUC. 1, 20–21 (1989); Feldman, *supra* note 414, at 266–67; Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 526; Elliott J. Hahn, *An Overview of the Japanese Legal System*, 5 NW. J. INT'L L. & BUS. 517, 522–31 (1983); and Yoichiro Hamabe, *Changing Antimonopoly Policy in the Japanese Legal System—An International Perspective*, 28 INT'L LAW. 903, 904 (1994).

Regarding the effect of high court filing fees, see Mark A. Behrens & Daniel H.

will be filed, and fewer still result in trial.

In addition to court structures and claim bases, the third necessary area to review is the procedural management of torts claims filed in Japanese District Courts, from filing to trial. As with all the legal systems discussed, a case begins when the claimant files his or her Complaint.⁴²⁴ The Complaint must specify in detail not only the nature of the claim, but the facts necessary to support the claims, and must include documentary evidence.⁴²⁵ After review to determine whether the Complaint states a cognizable claim for relief, the judge will serve the Defendant.⁴²⁶ Following the Defendant's filing of an Answer, the court may set hearings to clarify the positions of the parties, or to encourage ADR or other compromise.⁴²⁷ After these initial procedures,

Raddock, *Japan's New Product Liability Law: The Citadel of Strict Liability Falls, but Access to Recovery Is Limited by Formidable Barriers*, 16 U. PA. J. INT'L BUS. L. 669, 711 (1996); Feldman, *supra* note 414, at 264–65 & tbl.2 (containing a table explaining the fee structure in detail); Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 526; and Yamanouchi & Cohen, *supra*, at 453.

Regarding the effect of low damage awards, see Behrens & Raddock, *supra*, at 711–17; Feldman, *supra* note 414, at 265–66; and Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 526–27 (citing JOSEPH W.S. DAVIS, DISPUTE RESOLUTION IN JAPAN 279 (1996)).

Regarding the effect of the slow pace of litigation, see Behrens & Raddock, *supra*, at 705–06; Feldman, *supra* note 414, at 268–70 (describing the “languid pace of trials”); Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 527; Kojima, *supra* note 405, at 689–90; and Ota, *supra* note 405, at 565.

Regarding the effect of the high burden of proof, see GOODMAN, JUSTICE, *supra* note 218, at 324–25; Kevin M. Clermont, *Standards of Proof in Japan and the United States*, 37 CORNELL INT'L L.J. 263, 265–66 (2004) (noting that burden of proof remains well above preponderance of the evidence, but less than beyond a reasonable doubt: a “high probability”); Feldman, *supra* note 414, at 263; Kojima, *supra* note 405, at 708; and Osaka, *supra* note 414, at 394–95.

Regarding the prevalence of ADR, see DEAN, *supra* note 407, at 356–61 (containing a detailed review of the role of ADR in Japan and noting that structures of ADR are “long established, entrenched and well used within the modern legal system”); Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 527; and Mathias Reimann, *Liability for Defective Products at the Beginning of the Twenty-First Century: Emergence of a Worldwide Standard?*, 51 AM. J. COMP. L. 751, 815 (2003).

424. GOODMAN, JUSTICE, *supra* note 218, at 270; Kojima, *supra* note 405, at 697.

425. GOODMAN, JUSTICE, *supra* note 218, at 270–71 (citing MINJI SOSH-O KISOHU [Japanese Rules of Civil Procedure], art. 53); Kojima, *supra* note 405, at 697.

426. GOODMAN, JUSTICE, *supra* note 218, at 272–73; Kojima, *supra* note 405, at 697. If the complaint lacks a basis for relief, the court may reject the initial filing and provide the Plaintiff a chance to revise the pleading. *Id.*; see also GOODMAN, JUSTICE, *supra*, at 273 (citing MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 137 (Japan)).

427. GOODMAN, JUSTICE, *supra* note 218, at 277; Kojima, *supra* note 405, at 699–706 (explaining plenary hearing procedure, preparation, and the authority of court to order preparatory hearings prior to the plenary hearings).

the court moves the case to the evidence stage.

As with the German system, in Japan the judge is the primary case manager, and there is no clear dividing line between trial and discovery, because all hearings are part of the process leading to judgment.⁴²⁸ Rather, the judge will organize the schedule for the presentation of the evidence, indicating in what order issues will be reviewed.⁴²⁹ Hearings involve the presentation of documentary evidence,⁴³⁰ witness testimony,⁴³¹ party testimony,⁴³² and expert opinion.⁴³³

Once the court decides that it can decide a claim, the court will issue a judgment affirming or rejecting a party's claim based on the evidence.⁴³⁴ Each judgment includes a statement of findings of fact, the bases for those conclusions, and the result.⁴³⁵ If some part of the case still remains in dispute after the judgment, the case continues in that area.⁴³⁶

Within the constraints of the Japanese legal system, expert witnesses operate to assist the court in the determination of the case.

2. The Role and Function of Experts Within the Japanese Legal System

With a civil code based on the German code, and similar judge-led case management, one might be tempted to assume that the role of

428. Kojima, *supra* note 405, at 689; Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 536–38. Regarding the German similarity here, see *supra* note 373 and accompanying text.

429. GOODMAN, JUSTICE, *supra* note 218, at 320–21; see also GOODMAN, THE RULE OF LAW, *supra* note 412, at 347–48 (“This is, after all, an inquisition with the judge in control and responsible for clarifying the case; as well as gathering the evidence; as well as making a correct determination in the case.”).

430. GOODMAN, JUSTICE, *supra* note 218, at 327–51; Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 541–42; Kojima, *supra* note 405, at 707–08 (describing the court's handling of documentary evidence).

431. This is if the court decides witnesses are necessary. GOODMAN, JUSTICE, *supra* note 218, at 351–63; Goodman, *Japan's New Civil Procedure*, *supra* note 422, at 541–42; Kojima, *supra* note 405, at 706–07.

432. GOODMAN, JUSTICE, *supra* note 218, at 361–63; Kojima, *supra* note 405, at 707.

433. Like witnesses, an expert will be called to provide an opinion only if necessary. GOODMAN, JUSTICE, *supra* note 218, at 364; Kojima, *supra* note 405, at 707.

434. Kojima, *supra* note 405, at 708–10; see also GOODMAN, JUSTICE, *supra* note 218, at 417.

435. Kojima, *supra* note 405, at 709 (citing MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 253 (Japan)); see also GOODMAN, JUSTICE, *supra* note 218, at 418.

436. GOODMAN, JUSTICE, *supra* note 218, at 421.

experts in Japan is closely similar to the role in Germany.⁴³⁷ Yet even if the expert role is only roughly similar, the justice system has recently incorporated changes to the law to improve expert witness procedures. With these new procedures, examination of the Japanese system, Professor Feldman argues, “ought to be the first step in the much-needed reform of the U.S. expert witness system.”⁴³⁸

Experts are called by, and asked to assist, the judge in making his or her determinations in the case, when necessary.⁴³⁹ Procedurally, a party makes a motion for the court to appoint an expert to help establish a fact needed to prove a claim, and the court will decide whether expert opinion is required.⁴⁴⁰ If the court decides an expert is needed, it selects the expert⁴⁴¹ and provides him or her with the necessary case materials to help decide the contested expert issue.⁴⁴² Once the expert is appointed, he or she is required to report his or her opinions to the court, usually by a written report but sometimes in oral testimony as well.⁴⁴³ As is the case in Germany, the opinions of court-appointed experts often hold great influence with the judge.⁴⁴⁴

437. Regarding expert witnesses in Germany, see *supra* Part IV.D.2.

438. Eric A. Feldman, *Law Across Borders: What Can the United States Learn from Japan?*, 32 HASTINGS INT'L & COMP. L. REV. 795, 800 (2009).

439. GOODMAN, JUSTICE, *supra* note 218, at 366; TAKAAKI HATTORI & DAN FENNO HENDERSON, CIVIL PROCEDURE IN JAPAN § 7.06[5][a] (Yasuhei Taniguchi, Pauline C. Reich & Hiroto Miyake eds., rev. 2d ed. 2009) (“The role of an expert is to supplement the judge’s ability to decide the case by giving an opinion based on his/her special knowledge and experience.”); Kojima, *supra* note 405, at 707; see also Ichiro Otaka, Recent Developments Regarding the Intellectual Property High Court of Japan, Address Before the 14th Annual Conf. on Int’l Intellectual Prop. Law & Pol’y 5 (2006), available at http://www.ip.courts.go.jp/documents/pdf/thesis/060420_21.pdf (describing the same, regarding expert commissioners).

440. GOODMAN, JUSTICE, *supra* note 218, at 364 (citing MINJI SOSH-O KISOHU [Japanese Rules of Civil Procedure], art. 129); Feldman, *supra* note 414, at 270.

441. HATTORI & HENDERSON, *supra* note 439, § 7.06[5][a] (citing MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 213 (Japan)) (noting that the judge selects the expert). On the details of expert selection, see *infra* text accompanying notes 458–473.

442. Feldman, *supra* note 414, at 271.

443. GOODMAN, JUSTICE, *supra* note 218, at 364; HATTORI & HENDERSON, *supra* note 439, § 7.06[5][b] (citing MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 215(1)); Feldman, *supra* note 414, at 271.

444. GOODMAN, JUSTICE, *supra* note 218, at 296, 364 (“It is likely that the court will rely on the neutral expert appointed by the court rather than on a paid expert witness hired by the parties.”). The judicial acceptance of expert opinions at high levels appears to occur in many civil law nations. Regarding the same issue in Germany, see Sendler, *supra* note 391 (finding that experts followed in 95% of cases), and in France, see JOHN BELL ET AL., PRINCIPLES OF FRENCH LAW 108 (2d ed. 2008); Robert F. Taylor, *A Comparative Study of Expert Testimony in France and the United States: Philosophical Underpinnings, History, Practice, and Procedure*, 31 TEX. INT’L L.J. 181, 209 (1996) (suggesting that “it is difficult for a judge to

A litigant attempting to challenge a report from the court-appointed expert may do so in several ways. Initially, the litigant may contest the appointment of the individual chosen as the expert.⁴⁴⁵ Such challenges involve demonstrating to the court that circumstances prevent the individual selected from being impartial.⁴⁴⁶ The challenge may involve the expert being unable to “faithfully” give his or her opinion, meaning that the expert is biased.⁴⁴⁷ This is a very high burden to successfully challenge an expert.⁴⁴⁸ Second, a litigant may cast doubt on an expert opinion by directly questioning the expert. For those experts that the court calls to testify orally, the litigants may ask questions after the court’s questioning.⁴⁴⁹ Beyond oral examination, litigants may also submit written questions to experts, not unlike interrogatories in American discovery.⁴⁵⁰ Finally, beyond initial challenges and questioning, a litigant may also retain a party-expert to address the same issue.⁴⁵¹ While the litigant must make a motion with the court to have the party-expert’s opinion heard,⁴⁵² directly challenging the court’s expert with a private expert remains an important method to cast doubt on the court’s expert report.⁴⁵³ Even with these methods to challenge expert opinion, the single court-appointed expert retains substantial influence with the court as its neutral expert technician.

contradict an expert in that expert’s area of expertise, without relying on the opinions of other experts”); and William J. Travis, *Impartial Expert Testimony Under the Federal Rules of Evidence: A French Perspective*, 8 INT’L LAW. 492, 520 (1974) (noting that “French courts have accorded excessive credibility to the reports of court appointed experts”).

445. GOODMAN, JUSTICE, *supra* note 218, at 364; HATTORI & HENDERSON, *supra* note 439, § 7.06[5][a].

446. HATTORI & HENDERSON, *supra* note 439, § 7.06[5][a] (citing MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 214(1)).

447. MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 214(1).

448. Note that, in appointing a particular expert, the judge “has impliedly decided that the expert advice sought meets the reliability and professional standards set in *Daubert*.” Goodman, *Japan’s New Civil Procedure*, *supra* note 422, at 597 n.332.

449. GOODMAN, JUSTICE, *supra* note 218, at 364; Feldman, *supra* note 414, at 271; *see also* MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 215-2(2).

450. Feldman, *supra* note 414, at 271 (“Parties could submit written questions and seek clarification of written reports.”).

451. GOODMAN, JUSTICE, *supra* note 218, at 363–64; Feldman, *supra* note 414, at 270; *see also* HATTORI & HENDERSON, *supra* note 439, § 7.06[5][a].

452. GOODMAN, JUSTICE, *supra* note 218, at 364.

453. Again, the likelihood of success here appears low: “A judge is unlikely to permit such a contradicting witness because to do so would both sanction a challenge to a colleague and take additional time in trial.” Goodman, *Japan’s New Civil Procedure*, *supra* note 422, at 597.

As in German civil litigation, the few opportunities to challenge the expert after appointment and the high rate of acceptance of opinions⁴⁵⁴ result in a critical need for fairness in the expert selection process, to preserve legitimacy.⁴⁵⁵ In Germany, this need for fairness has led to the development of professional lists of persons screened to serve as experts.⁴⁵⁶ In Japan, the judiciary has not traditionally created similar lists.⁴⁵⁷ Instead, before recent reforms in 2004, the selection process involved several procedures, including asking for assistance from professional societies or from university scientists.⁴⁵⁸ Then the court would proceed with party-led expert selection involving multiple challenges and reconsideration.⁴⁵⁹ The traditional expert selection method, averaging 133 days for an expert to be recruited by a court, was felt to be inefficient.⁴⁶⁰

In 2001, out of a growing dissatisfaction with the state of the existing selection process,⁴⁶¹ the Justice System Reform Council made suggestions to supplement existing expert selection methods.⁴⁶² In 2003, the Diet adopted reforms to the expert selection process, effective in 2004, based on the Reform Council recommendations.⁴⁶³ The reform measures adopted an alternative to traditional expert selection, an “expert commissioner” system in which experts in technical or scientific areas register to serve as experts.⁴⁶⁴ The purpose of this alternative is to

454. See *supra* note 444 and accompanying text.

455. On the issue of expert selection tied to creating “reliable and convincing judgments,” see Otaka, *supra* note 439, at 5. On the issue of expert commissioner reform, see *infra* text accompanying notes 461–474, as a response to the challenge presented by technically complicated cases, see Goodman, *Japan’s New Civil Procedure*, *supra* note 422, at 595. Regarding the issue of expert selection and legitimacy in the Germany, see *supra* Part IV.D.

456. See *supra* text accompanying notes 402–404.

457. Feldman, *supra* note 414, at 270 n.41.

458. *Id.* at 270–71 (citations omitted).

459. *Id.*

460. *Id.*; see also GOODMAN, JUSTICE, *supra* note 218, at 365 (“The [Justice System Reform] Council was concerned that inability to obtain expert testimony was one of the reasons for the long delay in the handling of cases requiring expertise.”).

461. GOODMAN, JUSTICE, *supra* note 218, at 365.

462. *Recommendations of the Justice System Reform Council—For a Justice System to Support Japan in the 21st Century*, 2002 ST. LOUIS–WARSAW TRANSATLANTIC L.J. 119, 139–41 (2001).

463. GOODMAN, JUSTICE, *supra* note 218, at 365–66; Goodman, *Japan’s New Civil Procedure*, *supra* note 422, at 598 (describing the July 2003 reform).

464. GOODMAN, JUSTICE, *supra* note 218, at 366.

“enhance the quality and accuracy of the trial proceedings.”⁴⁶⁵

Under the new system, the Supreme Court selects and maintains a registry of expert commissioners willing to serve as experts.⁴⁶⁶ Currently, there are around 180 experts serving as expert commissioners, each selected “from among top-level technical experts in various scientific fields such as leading scholars, researchers at public research institutes or private corporations, patent attorneys and so on.”⁴⁶⁷ Expert commissioners serve part time for two-year appointments.⁴⁶⁸

Under this new system, any court needing expert assistance in litigation may appoint experts who are listed on the expert commissioner registry, as an alternative to traditional procedures.⁴⁶⁹ The appointed expert commissioner then assists the judge on technical matters, whether by assessing the evidence,⁴⁷⁰ or even by active participation in the case, questioning witnesses directly.⁴⁷¹ Opinions from an expert commissioner, like any expert, must be heard by both sides of the litigation and cannot be received *ex parte*.⁴⁷² Beyond the use of the expert commissioner lists by judges, private litigants may also retain list experts when seeking a private-party expert.⁴⁷³ The 2003 expert commissioner system reforms systematically responded to problems with the old selection methodology, and have been praised as a substantial success.⁴⁷⁴

Japanese procedures for expert witnesses have advanced from the traditional procedures into a more efficient system. While the expert commissioner system is relatively new, it shows that a large nation can attack the shortcomings of its expert system, and in so doing rebalance legal process and scientific expertise.

465. Otaka, *supra* note 439, at 6.

466. *Id.* at 5 (citing MINJI SOSHŌHŌ [MINSOHŌ] [C. CIV. PRO.] 1996, art. 92-2 (Japan)) (purpose is to assist the court).

467. *Id.* at 6.

468. *Id.*

469. GOODMAN, JUSTICE, *supra* note 218, at 366–67; *cf.* Feldman, *supra* note 414, at 270–71 (noting the long delays of Japan’s system, which does not maintain an expert list for judges).

470. Feldman, *supra* note 414, at 272.

471. GOODMAN, JUSTICE, *supra* note 218, at 365 (citing MINJI SOSH-O KISOHU [Japanese Rules of Civil Procedure], art. 133).

472. Goodman, *Japan’s New Civil Procedure*, *supra* note 422, at 598.

473. GOODMAN, JUSTICE, *supra* note 218, at 366–67.

474. Otaka, *supra* note 439, at 6 (finding that the expert commissioner system “has been favorably received so far”).

V. ASSESSMENT OF METHODOLOGIES FROM OTHER NATIONS THAT MAY BENEFIT EXPERT WITNESS HANDLING IN THE UNITED STATES

Having reviewed expert methodologies in several nations, one can see that balancing technological or scientific expertise and legal process can be addressed by a variety of means. It is precisely this variety of approaches that provides a fertile source for law reform efforts, as Haack suggested: “Maybe we could learn something from the experiences of other countries that are equally technologically advanced, but have different regulatory and legal arrangements.”⁴⁷⁵ Other commentators agree with her premise.⁴⁷⁶ The question then becomes: what would work here?

A. Procedures That Cannot Be Considered for Use in the United States

Initially, it is important to note that many procedures used in other nations cannot be considered for transplantation to the U.S., whether or not they would address weaknesses in *Daubert*. Examples will help demonstrate the point.

One methodology that cannot be considered in the U.S. system is the Canadian practice of extensive judicial comment on the evidence, including the expert opinions.⁴⁷⁷ As allowed by Canadian law, the comment on evidence allows judges to state a personal opinion on the strength of the evidence, ostensibly to assist the jury.⁴⁷⁸ While it is perhaps helpful to the jury to hear the judge’s viewpoints, judges in the United States are specifically prohibited from offering opinions on evidence, pursuant to the *Judicial Code of Conduct* and other ethical standards.⁴⁷⁹

A second expert witness management device in use elsewhere that is inappropriate for reform in the United States is the Japanese practice of allowing experts to directly question witnesses.⁴⁸⁰ In Japan, an appointed expert commissioner may assume a role beyond the limits of an expert in the United States, so that the expert may be directly

475. Haack, *supra* note 17, at 23.

476. See Feldman, *supra* note 438, at 800; Langbein, *The Influence of Comparative Procedure*, *supra* note 10, at 552; see also Bryan, *supra* note 9, at 526–31 (explaining that advantages may come from examining foreign law and exploring Langbein’s example of the “German Advantage”).

477. See *supra* text accompanying notes 281–285.

478. Vidmar, *supra* note 247, at 165; see also *supra* note 278 and accompanying text.

479. CODE OF CONDUCT FOR U.S. JUDGES, Canon 3(A)(6) (2009).

480. See *supra* note 471 and accompanying text.

involved with in-court presentation of evidence including witness examination.⁴⁸¹ While intended to efficiently facilitate the presentation of evidence, this expansive role exceeds the more limited role of experts in U.S. litigation. Experts in the United States are witnesses providing evidence, rather than parties directly involved in case management. In addition, the questioning of witnesses is the responsibility of the parties—through their attorneys—or in some instances, the court itself.⁴⁸² While witness examination is within the discretion of the trial court,⁴⁸³ use of a witness in this way—as an advocate, not as evidence—is not a procedure approved within current limits of judicial discretion.⁴⁸⁴ Without specific authorization, the use of experts to question witnesses would be an abuse of the court’s discretion.

One final procedure other countries use that could not be directly adopted in the United States is the near-universal use of bench trials for complex torts. In every system discussed herein, the court is usually the trier of fact for complex claims.⁴⁸⁵ Even in those systems that permit jury trials in civil cases—as Canada and the U.K. do for certain claims—torts requiring extensive scientific or technical evidence are removed from jury consideration.⁴⁸⁶ Part of the basis for removal, or assignment to the court initially, is confidence in the judge’s ability to handle complex cases that may be beyond the jury’s capacity.⁴⁸⁷ Yet in the United States,

481. *Id.*

482. The court may, under the rules of evidence, call or question witnesses. FED. R. EVID. 614. This power is rarely exercised. Cheng, *supra* note 92, at 1304; Alfred Gitelson & Bruce L. Gitelson, *A Trial Judge’s Credo Must Include His Affirmative Duty to Be an Instrumentality of Justice*, 7 SANTA CLARA LAW. 7, 13–14 (1966).

483. FED. R. EVID. 611(a).

484. David P. Leonard, *Appellate Review of Evidentiary Rulings*, 70 N.C. L. REV. 1155, 1178 (1992) (describing the trial court methods to control questioning of witnesses to include control of the order of evidence, permitting narrative questioning, recall of witnesses, permitting re-direct or re-cross, or taking evidence in installments).

485. Regarding Canada, see text accompanying notes 247–248. Regarding the U.K., see text accompanying notes 288–293. Regarding Germany, see text accompanying notes 369–372. Regarding Japan, see text accompanying notes 429–436.

486. Even where a jury is permitted, Canadian rules permit removal of the case from the jury due to significant complexity. See *supra* text accompanying note 249. In the U.K., while jury trials may exist for certain exceptional tort cases, cases may also be removed from the jury due to complexity. See *supra* text accompanying note 292.

487. In the U.K., for example, the court in *Ward v. James* noted that “in personal injury cases trial by jury has given place of late to trial by judge alone, the reason being simply this, that in these cases trial by a judge alone is more acceptable to the great majority of people.” *Ward v. James*, [1966] 1 Q.B. 273, 295 (C.A.).

the right to a jury trial in Federal court exists as a constitutional right.⁴⁸⁸ A mandatory bench trial in complex torts would therefore require constitutional amendment overturning this long-standing right, and so this method of expert witness management cannot be considered in the United States.⁴⁸⁹

B. Methodologies That Should Be Considered for Adoption in the United States

While many methodologies of expert witness management cannot be transplanted into the U.S. legal system, there are several that lawmakers should consider. Each procedure discussed represents a specific change to the current expert witness balance of legal process and scientific expertise, to fix areas of weakness within the *Daubert* regime. With these options, expert witness reform can develop not from unilateral development of the current U.S. system, but through limited transplantation of tested procedures already used in other major legal systems. We need not reinvent the wheel.

1. Canadian Summary of the Evidence, and Additional Disclosures

The first example of an expert management device from another nation that could assist expert management in the United States comes from Canada. In Canada, at the end of a trial, the judge summarizes the evidence, objectively stating the evidence and issues in the case for the jury.⁴⁹⁰ In the United States, however, we rely on the advocates to

488. U.S. CONST. amend. VII.

The right of jury trial in civil cases at common law is a basic and fundamental feature of our system of federal jurisprudence which is protected by the Seventh Amendment. A right so fundamental and sacred to the citizen, whether guaranteed by the Constitution or provided by statute, should be jealously guarded by the courts.

Jacob v. City of New York, 315 U.S. 752, 752–53 (1942). Empirical research demonstrates that, as a percentage of total Federal trials for tort claims, bench trials are less prevalent now than in the past. See Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 1 J. EMPIRICAL LEGAL STUD. 459, 536 tbl.A-4 (2004) (finding that bench trials constituted 30% of tort trials in 1962, and 31% in 1972, compared to 22% in 2001 and 27% in 2002).

489. See Jurs, *supra* note 29, at 34 (“[Congress] lacks the power to strip parties contesting matters of private right of their constitutional right to a trial by jury.” (citing *Granfinanciera, S.A. v. Nordberg*, 492 U.S. 33, 51–52 (1989))).

490. See *supra* text accompanying notes 275–280. Summation is separate from judicial comment on the evidence, a broader privilege fundamentally inconsistent with the judicial

summarize the evidence at the end of the case for the jury. Even so, the idea of packaging and presenting issues offers a solution to a persistent *Daubert* problem: the management of the challenges to experts at “*Daubert* hearings.”⁴⁹¹

Consistent with the Canadian example then, we should consider adopting mandatory summary of expert evidence for the judge to use at a *Daubert* hearing, to assist the judge in deciding what are the fundamental issues contested by the parties and the specific details of evidence to support each party’s contention. This Article therefore proposes a new requirement for parties to file a joint disclosure in cases with contested *Daubert* issues.⁴⁹² The disclosure would be completed by both parties, not unlike a pretrial order, and must include these materials:

- Qualifications and background of each expert involved in the issues contested by the motion (whether the contested expert or the expert in response);
- Delineation of the specific areas of testimony that are contested as improper under the standard of *Daubert*/Evidence Rule 702; and
- For each contested issue:
 - Areas of agreement between the experts regarding the contested issue;
 - Areas of disagreement and each party’s position on those issues;
 - Detailed support for each expert’s opinions on the contested issue, including all scientific and technical bases for those opinions; and
 - Areas of scientific uncertainty with explanation of the basis of the uncertainty and the current state of research in the area.⁴⁹³

role in the United States. See *supra* text accompanying notes 282–284, 477–479.

491. Regarding judicial difficulty with complex evidence, see *supra* Part II.D. Regarding judicial unwillingness to utilize current tools to assist them with *Daubert* challenges, see *supra* Part II.E.

492. This can be established by a new federal rule, or the addition of a subsection to Federal Rule 702 solely applicable to *Daubert* challenges to experts.

493. These suggested disclosures are similar to the proposed changes to Rule 56 suggested by the Advisory Committee on the Civil Rules in May 2008. STANDING COMM. ON RULES OF PRACTICE AND PROCEDURE, REPORT OF THE CIVIL RULES ADVISORY COMMITTEE 27–32 (2008), available at http://www.uscourts.gov/uscourts/RulesAndPolicies/rules/Reports/CV_Report.pdf. The committee suggested the change to foster well-ordered

Upon filing of the disclosures, the court may schedule a hearing to take testimony on the motions, or may decide the issue without further evidence from the parties.

The expert disclosures mandated by this proposal serve several purposes. Benefits of the procedure will be classified by the stage in which the proceeding case receives assistance: the *Daubert* hearing itself; independent expert review—if desired by the court—pursuant to Federal Rule of Evidence 706; jury trial; or similar challenges before other courts.

At the first stage—the *Daubert* hearing—the court faces several obstacles with the potential to affect the court’s reliability determination on the expert evidence. Among these obstacles are the selection bias from a litigant’s selection of outlier experts, adversarial bias from the rigid framework imposed by cross-examination, and judicial inexperience with scientific or statistical issues.⁴⁹⁴

More specific disclosures, as outlined above, help address all of these shortcomings. An outlying expert may or may not be identified as such by the judge under the current rules, but when forced to explain in detail the basis for each contested opinion, it becomes more likely that the testimony can be assessed within the context of the entire scientific field.⁴⁹⁵

The same benefit accrues regarding the adversarial methods of cross-examination. With cross-examination, a party has the ability to cast doubt—merited or otherwise—on the expert’s position, while empirical evidence demonstrates that experts sometimes respond by

and concise motions in this area. *Id.* at 25. However, after the comment period, the Committee decided to shelve the procedure, as not required as a mandatory requirement for all cases. STANDING COMM. ON RULES OF PRACTICE AND PROCEDURE, REPORT OF THE CIVIL RULES ADVISORY COMMITTEE 7 (2009), available at <http://www.uscourts.gov/uscourts/RulesAndPolicies/rules/Supreme%20Court%202009/Excerpt-CV.pdf>. In the context of *Daubert* and contested expert testimony, the disclosures would serve an appropriate purpose. See *infra* text accompanying notes 495–505.

494. Regarding selection bias, see *supra* Part II.B. Regarding adversarial methods and bias, see *supra* Part II.C. Regarding judicial difficulty with complex evidence, see *supra* Part II.D.

495. This is not to say it will necessarily be excluded as unreliable, then, depending on the infirmity of the position and whether it can be defended. As Justice Blackmun stated in *Daubert*, the appropriate response to weak expert evidence is not exclusion, but vigorous cross-examination. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 596 (1993) (citing *Rock v. Arkansas*, 483 U.S. 44, 61 (1987)).

expressing their opinions more unconditionally.⁴⁹⁶ Yet, if the issues are clearly delineated by the parties in the new disclosures, the judge should be better able to determine which cross-examination questions serve to cast genuine doubt upon the merits of the expert opinion, and which do not.

Finally, the disclosures assist in addressing the judiciary's general inexperience with complex science or mathematics. The judge in a *Daubert* hearing must determine scientific reliability, and that role has been described as "daunting" or requiring judges to become "amateur scientists."⁴⁹⁷ Inexperience with science or statistics compounds the problem, as inexperienced judges may not be able to critically assess methodological weaknesses within an expert's argument.⁴⁹⁸ With additional disclosures, the court has a clear record of the disputed issues and the basis for each, and it becomes easier for the judge to apply the reliability test under *Daubert* to the evidence in the individual case.⁴⁹⁹

Even with disclosures, however, some reliability issues will test the skills of even the most scientifically-capable juror. The disclosures suggested here have an additional benefit for these cases; the disclosures permit a quicker, more efficient review by an independent expert appointed by the court under Federal Rule of Evidence 706.⁵⁰⁰ While judges see independent review as beneficial, many are reluctant to appoint a Rule 706 expert. Two reasons for this reluctance are judicial concerns about interfering with adversarial process and potential case delay.⁵⁰¹ The benefit of additional disclosures eliminates these two reasons not to appoint a Rule 706 expert.

First, while in general adversarial norms are used in the American system, in the cases mandating these disclosures, the use of these norms can potentially affect validity of outcomes. The disclosures suggested here involve delineation of disagreement, the end game of the partisan

496. See *supra* text accompanying notes 65–83.

497. See *supra* text accompanying notes 21–28.

498. See *supra* text accompanying note 114; Robbennolt, *supra* note 114, at 797.

499. Note that the judge is seeking to review the methodological soundness, the "reliability" of the science, under *Daubert*, to ensure the expert uses the "same level of intellectual rigor" in the courtroom as in the laboratory. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). However the judge makes this decision within the wide range of discretion afforded to a trial judge on evidentiary issues. See *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 143 (1997).

500. Regarding the power of a court to appoint an independent expert, see *supra* Part II.E.2.

501. See *supra* text accompanying notes 173–174.

management of the case, and afterward a non-adversarial framework may assist to assure reliability reflects scientific theory on the issue. Second, disclosures reduce the concern over the delay in appointment of an independent expert, as the disclosures highlight the exact issues in play, and the basis for each position. Any independent expert appointed by the judge would have a pre-packaged set of contested issues to allow for expeditious review. Disclosures enhance the ability of judges to use the independent expert rule in a greater number of cases.

So far, the focus has been on benefits at the *Daubert* hearing stage or for independent expert review, but the disclosures suggested here would also assist at the trial stage. At the *Daubert* hearing, the court has to determine whether the expert opinion is reliable enough for admission under Rule 702. Should the opinion be unreliable, the court precludes the expert from testifying. In many cases, however, the result of the hearing will be that the contested expert's opinion is deemed "reliable enough," and admitted.⁵⁰² For those cases, then, the contested expert—and a counterpart from the opposing party or parties—will testify at trial for the jury. Yet, we know jurors may have the same difficulties in assessing complex evidence as judges.⁵⁰³ To the extent the reliability issue remains an issue at trial, then the disclosures can also assist the jury. Therefore, the disclosures submitted by the parties to the judge for the *Daubert* stage also should be admissible at trial, on motion of the parties or the judge *sua sponte*, when "good cause" has been shown. The disclosures will assist the jury to decide the contested expert reliability just as the disclosures helped the judge at the earlier stage.⁵⁰⁴ Use by the jury, after all, is the original purpose of summary on the evidence used in Canada, and in this form offers the same benefit.⁵⁰⁵

The disclosures suggested here would have one final systematic benefit: they specifically delineate the state of the science on an issue at the time of the decision. Case opinions discussing complex science often

502. Regarding the standard for admission of testimony at a *Daubert* hearing, see *supra* note 497.

503. See *supra* Part II.D.1.

504. Of course, the judge reviewed the disclosures under a different standard, but there is no reason to think the differing burden would affect the validity of the disclosures at this stage.

505. Again, this is to differentiate between the summary of the evidence, see *supra* notes 276–280 and accompanying text, and the judicial comment on the evidence, see *supra* notes 281–285.

serves as persuasive authority for other judges reviewing the same issue.⁵⁰⁶ Of course, scientific knowledge in a given field constantly changes.⁵⁰⁷ To the extent that any other court addresses the same issue, and considers the older opinion as precedent, the court will know exactly what evidence was presented in the previous case and served as a basis for the opinion. Knowing the evidentiary basis for the prior opinion permits the later judge to establish what evidence in his or her hearing was not considered before, and merits particular attention in that *Daubert* review. The litigants also could note the changes in the state of scientific knowledge since the prior precedent, arguing for differing treatment based on the new science mandates.

The additional requirement of disclosures at the *Daubert* stage, based on Canadian procedure of judicial summary, rebalances the current procedures used on the issue of expert witnesses in Federal court. But because of the significant benefits of the procedure, changing those procedures seems well worth it.

2. Civil Law Expert Selection Methods

A second example of a procedure based on one used abroad that could assist expert management in the United States originates in procedures used in Japan and Germany. In those countries, the judge selects an expert to assist the judge to decide contested issues of evidence, and sometimes for case management in Japan.⁵⁰⁸ The selection and role of the expert in these civil law systems contrasts significantly with the party-led expert practices in the United States.⁵⁰⁹ Yet aspects of the civil law expert selection procedures would offer benefits to U.S. expert management.

506. Wendy E. Wagner, *Ethyl: Bridging the Science–Law Divide*, 74 TEX. L. REV. 1291, 1293 (1996).

507. Regarding the scientific method in general, and its methodology of analysis and re-examination of previously held truths, see Haack, *supra* note 17, at 7–15 (suggesting that “scientific inquiry takes the time it takes, and its progress is ragged and unpredictable”; that “scientific inquiry is by nature tentative and thoroughly fallibilist”; and that “there is always, at least in principle, the possibility of having to go back and start over on what had been thought to be settled questions” (emphasis omitted)); and Sanders, *Science, Law, and Expert Witness*, *supra* note 68, at 70–73 (noting that scientific inquiry lacks a timetable; “the law’s need for relatively prompt closure stands in direct conflict with the scientific convention that closure should only occur when a consensus forms, however long that might be”).

508. Regarding expert selection procedures in Germany, see *supra* Part IV.D.2. Regarding expert selection procedures in Japan, see *supra* text accompanying notes 461–474.

509. The use of experts in U.S. litigation is discussed *supra* Part II.

Because the expert selected by a judge in Germany or Japan will serve as the single neutral expert in the case, those nations place great emphasis on the fairness of the expert selection procedures, so that trials maintain legitimacy.⁵¹⁰ As a result, these civil law systems have developed procedures to ensure that the single expert selected is suitable to serve by having recognized skills in the scientific field, but also by agreeing to neutral and detached assessment of the facts.⁵¹¹ Japan and Germany ensure experts will be vetted prior to the specific litigation in question, so that they may serve when needed by a judge in future cases.⁵¹² In some instances, the relevant professional society selects those members who wish to and who are well-qualified to serve.⁵¹³ By these methodologies, the person will be seen as fair, or at least fair enough, to assist the judge.

Since the U.S. courts lack systematic procedures to identify or vet experts prior to specific litigation, almost all expert selection is adversarial and inherently subject to selection bias and other ills.⁵¹⁴ Very few experts can convincingly demonstrate their inherent fairness and neutrality to the level that civil law experts can due to their selection procedures. This Article therefore proposes a new system, established through the federal judiciary, to identify experts both well-qualified in their field and dedicated to the principle of fair assessment of evidence.

The selection process would be modeled on the systems of both Japan and Germany. As in Germany, for those experts who are licensed and regulated by an administrative governing body—doctors, architects, lawyers, dentists, etc.—the proposal amounts to allowing that governing body to determine appropriate qualifications, and identify those experts who meet high standards for skill and ethics.⁵¹⁵ All decisions of that self-governing body would be subject to oversight by the administrative body responsible for establishing lists for other expert areas. For all

510. Regarding the association of expert selection to legitimacy in Germany, see *supra* text accompanying note 400, and in Japan, see *supra* text accompanying note 455.

511. Regarding expert selection in Germany, see *supra* Part IV.D.2. Regarding expert selection in Japan, see *supra* text accompanying notes 461–474.

512. With few limits, any expert on the list may be used by the German judge. See *supra* notes 402–404 and accompanying text. Japan adopted a similar approach in the 2004 reforms. See *supra* note 467 and accompanying text.

513. Professional associations have significant involvement in expert selection in Germany. See *supra* text accompanying note 403.

514. See *supra* Part II.B (describing a selection bias); Part II.C (describing an adversarial bias).

515. See *supra* text accompanying note 402.

other experts not self-regulated—epidemiologists, some engineers, college professors—the expertise and qualifications of individuals would be vetted through a central administrative body maintained within the office of the U.S. Courts, governed by regulations adopted to ensure selected experts demonstrate both skill in their field and dedication to ethical assessment of the evidence in assigned cases.⁵¹⁶

Once selected, the experts from the lists will be available to serve in two separate situations. First, the experts may be called to serve as independent experts by judges under Rule of Evidence 706.⁵¹⁷ Any judge wishing to have expert review of a specific issue of expertise, whether for a *Daubert* hearing or not, would have access to appropriate experts pre-screened for quality.⁵¹⁸ Independent of the use of experts by the judiciary under Rule 706, any listed expert could be retained by a litigant as his or her expert in the litigation.⁵¹⁹

The identification of experts through a civil-law screening process provides several important benefits, each addressing a current weakness in the *Daubert* management of experts. First, the identification of skilled neutral experts enables judges to quickly find and retain experts who can assist them in reviewing contested scientific or technical evidence. Empirical evidence demonstrates judges themselves may lack necessary skills to evaluate complex science in the courtroom,⁵²⁰ with the potential to effect reliability assessments in cases involving complex science.⁵²¹ The use of independent experts under Rule 706 provides judges with a skilled assistant to help the judge in evaluating the litigant's expert in reliability determinations under *Daubert*.⁵²² It also exposes those attacks on litigants' experts that are *pro forma* adversarial

516. Regarding the selection of non-professional experts in Germany, see text accompanying note 400. Regarding the selection of expert commissioners in Japan, see text accompanying notes 466–469.

517. Regarding judicial power to appoint independent experts, see *supra* Part II.E.2.

518. With the procedures discussed *supra* Part V.B.1, the issues for review by an independent expert are likely to be delineated for quicker, more efficient review.

519. Regarding experts and party control, see *supra* text accompanying note 469 (suggesting that experts on the expert commissioner list may be retained by private litigants); see also text accompanying note 394–395 (describing the appointment of second expert in German litigation after request of a party).

520. See *supra* Part II.D.1 (discussing empirical research on judicial training in science and mathematics).

521. See *supra* notes 91, 114 and accompanying text.

522. See *supra* notes 150–154 and accompanying text. For an example of a trained economist assisting a judge in litigation, see *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295 (D. Mass. 1953) (describing a situation where an economist assisted a judge).

tactics, and those that actually expose weaknesses in the science discussed by the expert.⁵²³ Yet the Rule has, since its inception, been used sparingly.⁵²⁴

A list of available and appropriate experts neutralizes two of the major reasons why judges do not currently use Rule 706 procedures: delay, and inability to identify a qualified expert.⁵²⁵ If an expert could easily be called to serve, and that expert has been pre-screened for skills and fairness, then the judge need not worry about the unnecessary delay of vetting many candidates nor worry about the skills of the expert. As a result, the expert lists proposed here would reinvigorate the Rule 706 neutral expert review procedure, allowing judges to seek help more often in cases involving complex science.

Independent of the benefit to the judge, expert lists identified through a civil-law screening procedure have separate benefits to the litigants stemming from the ability to use experts from the list as their party-expert in the litigation.⁵²⁶ Since the lists would be available for anyone, the experts identified through these procedures would provide litigants with a pre-approved list of experts, who a jury would likely consider fair. Any party could decide that the benefit of choosing an expert from the list—blunting attacks based on payment of fees or on non-neutrality—exceed the benefits of choosing an expert using adversarial techniques but who may be subject to those attacks. Over time, experts retained by litigants would have to blunt partisan overreaching, because experts who overreach or who are inappropriate outliers in the field will be exposed as the non-neutral adversarial experts they are.⁵²⁷ In doing so, the focus can again shift from persuasion to the scientific merit of the testimony.⁵²⁸

523. Regarding the use of adversarial methods to create doubt about an opposing expert, see Part II.C and specifically text accompanying note 155.

524. See *supra* text accompanying notes 159–162 (concluding that the Cecil & Willging study shows only 20% of federal judges ever appointed a Rule 706 expert); see also *supra* note 165–167 and accompanying text (finding that the study results from Krafka were similar).

525. See *supra* text accompanying notes 172–174 (explanation of judicial unwillingness to appoint independent experts by Cecil & Willging, Cheng, and Robertson).

526. Regarding the use of experts by litigants in a civil law nation, see *supra* notes 470, 516 and accompanying text (discussing private litigants retaining experts using similar method).

527. See *supra* text accompanying notes 151–156.

528. Per Justice Breyer, the *Daubert* system intended to ensure that experts use the same intellectual rigor in the courtroom as in the laboratory. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999).

Finally, one other benefit of the proposed procedure is the maintenance of the general balance of power within our adversarial system. Neutral experts and additional use of the Rule 706 expert procedure may assist the judge in the performance of his or her duties, and assist in encouraging outcomes that reflect accurate scientific methodologies. The neutral expert procedure so described does not, however, take the decisionmaking authority away from those who already have that power: the judge and the jury. Even if a judge chooses to retain an independent expert, the parties maintain the right to present their evidence as they see fit, subject only to increased scrutiny from one who may see the weaknesses in the scientific method used.⁵²⁹ Furthermore, an independent expert does not remove the final authority to decide from the jury.⁵³⁰ Therefore, the balance of legal process and scientific expertise is not subject to radical and unsupported shifts inconsistent with our nation's legal norms.⁵³¹

Even with these benefits, the proposal likely will face critical responses. Two important counter-arguments will be reviewed here: first, judges will remain reluctant to appoint an independent expert even with the proposed system, and second, that the proposal may be doomed in light of the experiences of the Court Appointed Scientific Experts ("CASE") program of the early 2000's.

Some critics may suggest that even if experts have been identified through the procedures as proposed, judges still will not appoint experts under Rule 706.⁵³² Current research does show that judges are reluctant to proceed with independent experts, and that adversarial norms may play a part in that reluctance.⁵³³ There are two arguments in response.

First, to the extent that the critics suggest that the structure of the

529. This is in contrast to the methodology in civil law systems where the judge maintains a level of control inconsistent with current American judicial procedures. *See supra* text accompanying notes 369–374 (Germany), 426–431 (Japan).

530. *See supra* note 488 and accompanying text.

531. This is consistent with Robertson's argument that "[t]o date, the litigation system has not yet found a way to provide factfinders with reliable and unbiased expert signals while still leaving the development of cases in the hands of self-interested litigants." Robertson, *supra* note 39, at 179.

532. This argument would be based on the studies discussed *supra* Part II.E.2 (identifying reasons judges are reluctant to appoint Rule 706 experts).

533. *See supra* Part II.E.2, text accompanying notes 160–172; *see also* Deason, *supra* note 36, at 78 & n.82 (noting that the use of court-appointed experts is described as rare, and discussing research on the frequency of these appointments).

American system is inconsistent with any inquisitorial procedures,⁵³⁴ the current proposal suggests reforms that merely remove barriers to use of existing procedures, namely Rule 706. If Rule 706 experts are not appointed because of concerns over delay and to the difficulties of identifying an expert, as research suggests,⁵³⁵ then overcoming those concerns provides incentives to follow existing procedures. This change is not an inquisitorial usurpation of roles as much as a realization that current case management tools need to be updated to be effective. In addition, to the extent the issue is based in defense of adversarial norms for their own sake, the first point regarding the managerial role of judges remains valid. In addition, Langbein and others see the adversarial norms argument as merely rejecting other approaches “because we are Americans and they are Germans.”⁵³⁶ If the solution solves a problem in the U.S. system, then this argument seems a weak counterpoint.

Second, commentators like Cheng have suggested a broad-based change in the willingness of litigants to accept a “managerial judge” role, which allows “a greater degree of inquisitorial thinking, opening the door to institutions like court-appointed experts and scientific tribunals.”⁵³⁷ If that shift is occurring, then the adoption of inquisitorial norms may offer hope “to correct the excesses associated with our current adversarial framework.”⁵³⁸

Third, changes in common law procedures have been known to occur even in the least restrictive systems. In England, for example, the *Civil Procedure Rules* explicitly permit the court to mandate the use of a single expert in cases.⁵³⁹ While currently used mainly in routine matters, the potential exists for nonadversarial procedures even in the most complex tort claims under that rule.⁵⁴⁰ If England has adopted reforms that can remove adversarial control of experts, then that the United States might consider it as well.

534. Erichson, *supra* note 380, at 2006–15, 2023–24 (comparing and contrasting the inquisitorial method of litigation with the adversarial method; assessing barriers to common law adoption of civil law methodologies).

535. *See supra* text accompanying notes 170–174 (citing research and commentary by Cecil & Willging, Cheng, and Robertson).

536. Langbein, *Cultural Chauvinism*, *supra* note 202, at 45.

537. Cheng, *supra* note 8, at 1401–02.

538. Amalia D. Kessler, *Our Inquisitorial Tradition: Equity Procedure, Due Process, and the Search for an Alternative to the Adversarial*, 90 CORNELL L. REV. 1181, 1274 (2005).

539. CIV. PROC. R. 35.7 (Eng.).

540. *See supra* text accompanying notes 336–337.

Even if one were to reject the adversarial norm argument, an additional criticism of the proposal remains and must be addressed: the CASE project, and what it suggests about the workability of this proposal. Established in 1998, CASE was an effort by the American Association for the Advancement of Science (AAAS) to promote the use of independent experts, by selecting experts for a judge to use on a case-by-case basis.⁵⁴¹ Before accepting requests from judges in 2001, the CASE program received endorsement by Justice Breyer in *Joiner*, and the House Science Committee.⁵⁴² Even with these endorsements, the results from CASE are mixed. Individual judges who have used the program attest to its helpfulness.⁵⁴³ However, when CASE becomes involved in a case, the result is often an end to the litigation by quick settlement.⁵⁴⁴ As a result, the CASE project was, by late 2008, “no longer being marketed, ha[d] not received any requests for experts recently, and never achieved [a] high level of use.”⁵⁴⁵ The inability of CASE to gain momentum suggests that the current proposal might result in similar problems.

There are several reasons to think that the current proposal based on civil law methodologies would gain greater momentum than the CASE project. One major difference between CASE and this proposal is who can take advantage of the program. The CASE program was built to assist solely judges requesting experts.⁵⁴⁶ With this proposal, the system allows judges to find a neutral expert, but also provides

541. *Court Appointed Scientific Experts, CASE Mainpage*, AAAS, <http://www.aaas.org/spp/case/case.htm> (last visited June 6, 2012) [hereinafter *CASE Mainpage*] (“CASE staff selects experts on a case-by-case basis, tailoring the search to the specific request for assistance.”); see also Cheng, *supra* note 8, at 1396, 1400 (noting the CASE program, but suggesting it “faces an uphill battle,” considering its opposition); Timmerbeil, *supra* note 218, at 171–72 (noting the CASE process and suggesting the problem remains in the decision to appoint *any* expert and not with selection of the expert). Experts were selected by a Recruitment and Screening Panel with members including scientists, physicians, and engineers. *CASE Recruitment and Screening Panel*, AAAS, <http://www.aaas.org/spp/case/panel.html> (last visited Apr. 14, 2012).

542. 522 U.S. 136, 149–50 (1997) (Breyer, J., concurring); *CASE Mainpage*, *supra* note 541.

543. *CASE Experience*, AAAS, <http://www.aaas.org/spp/case/experience.htm> (last visited Apr. 14, 2012).

544. Haack, *supra* note 17, at 21 & n.104 (recounting a personal recollection of Dr. Mark Frankel, CASE Director).

545. Robertson, *supra* note 39, at 201 n.138 (citing E-mail from Deborah Runkle, CASE Project Manager (Dec. 19, 2008)).

546. See *CASE Experience*, *supra* note 543.

programmatic assistance to private litigants retaining party experts.⁵⁴⁷ As a result, the program has a broader base of support, benefits more actors within the legal system, and is likely to be used by litigants at stage of a contested *Daubert* hearing but also earlier in the process.⁵⁴⁸

A second difference between proposals is how experts are identified. In CASE, the committees would vet experts only after a judge's request for an expert in that field.⁵⁴⁹ Because of these procedures, CASE did not have standing expert pools or handle general inquiries about expert assistance. Under this proposal, however, experts would be screened independent of a specific case in controversy, based on pre-determined procedures set by federal regulations written to promote quality experts.⁵⁵⁰ Not only does this ensure broad consistency in assessment of expert candidates, it also ensures that any judge or litigant can find a Rule 706 expert with little delay. As a result, the program would enhance the profile of the independent expert rule, and make it more easily used.

A third difference between CASE and this proposal is institutional backing. The CASE project was developed and supported by the AAAS, a private non-profit with approximately 120,000 members.⁵⁵¹ The CASE project largely depended on AAAS members and other people committed to the goals of the project and serving on committees. In this proposal, however, the expert management system becomes a responsibility and duty of the administrative office of the U.S. courts, with full support of the federal government.⁵⁵² The difference in institutional backing provides additional funding, a high profile, and consistent levels of use over time, responding to the weaknesses of the institutionally weaker CASE program.

Finally, the proposal presented here has one additional benefit: it can learn from the CASE project. The CASE project began accepting judicial requests in 2001, and took requests for many years. During that

547. See *supra* text accompanying notes 510–512.

548. This is consistent with Robertson's argument that any CASE-type program be targeted at litigants in addition to judges. Robertson, *supra* note 39, at 201 n.138.

549. See *supra* text accompanying notes 542, 546; see also Seidemann et al., *supra* note 58, at 60–61.

550. See *supra* text accompanying notes 515–516.

551. *About AAAS: What Is AAAS?*, AAAS, <http://www.aaas.org/aboutaaas/organization/index.shtml> (last visited June 6, 2012).

552. See *supra* text accompanying note 516; see also Seidemann et al., *supra* note 58, at 69 (suggesting that federal backing is essential to the success of any program like CASE).

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time, the committees developed guidelines for expert review. As a result, the managers for the new system should actively solicit the assistance of experienced CASE committee members to assist in the development of the new administrative framework.

With several significant advantages over the previous CASE program, the current proposal benefits from CASE's prior attempt to manage expert witnesses, while incorporating changes to structure that suggest this proposal would have greater long-term viability.

Adoption of a civil-law expert management system modeled on the Japanese and German systems would provide benefits in overcoming current problems with *Daubert*-era expert management in the United States. The current proposal offers significant advantages over previous attempts to manage neutral experts. It also demonstrates that, at least in the area of expert witnesses, the U.S. can and should consider alternative methodologies developed in other nations, if those methodologies are shown to offer advantages over the current system.

VI. CONCLUSION

Balancing legal due process with technological or scientific expertise is a problem that has generated significant controversy and commentary within the United States. A good starting point to address these problems is to acknowledge that the concerns with experts occur not only within our system but by other nations with a variety of legal systems. In doing so, we recognize that the problems of *Daubert* are difficult, but not insurmountable, so long as we approach them with an open mind, an exploring spirit, and desire to improve results. This kind of approach was suggested by Susan Haack in her article *Irreconcilable Differences? The Troubled Marriage of Science and Law* in 2009,⁵⁵³ and has been followed here.

By reviewing the weaknesses in *Daubert* assessment of complex expert testimony in complex tort cases, how other nations handle similar evidence, and how certain discrete areas of foreign law could address the weaknesses identified in the U.S. approach, this Article has offered reforms to help judges in balancing the need for accuracy and reliability of the science presented in court with maintaining our necessary traditions of legal process.

553. Haack, *supra* note 17, at 23.