

NOTE

JUROR REACTIONS TO SCIENTIFIC TESTIMONY: UNIQUE CHALLENGES IN COMPLEX MASS TORTS

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“[A] most extraordinary piece of evidence drawn from the shades of the academy. . . . [I]t is a pleasure to read it . . . illustrating as it does the fervor and breadth with which science . . . can express itself. Give it its postulates, and nothing can be more beautiful to read; but it is the most baseless statement that ever came from a learned man.”¹

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¹ LOUIS MENAND, *THE METAPHYSICAL CLUB: A STORY OF IDEAS IN AMERICA* 173 (2001).

I. INTRODUCTION

These were the words of Sidney Bartlett, head attorney for Hetty Robinson in *Robinson v. Mandell*,² referring to statistical evidence offered by the opposing party to show that a signature on a disputed will was a little too perfect. The *Howland Will Case*, as it came to be called, was instigated by Hetty, the sole heiress to a great whaling fortune.³ Not satisfied to receive \$1 million upfront and \$6 million over the course of her life, she managed to produce an addendum to the will, giving her the money in full.⁴ Witnessed only by Hetty, and bearing a signature that was an exact duplicate of one on a previous will, the addendum drew much scrutiny.⁵ Part of the evidence presented at trial – that which was the subject of Bartlett’s scornful cynicism – was statistical data demonstrating that the probability of a signature perfectly reproducing another was infinitesimal.⁶ Testifying to this evidence was famed mathematician Benjamin Peirce.⁷ The implication of his testimony was clear: Hetty had traced the signature.

In the end, it is unclear what effect the probabilistic evidence, Peirce’s expert testimony, and Bartlett’s smug dismissal of the two had on the jury; the court ruled against Hetty on a technicality.⁸ Still, there is reason to speculate that a jury would have been sympathetic to Bartlett’s dismissal of the incontrovertible evidence. Public opinion seemed to reject the notion that science had somehow proven that one could not sign the same signature twice: “Figures can be prostituted to prove almost anything,” read one letter to the *Nation*, “and the tone of [Prof. Peirce’s] testimony is arrogant and positive, as if he were charging the judges.”⁹

The question of how jurors will react to scientific evidence is a difficult one for legal scholars and practitioners. Some, like Bartlett above, are fearful that a jury will be easily swooned by the authoritative razzle-dazzle of scientific testimony.¹⁰ Others, like Judge Jerome Frank, are more afraid that a jury composed of common citizens is too obtuse to understand complex testimony and will simply disregard it.¹¹ Is there any evidence that juries are unable or unwilling to understand and apply complex scientific expert testimony? If

² *Robinson v. Mandell*, 20 F. Cas. 1027 (C.C. Mass. 1868).

³ MENAND, *supra* note 1, at 166.

⁴ *Id.*

⁵ *Id.*

⁶ *Id.* at 172.

⁷ *Id.*

⁸ *Id.* at 175.

⁹ *Id.* at 174.

¹⁰ *See id.* at 173.

¹¹ *See infra* Part II.a.

there is such evidence, what explanations account for this inability or unwillingness? This Note contends that general fears of jury incompetence are exaggerated and are the products of negative (and often unfounded) perceptions concerning layperson jurors that some legal thinkers have held and continue to hold. While ideological biases and emotional reactions to the parties and their expert witnesses play a role, they do not in themselves cause jurors to reject evidence outright. There is, however, a risk that such biases and reactions may serve as secondary justifications for jury verdicts when the evidence presented is complex or unintelligible.

This Note shows how cases involving complex scientific or technical issues, especially those regarding causation, present unique challenges for juries. In these cases, the jury's ability to integrate and analyze information is impaired by both practical problems of science in the courtroom and psychological responses to expert testimony. Additionally, this Note reexamines some traditional defenses of the jury institution in light of the issues presented. Finally, it argues that, as both judges and juries may be ill-equipped to tackle statistical and probabilistic evidence, a possible solution to the problem is a higher evidentiary standard in certain complex cases, which would allow legal causation to more closely resemble scientific causation.

II. IMPRESSIONS OF JURY REACTIONS TO SCIENTIFIC EVIDENCE

A. *Traditional Critiques and Anti-Jury Biases*

The notion that the jury is incompetent is as old as the institution itself. From the Athenian mob that condemned Socrates to the jurors who acquitted O.J. Simpson, the idea that a mass of individuals (501 in Socrates' case)¹² with no legal training can arrive at a just and rational conclusion to a case, involving legal issues that lawyers and judges spent years mastering (with varying degrees of success), is mind-boggling to many.¹³

In *Skidmore v. Baltimore and Ohio Railroad*,¹⁴ Judge Jerome Frank laments both the presumption of legitimacy enjoyed by the jury and its ability to nullify the law. "The general verdict is as inscrutable and essentially mysterious as the judgment which issued from the ancient oracle of Delphi."¹⁵ He later adds, "[b]ut while the jury can contribute nothing of value so far as the law is concerned, it has infinite capacity for mischief, for twelve men can easily misunderstand more law in a minute than the judge can explain in an hour."¹⁶ Judge Frank paints a picture of a jury that is not merely incapable of upholding

¹² See REID HASTIE, STEVEN D. PENROD & NANCY PENNINGTON, *INSIDE THE JURY* 2 (1983).

¹³ See Shari Seidman Diamond, *Beyond Fantasy and Nightmare: A Portrait of the Jury*, 54 *BUFF. L. REV.* 717 (2006).

¹⁴ *Skidmore v. Baltimore & Ohio R.R. Co.*, 167 F.2d 54 (2d Cir. 1948).

¹⁵ *Id.* at 60.

¹⁶ *Id.*

the law, but often functions to subvert it. He continues this attack on the faculties of the jury in *Courts on Trial*.¹⁷ Here, Judge Frank displays some pity for the jury:

Are jurors to blame when they decide cases in the ways I've described? I think not. In the first place, they often cannot understand what the judge tells them about the legal rules. . . . The jurors are usually as likely to get the meaning of the words as if they were spoken in Chinese, Sanskrit, or Choctaw.¹⁸

One might think that Judge Frank's impressions of the jury are merely those of a different era, where public education was less widespread and juries were filled with a higher percentage of unlearned individuals.¹⁹ Legal writers today, however, express similar attitudes, though perhaps less conspicuously than Judge Frank's frontal assault.²⁰ For instance, Sonya Hamlin's manual, *What Makes Juries Listen Today*, contains several examples of modern anti-jury presumptions.²¹ Though Hamlin does not set out to study jury behavior or even critique the institution, her off-hand references to juries betray her impression of them. "Generally," she writes of jurors, "they're people whose lives haven't turned out to be a giant success; who are not accustomed to wielding power, cutting a swath, making a dent in society."²² Along the same vein, she later refers to jurors as "people unaccustomed to making consequential decisions."²³ Hamlin does not call jurors incompetent, but she certainly belittles them. Comments such as these are strange considering the fact that, elsewhere in her text, Hamlin warns trial attorneys against seeming pompous and thereby isolating the jury.²⁴ While neither Frank nor Hamlin offers much concrete evidence of poor jury performance, the idea of an uneducated and incompetent jury seems intuitively correct to them.

B. Examination of Jury Failings in Mass Torts

What does it mean to say that a jury was incompetent? It could be to say that its verdict had no basis in the evidence, or that the decision, while not erroneous on its face, came about through an arbitrary or irrational process. In the past few decades, several strands of highly publicized litigation seem to have reinforced impressions of jury incompetence. The following cases are

¹⁷ See JEROME FRANK, *COURTS ON TRIAL* 108-25 (1948).

¹⁸ *Id.* at 116.

¹⁹ Whether even this is true is beyond the scope of this note.

²⁰ See, e.g., RANDOLPH JONAKAIT, *THE AMERICAN JURY SYSTEM* xx-xxi (2003).

²¹ SONYA HAMLIN, *WHAT MAKES JURIES LISTEN TODAY* (1998).

²² *Id.* at 27.

²³ *Id.* at 28.

²⁴ *Id.* at 594.

three examples of highly visible, scientifically complex mass tort litigations, in which at least some juries failed to render accurate or fair verdicts.

One notorious strain of such liability litigation involved the silicone breast implant cases of the 1980s and 90s.²⁵ Plaintiffs alleged that the implants were responsible for causing connective tissue disease, an autoimmune disorder which primarily affects women in their 20s and 30s.²⁶ It has no definitive cause and a wide range of symptoms, making the disease difficult to diagnose.²⁷ Though there existed no scientific evidence that definitively linked silicone breast implants to connective tissue disease, plaintiffs were successful in winning a number of multimillion dollar lawsuits and eventually achieved a mass settlement of \$4.25 billion.²⁸ At first, cases ordinarily settled out of court for sums between \$15,000 and \$20,000.²⁹ The turning point came in 1992, when the United States Food and Drug Administration (“FDA”), reacting to increased media attention of the issue, banned silicone breast implants for the purposes of augmentation, thus opening the floodgates to over 400,000 suits by scared women.³⁰ The FDA instituted the ban even though there had not been any scientific studies finding the implants to be dangerous.³¹

Though there are a number of scientific studies that can be done to determine the link between a disease and its cause, the most probative in the legal context are epidemiological studies,³² which compare the frequency of a disease between populations that have been exposed to a particular substance (in this case, silicone breast implants) and those who have not. Epidemiological studies are necessary because, without a proven physical link between substance and disease, there exists no evidence of causation apart from a statistical probability.³³ As such, individual case studies, on their own,

²⁵ See generally MARCIA ANGELL, *SCIENCE ON TRIAL: THE CLASH OF MEDICAL EVIDENCE AND THE LAW IN THE BREAST IMPLANT CASE* (1996) (taking a highly critical view of the silicone breast implant litigation).

²⁶ *Id.* at 21; The Mayo Clinic, *Mixed Connective Tissue Disease*, <http://www.mayoclinic.com/health/mixed-connective-tissue-disease/DS00675> (last visited Mar. 27, 2009).

²⁷ *Id.*

²⁸ ANGELL, *supra* note 25, at 22.

²⁹ *Id.* at 111.

³⁰ *Id.* at 22, 26; Loral L. Hooper, Joe S. Cecil & Thomas E. Willging, *Assessing Causation in Breast Implant Litigation: The Role of Science Panels*, 64 *LAW & CONTEMP. PROBS* 139, 141 (Autumn 2001). See also *Silicone Gel-Filled Breast Implant Timeline*, The United States Food and Drug Administration, Center for Devices and Radiological Health, <http://www.fda.gov/cdrh/breastimplants/timeline2006.html> (last visited Mar. 27, 2009).

³¹ ANGELL, *supra* note 25, at 23.

³² Michael Green, *Expert Witness and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy of Agent Orange and Bendectin Litigation*, 86 *NW. U. L. REV.* 643, 646 (Spring 1992); Joseph Sanders, *Jury Deliberation in a Complex Case: Havner v. Merrell Dow Pharmaceuticals*, 16 *JUST. SYS. J.* 45, 62 (1993).

³³ ANGELL, *supra* note 25, at 115.

are insufficient to prove legal causation.³⁴ Of over twenty-five epidemiological studies completed,³⁵ the highest risk that any study relating silicone breast implants to connective tissue disease has found is a relative risk of 1.2 – or, for every 10 women without breast implants that develop connective tissue disease, 12 women with implants will develop it, too.³⁶ To contrast, the risk that smokers will develop lung cancer is 15 – for every 10 non-smokers to develop lung cancer, 150 smokers will also.³⁷ Thus, the probability that a woman who has both silicone breast implants and connective tissue disease would not have gotten the disease but for the implants is statistically irrelevant.³⁸ As noted earlier, however, plaintiffs fared well despite this lack of scientific evidence linking the implants to their purported illnesses. One plaintiff, Mariann Hopkins, whose case was decided before the FDA ban, won a \$7.34 million verdict even though she testified to having symptoms of the disease *before* she received the breast implants.³⁹

Not all breast implant plaintiffs were successful. In the mid-1990s, several judges appointed their own expert panels to assist them in wading through the complex evidence.⁴⁰ Ultimately, some dismissed the claims on the basis that the expert testimony, alleging that the silicone breast implants caused connective tissue disorder, was not based on accepted scientific evidence.⁴¹ Still, others were hesitant to deem plaintiffs' evidence inadmissible, allowing all or part of it to reach the jury.⁴² As such, long after these panels found, yet again, that there was no link between silicone breast implants and connective tissue disease, courts continued to uphold verdicts for the plaintiffs as supported by the evidence.⁴³

³⁴ Debra L. Worthington, Merrie Jo Stallard, Joseph M. Price & Peter J. Goss, *Hindsight Bias, Daubert, and the Silicone Breast Implant Litigation*, 8 PSYCHOL. PUB. POL'Y & L. 154, 167-68 (2002).

³⁵ *Id.* at 168.

³⁶ ANGELL, *supra* note 25, at 196.

³⁷ *Id.*

³⁸ *Id.*; Worthington et al., *supra* note 34, at 168.

³⁹ ANGELL, *supra* note 25, at 118, 122.

⁴⁰ Laurens Walker & John Monahan, *Scientific Authority: The Breast Implant Litigation and Beyond*, 86 VA. L. REV. 801, 805-13 (2000).

⁴¹ *See, e.g.*, Hall v. Baxter Healthcare Corp., 947 F. Supp. 1387 (D. Or. 1996); Hooper et al., *supra* note 30, at 146-47. *See also* Gina Kolata, *Judge Rules Breast Implant Evidence Invalid*, N.Y. TIMES, December 19, 1996, at A1, available at <http://www.nytimes.com/1996/12/19/us/judge-rules-breast-implant-evidence-invalid.html>.

⁴² *See, e.g.*, *In re Silicone Gel Breasts Implants Prods. Liab. Litig.*, 318 F. Supp. 2d 879 (C.D. Cal. 2004).

⁴³ Walker & Monahan, *supra* note 40, at 816. *See, e.g.*, Dow Chem. Co. v. Mahlum, 970 P.2d 98 (Nev. 1998), *overruled in part on other grounds by* GES, Inc. v. Corbitt, 21 P.3d 11

The breast implant litigation is by no means the only series of major tort cases to produce verdicts for the plaintiff despite overwhelming scientific evidence favoring the defense. Another such series of cases involved claims that Bendectin, a once popular anti-nausea medication taken during pregnancy, caused birth defects.⁴⁴ Up to twenty-five percent of pregnant women used the drug between 1956 and 1983.⁴⁵ As in the breast implant cases, the data linking the drug to the disease were inconclusive at best.⁴⁶ Nonetheless, plaintiffs were able to produce experts to testify otherwise, and, despite the lack of scientific evidence, plaintiffs won substantial verdicts. In *Havner v. Merrell Dow Pharmaceuticals*,⁴⁷ for example, the jury awarded \$3.75 million in compensatory damages and \$15 million in punitive damages to Bendectin plaintiffs.⁴⁸

While one cannot say with absolute certainty that the verdicts in *Havner* and other Bendectin cases were definitively incorrect, it is quite telling that federal appellate courts have not allowed a single Bendectin plaintiff to prevail on appeal.⁴⁹ For instance, in *Daubert v. Merrell Dow Pharmaceuticals*,⁵⁰ the Ninth Circuit held that the plaintiffs could not present evidence sufficient to prove causation, as both animal testing and chemical studies were inadequate in light of the epidemiological evidence to the contrary.⁵¹ Eventually, the case came before the Supreme Court, becoming a landmark decision on admissibility of scientific expert testimony.⁵² On remand, the district court again threw out the plaintiffs' evidence.⁵³

Researchers Molly Selvin and Larry Picus encountered a different situation when they observed the trial of *Charles Newman et al. v. Johns-Manville et al.*, a case involving asbestos-related illness.⁵⁴ Unlike silicone breast implants or

(Nev. 2001).

⁴⁴ Sanders, *supra* note 32, at 51.

⁴⁵ Green, *supra* note 32, at 661.

⁴⁶ Sanders, *supra* note 32, at 51-53. See Steven H. Lamm, *The Epidemiological Assessment of the Safety and Efficacy of Bendectin*, available at http://www.nvp-volumes.org/p1_16.htm ("Our epidemiological analysis of available studies in 1984 . . . found that there was no association between Bendectin use and birth in toto, nor was there any association between Bendectin use and birth defects by organ system. Furthermore, analysis of nationwide data showed no change in the birth defect prevalence rates for any birth defect after the sales of Bendectin significantly decreased in 1980 and subsequent years.") (citations omitted).

⁴⁷ *Havner v. Merrell Dow Pharm., Inc.*, Texas Dist. Ct., 214th Jud. Dist. (discussed in 41 PROD. SAFETY & LIAB. REP. (BNA) 1134 (1991); Sanders, *supra* note 32, at 56 n.27).

⁴⁸ Sanders, *supra* note 32, at 55-56.

⁴⁹ *Id.* at 65-66.

⁵⁰ *Daubert v. Merrell Dow Pharm. Inc.*, 951 F.2d 1128 (9th Cir. 1991).

⁵¹ *Id.* at 1130 n.1. See *supra* notes 32-34 and accompanying text.

⁵² *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

⁵³ *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311 (9th Cir. 1995).

⁵⁴ MOLLY SELVIN & LARRY PICUS, THE DEBATE OVER JURY PERFORMANCE:

Bendectin, asbestos inhalation was proven to cause serious illness decades ago, having been linked to debilitating and sometimes fatal lung diseases such as asbestosis, mesothelioma, and lung cancer.⁵⁵ Still, many individuals exposed to asbestos never show signs of illness, and the level at which exposure becomes dangerous is still unclear.⁵⁶ Further complicating the matter, among those who do suffer from asbestos-related illnesses, there exists a wide range in the severity of their symptoms.⁵⁷ *Newman* was the product of the consolidation of thirty asbestos cases, in which plaintiffs were all exposed to varying levels of asbestos manufactured by one or several of the ten defendant companies.⁵⁸ While the four representative plaintiffs claimed that each one had asbestosis, the defense conceded only that Charles P. Newman had the illness.⁵⁹ As part of their strategy, defendants placed much focus on three of the four plaintiffs' substantial histories of smoking, which they claimed could have caused or at least contributed to plaintiffs' lung problems.⁶⁰ In the end, the plaintiffs won nearly \$8 million in punitive and compensatory damages.⁶¹ Despite their significant histories of smoking, the jury found no contributory negligence whatsoever.⁶²

Unlike the previous two cases discussed, the question of whether the defendants' product caused the plaintiffs' medical conditions was a close one, and the verdict was not demonstrably incorrect.⁶³ The serious failings of the *Newman* jury in evaluating and applying the scientific testimony only surfaced after researchers Selvin and Picus conducted juror interviews on their deliberative process, where they discovered shocking levels of indifference and

OBSERVATIONS FROM A RECENT ASBESTOS CASE (Rand 1987).

⁵⁵ *Id.* at 8. See also Agency for Toxic Substances & Disease Registry, Asbestos, Health Effects, http://www.atsdr.cdc.gov/asbestos/asbestos/health_effects/index.html (last visited Mar. 27, 2009).

⁵⁶ SELVIN & PICUS, *supra* note 54, at 8.

⁵⁷ *Id.*

⁵⁸ *Id.* at v.

⁵⁹ *Id.* at 14.

⁶⁰ There exists much scientific support that smoking greatly increases the risk of harm from asbestos exposure. *Id.* at 15. See, e.g., G. Berry & F.D.K. Liddell, *The Interaction of Asbestos and Smoking in Lung Cancer: A Modified Measure of Effect*, 48 ANNALS OCCUPATIONAL HYGIENE 5, 459 (2004), available at <http://annhyg.oxfordjournals.org/cgi/content/full/48/5/459> ("The excess relative risk of lung cancer from asbestos exposure is about three times higher in non-smokers than in smokers.").

⁶¹ SELVIN & PICUS, *supra* note 54, at 22.

⁶² *Id.*

⁶³ *Id.* at 47 n.11.

even animosity toward the defense's case.⁶⁴

C. *So What?*

Before delving into the reasoning behind the jury verdicts in these cases, one might ask whether there is a problem here at all. After all, it could be argued that clear cases should be overturned on appeal, as were some of the breast implant and Bendectin cases. Close cases, like *Newman*, could be decided either way. So, for lack of a better system of dispute resolution, the jury should left to decide. This argument should not be taken lightly.

Judges have a number of tools to overturn a faulty jury verdict. Even before the case gets to the jury, a judge may grant a motion for summary judgment in the defendant's favor if she determines that no reasonable jury could find for the plaintiff.⁶⁵ The same standard applies to a motion for a judgment as a matter of law, which may be granted before or after the jury announces its verdict.⁶⁶ Still, to survive these motions, the non-moving party, usually the plaintiff, need only produce *some* evidence such that a reasonable jury could find in their favor.⁶⁷ Plaintiffs in these cases meet that burden by presenting their experts. The finer point, namely that some forms of scientific testing such as animal and *in vitro* studies cannot prove causation in light of epidemiological evidence to the contrary,⁶⁸ may be lost on judges, who may not be in a better position than the jury to evaluate the scientific data.⁶⁹ If a judge is hesitant to impose her shaky conception of the evidence upon that of the jury, she may, in the alternative, grant a motion for a new trial, so long as she finds the verdict is against the clear weight of the evidence.⁷⁰ But, the motion would only result in another (likely) lengthy and (certainly) costly trial before another jury, that, one could only hope, would be abler than the first. This seems more akin to Russian Roulette than a system of justice.

The safety net of the appeals process is likewise ill-equipped to fully address the problem of unsupported jury verdicts in this arena. Appeals decide questions of law, and cannot easily, and in fact rarely, overturn decisions on

⁶⁴ *Id.* at 26-30.

⁶⁵ FED. R. CIV. P. 56.

⁶⁶ FED. R. CIV. P. 50.

⁶⁷ *See generally* Celotex Corp. v. Catrett, 477 U.S. 317 (1986).

⁶⁸ *See supra* notes 32-34.

⁶⁹ Richard O. Lempert, *Civil Juries and Complex Cases: Let's Not Rush to Judgment*, 80 MICH. L. REV. 68, 70 (Nov. 1981) ("The conclusion that a judge can competently hear complex cases does not even pretend to be empirical."); Thomas J. Moyer & Stephen Anway, *Biotechnology and the Bar: A Response to the Growing Divide Between Science and the Legal Environment*, 22 BERKELEY TECH. L.J. 671, 716 (Spring 2007) ("[T]he reality [is] that trial judges often fail to possess the scientific acumen necessary to serve as responsible gatekeepers in biotechnology cases . . ."); JONKAIT, *supra* note 20, at 235. For a more detailed discussion of this issue, *see infra* notes 201-204 and accompanying text.

⁷⁰ FED. R. CIV. P. 59.

questions fact.⁷¹ Moreover, it enhances neither the legitimacy of the system nor the fairness to the parties to simply wait for the jury to get it wrong and hope the mistake is remedied on appeal. “Because the jury’s decision is likely to be final, the focus should be on aiding the jury to get it right the first – and only – time the matter will be considered.”⁷²

As to the second point, it cannot be enough to say simply that close cases could be decided either way. If research shows that serious misunderstandings or distorted perceptions of scientific evidence played a significant part in the jury’s verdict, the problem should not be ignored. To note that the case is close, and the jury could have reached either verdict merely overlooks the institutional problems in scientifically complex litigation and condones the fact that a verdict was reached arbitrarily. This undermines the legitimacy of the jury trial in these cases. Consider that Sanders’s research found that over one-third of Bendectin jury verdicts incorrectly favored the plaintiffs.⁷³ If one can say with some certainty that a significant percent of juries in these complex cases make their decision incorrectly or on an arbitrary basis, how can it be fair to continue to put litigants through this process?⁷⁴

III. IDEAS AND RESEARCH REGARDING JURY REACTIONS TO SCIENTIFIC TESTIMONY

If the jurors in the breast implant, Bendectin, and asbestos cases, or at least a significant portion of them, did not accurately assess the scientific evidence presented, how then did they arrive at a verdict? Were the juries acting irrationally, or did they act rationally, but incorrectly?⁷⁵ To put it another way, did jurors consciously disregard solid evidence, or did they genuinely make an effort to apply the evidence and fail in the end?

A. *The Role of Ideological Biases and Emotional Reactions*

One attack on the institution of the jury is that jurors possess a form of anti-science bias. Looking back to the *Howland Will Case*, one could speculate that this position, articulated by Bartlett and the commentator to *The Nation*, was shared by at least some of the jury.⁷⁶ The extent to which this is true is, of course, unknowable. One might suspect that such negative sentiments about the field of science have not survived in modern times. Marcia Angell

⁷¹ JONAKAIT, *supra* note 20, at 274.

⁷² *Id.* at 278.

⁷³ Sanders, *supra* note 32, at 56 n.28.

⁷⁴ See Lempert, *supra* note 69, at 86.

⁷⁵ See Sanders, *supra* note 32, at 65 (noting the importance of this distinction).

⁷⁶ See MENAND *supra* note 1, at 174.

disagrees.⁷⁷

Writing about the breast implant litigation, Angell suggests that one reason behind the jury verdicts was an active rejection of the science involved. “The United States is amidst a groundswell of anti-science feeling,” she states, citing the renewed rejection of evolution theory as one example.⁷⁸ Echoing some of the themes evoked by Peirce’s testimony in the *Howland Will Case*, Angell writes that some people simply do not like the idea that science presents itself as the ultimate arbiter of truth.⁷⁹ These people, according to her, hail from a wide ideological spectrum and include “humanists, multiculturalists, environmentalists, ecologists, feminists, and proponents of alternative medicine.”⁸⁰ Though she touches on the opinions of each of these groups, it is her delineation of the feminist viewpoint that is most interesting. In short, her conception of the viewpoint is as follows: (1) Medicine is male-dominated and paternalistic toward women; (2) men’s expectations cause women to want breast implants; (3) men invented breast implants; and (4) why trust studies – also conducted by men – that say they are safe?⁸¹ The extent to which these sentiments actually played a part in the juries’ consideration of the cases is unknown – Angell’s book is entirely speculative on this point. In addition, her angry tone throughout the majority of her work serves to deflate her arguments. Accordingly, one critique has charged that Angell is railing against positions that no one has taken.⁸²

Yet, if jurors truly represent the common sense of the community, one must recognize that such sense may bring with it at least some biases, prejudices, and entrenched ideologies. The question then becomes, does it affect the jurors’ reasoning as blatantly as Angell suggests, or does it function in a different way altogether? While they do not suggest that jurors in the asbestos cases had specific preexisting ideological viewpoints that directed their verdict, Selvin and Picus note that “when presented with complex information or a great number of facts, individuals generally perceive one or a few generalizations that summarize and provide meaning for the information rather than the specific details.”⁸³ In doing so, they make sense of the evidence within their own basic attitudes or experiences – their “psychological anchors.”⁸⁴ This conception is distinct from Angell’s in that it does not allege

⁷⁷ ANGELL, *supra* note 25, at 177.

⁷⁸ *Id.*

⁷⁹ *Id.* at 178.

⁸⁰ *Id.*

⁸¹ *Id.* at 182-83.

⁸² *See, generally*, Rochelle Cooper Dreyfuss, *Galileo’s Tribute: Using Medical Evidence in Court*, 95 MICH. L. REV. 2055 (1997).

⁸³ SELVIN & PICUS, *supra* note 54, at 45; *see also*, JONAKAIT, *supra* note 20, at 55 (“Jurors transform evidence into stories to organize that information and to be able to make the necessary judgments demanded of them.”).

⁸⁴ SELVIN & PICUS, *supra* note 54, at 50.

that the jury consciously creates or rejects facts. Rather, the story is driven by the evidence; jurors merely filter it through their experience and interpretation of the case.⁸⁵ The question remains, however, where these anchors and filters come from and whether, in practice, they are truly distinguishable from ideological biases.

Selvin and Picus approach this problem, but do not resolve it when discussing the *Newman* jurors' reactions to the defense's arguments, especially its assertion that plaintiffs' lung maladies could have been caused, even in part, by their long histories of smoking.⁸⁶ Despite the prominence of evidence on this point, the jurors disregarded it altogether and even seemed hostile to the suggestion.⁸⁷ When questioned about that aspect of the case, jurors stated that they had perceived it as a mere diversion.⁸⁸ One noted, "[i]t didn't mean nothing [sic] to me, whether they brought up smoking or not. I was going on the evidence."⁸⁹ It is puzzling why the juror did not regard the smoking defense as evidence. It is perhaps less so when one considers the fact that half of the jurors were smokers themselves.⁹⁰ Whatever their reasons, the jurors "tended to discredit the medical experts who testified on this point."⁹¹ As noted earlier, the final damage award included no mitigation for contributory negligence.⁹² If one sees a bias toward smoking as one of Selvin and Picus's "psychological anchors," it becomes understandable that a life-long smoker with no significant related health issues would be inclined to devalue the argument that smoking caused a plaintiff's illness.

Finally, if the litigation is highly publicized, as were the breast implant, Bendectin, and asbestos cases, then repeated depictions of it by the media might form these psychological anchors, or at least affect jurors' understanding of the case. In regard to breast implants specifically, national media coverage was particularly influential.⁹³ In fact, in one survey, 85% of respondents stated that silicone breast implants were "somewhat likely" or "very likely" to cause illness.⁹⁴ Worthington notes that "[f]or many women with implants, the media

⁸⁵ Neil Vidmar & Shari Seidman Diamond, *Juries and Expert Evidence*, 66 BROOK. L. REV. 1121, 1138 (2001).

⁸⁶ SELVIN & PICUS, *supra* note 54, at 8 n.3.

⁸⁷ *Id.* at 26.

⁸⁸ One juror several times labeled the defense as a "smokescreen." *Id.* at 30. The author of this Note speculates that the line may have come from a particularly resonant portion of the plaintiffs' closing arguments.

⁸⁹ *Id.* at 26.

⁹⁰ *Id.*

⁹¹ *Id.* at 27-28.

⁹² *Id.* at 22.

⁹³ Worthington et al., *supra* note 34, at 166.

⁹⁴ *Id.* at 167.

provided both diagnosis and direction for their previously undiagnosed symptoms.”⁹⁵ Dealing with such biases during a *voire dire* in the jury selection phase may be nearly impossible, considering the pervasiveness of national media coverage.

Many have alleged that jurors’ emotional reactions in the courtroom similarly color their perception of the evidence.⁹⁶ Whereas ideological biases refer to prejudices or preconceived notions that jurors bring into the courtroom, emotional reactions are more immediate, occurring in response to a party’s trial presentation.⁹⁷ One clear example can be seen in the *Newman* case. At the plaintiffs’ bench sat two local Texas attorneys and a paralegal; the defendants, on the other hand, had commissioned several attorneys, fifteen to twenty of whom were present each day of the trial.⁹⁸ One juror said of the defendants’ attorneys, “[t]he lot of them scared me to death when I looked at them.”⁹⁹ One could speculate that it was precisely these sorts of attitudes that lead jurors to favor the plaintiffs in these cases, despite a lack of, or weak, evidence. While this reasoning may be attractive to those like Angell and Judge Frank, the idea that juries are overwhelmingly biased against corporations does not hold up to scrutiny. In fact, corporate defendants on the whole win at a rate that is similar *or better* than non-corporate defendants.¹⁰⁰ Moreover, studies that have attempted to discern which personal characteristics of parties hold most emotional sway over juries have not been conclusive, and are often contradictory.¹⁰¹

Sanders writes, “[n]othing in the *Havner* jury deliberation or, by my reading, the other jury deliberations in the complex cases . . . suggests the problem we confront is runaway juries prepared to give plaintiffs money based entirely on sympathy, whim, compromise, or prejudice.”¹⁰² Other researchers agree. The reality is that jurors know that the trial process is adversarial, so they are aware that there are two sides to the issue.¹⁰³ As such, they tend to express some skepticism toward lawyers’ tactics and expert testimony.¹⁰⁴ All in all, researchers have found that jurors take their role seriously and are far

⁹⁵ *Id.* at 165. For a heated discussion of the role of the media in breast implant cases, see ANGELL, *supra* note 25, at 154-76.

⁹⁶ See VALERIA P. HANS & NEIL VIDMAR, JUDGING THE JURY 131 (1986) (citing the views of such legal scholars as Judge Jerome Frank and Clarence Darrow).

⁹⁷ There is, admittedly, no ideal bright-line distinction between the two, and the spheres of emotional reactions and pre-existing biases may overlap when analyzed.

⁹⁸ SELVIN & PICUS, *supra* note 54, at 11.

⁹⁹ *Id.* at 29.

¹⁰⁰ JONAKAIT, *supra* note 20, at 223.

¹⁰¹ HANS & VIDMAR, *supra* note 96, at 134 (pointing to studies of gender, socioeconomic status, moral character, and attractiveness).

¹⁰² Sanders, *supra* note 32, at 65.

¹⁰³ Vidmar & Diamond, *supra* note 85, at 1134.

¹⁰⁴ *Id.* at 1143, 1148.

less naïve or gullible than some theorists suggest.¹⁰⁵ Still, these positive (or, perhaps, less negative) assessments of jury performance only point to the fact that juries are not overwhelmingly irrational. They do not explain why the verdicts in the cases discussed thus far were so mistaken. The answer lies in the unique nature of cases involving complex scientific evidence.

B. Impediments Inherent to the Trial Process

While Sanders concedes that the *Havner* jurors may have erred in assessing the science, he concludes that it is the trial process in general, not personal ideological bias, that interferes with a juror's ability to comprehend and apply scientific evidence.¹⁰⁶ Indeed, trials provide both procedural and conceptual barriers that impede jurors' performance of their duties.

Procedural impediments are those that stem from the practical conventions of the trial process. For instance, defendants and plaintiffs present their cases separately, forcing opposing experts on the same difficult point to testify days apart, depriving the jury of the ability to compare them back-to-back.¹⁰⁷ In addition, cross-examination of expert witnesses may make the situation worse, as most lawyers cannot compete with experts' grasp of science. The result is that attorneys focus on hurting experts' credibility, muddling the scientific issues and making it more difficult for the jury to evaluate the evidence.¹⁰⁸ Finally, an expert's attempt to educate jurors is frustrated by the fact that jurors cannot freely ask questions, as they would in an educational setting.

Other, more serious impediments stem from the conceptual incompatibility of the nature of proof in the laboratory and that in the courtroom. Due to the adversarial nature of litigation, competing scientific evidence is given equal footing, even if one side is overwhelmingly favored.¹⁰⁹ When two theories are presented as equally valid, jurors, and indeed most laypersons, have difficulty determining which has more merit.¹¹⁰ As such, jurors must balance the testimony and guess which piece of evidence is most dispositive of the issue, even though there may already be an accepted correct answer. For example, in the *Havner* case, each juror interviewed stated his or her belief that animal studies, also called *in vivo* studies, were more probative than epidemiological studies - a position few scientists would take.¹¹¹

¹⁰⁵ JONAKAIT, *supra* note 20, at 224; Vidmar & Diamond, *supra* note 85, at 1144, 1148.

¹⁰⁶ Sanders, *supra* note 32, at 65-66.

¹⁰⁷ JONAKAIT, *supra* note 20, at 242.

¹⁰⁸ *Id.* at 243.

¹⁰⁹ Sanders, *supra* note 32, at 64.

¹¹⁰ Worthington et al., *supra* note 34, at 158.

¹¹¹ Sanders, *supra* note 32, at 62. One juror interviewed could not correctly rank any of the different types of scientific data. *Id.*

Angell also points to these conceptual impediments, adding that in a laboratory environment, conclusions come after testing, while in a courtroom, the order is reversed.¹¹² Furthermore, the standard of proof in civil trials (a preponderance of evidence) is markedly lower than it is in the scientific context.¹¹³ Because jurors cannot simply come up with a result of “inconclusive,” even weak evidence can be elevated to the realm of proof.¹¹⁴ Angell notes that this disconnect between scientific proof and legal proof goes deeper than the mere requisite percentages of truth required for either: “Scientific methodology today is based on generating hypotheses and testing them to see if they can be falsified; indeed, this methodology is what distinguishes science from other fields of human inquiry. Theoretically, therefore, hypotheses are not affirmatively proved, only falsified.”¹¹⁵ This creates a unique problem for defendants in toxic torts or products liability litigation. A defense expert in such a case could not (or should not) testify that a product has been proven safe, which is exactly what a jury would need to hear to counteract the plaintiff’s case. Rather she could only testify that the current state of testing has failed to show it is dangerous, a significantly weaker assertion.

C. Problems Created by Complexity

The biggest factor distinguishing the mass tort cases discussed thus far from the vast spectrum of cases litigated is their level of complexity. The inquiry, however, cannot simply end there. As discussed below, the problem is not merely that such cases are difficult to understand; the problem is that their technical difficulty makes other irrational factors, such as ideological biases and emotional reactions, all the more influential. The source of this influence is the relationship between central and peripheral processing. Central processing refers to the evaluation of an argument based on its merits, while peripheral processing involves the use of mental shortcuts, also called heuristics, to evaluate an argument.¹¹⁶

The use of mental shortcuts to avoid difficult evaluation of complex expert testimony, for instance, might explain some jurors’ startling reactions to expert witnesses. For example, in the *Newman* asbestos case, a juror stated puzzlingly of one defense expert, “[H]e . . . talks kind of funny. I don’t know where he’s from, but I’m not going there. I thought he was from San Francisco . . . I didn’t put a lot of faith in what he said.”¹¹⁷ When the same

¹¹² ANGELL, *supra* note 25, at 28.

¹¹³ *Id.* at 114.

¹¹⁴ *Id.* at 115.

¹¹⁵ Green, *supra* note 32, at 645 (citation omitted).

¹¹⁶ Vidmar & Diamond, *supra* note 85, at 1138; Worthington et al., *supra* note 34, at 157 (“[W]hen presented with complex information that they cannot easily understand, [jurors] tend to use cognitive shortcuts or heuristics to assist in their decision-making process.”).

¹¹⁷ SELVIN & PICUS, *supra* note 54, at 27.

jurors expressed approval of another expert's testimony, one noted, "He's a good old boy [T]here was nothing fake about him" ¹¹⁸ Sanders, too, states that a major problem in *Havner* was that jurors wholly disregarded some experts' testimony based on their perception of the experts as "hired guns." ¹¹⁹

Joel Cooper and Isaac M. Neuhaus examined precisely this phenomenon in a series of experiments with mock juries, finding that "[i]n the absence of either the motivation or the ability to engage in thoughtful consideration of the content of a persuasive message, people often resort to shortcuts or heuristics to help them assess the degree to which they should believe a particular message." ¹²⁰

In their first set of experiments, several juries saw video tapes of two opposing experts, giving equally strong sets of complicated testimony. The testimony seen by different mock juries was identical but for variations in the experts' answers when questioned about their credentials, the amounts they were being paid for their appearances, and how frequently they had testified in similar cases. ¹²¹ Jurors were asked to render a verdict and then rate the experts' believability, likeability, and trustworthiness. ¹²² The findings showed how powerful an effect a juror's characterization of an expert as a "hired gun" could be.

When the variables were the experts' pay and credentials, researchers found that high pay and high credentials (as compared to the opposing expert, who always had middling pay and credentials) did in fact affect the jury's perception of an expert, but only when the two factors were combined. ¹²³ That is, when the plaintiff's expert was paid less than the defendant's expert (earning \$75 to the defense expert's \$600), it did not matter which had the better credentials; the jury rated each equally and the plaintiff won roughly half of the time. ¹²⁴ However, when the plaintiff was the more highly paid (earning \$4,800 to the defense expert's \$600), the juries' perceptions were very different. The expert with high pay and low credentials won a little over half of the jury, while the expert with high pay and high credentials won only 29% of the jury. ¹²⁵ In addition, the highly paid, highly credentialed expert was rated as less likeable, believable, trustworthy, honest, and more annoying than the

¹¹⁸ *Id.* at 28.

¹¹⁹ Sanders, *supra* note 32, at 61.

¹²⁰ Joel Cooper & Isaac M. Neuhaus, *The "Hired Gun" Effect: Assessing the Effect of Pay, Frequency of Testifying, and Credentials on the Perception of Expert Testimony*, 24 *LAW & HUM. BEHAV.* 149, 150 (2000); Vidmar & Diamond, *supra* note 85, at 1139.

¹²¹ Cooper & Neuhaus, *supra* note 121, at 151-52, 159.

¹²² *Id.* at 154.

¹²³ *Id.* at 153-54.

¹²⁴ *Id.*

¹²⁵ *Id.* at 153-55.

opposing expert, even though the exact same testimony received favorable marks when the expert testified to having low pay or the combination of high pay and low credentials.¹²⁶

When the variables were the experts' pay and frequency of court appearances (the credentials were set as equal), the results were the same as above: an expert who was both highly paid and appeared often in court was perceived as a hired gun, winning only 25% of the time, and being rated less likeable, less honest, less trustworthy, and more annoying.¹²⁷

What is fascinating about the next set of experiments was that all of these varying perceptions of the experts based on pay and credentials were eliminated when their testimony was made more intelligible.¹²⁸ In the low complexity set of testimony, it was nearly irrelevant whether plaintiff's expert earned more or less than the defense expert, winning between 49% and 55% of the jury vote.¹²⁹ In the high complexity scenario, the level of pay directly correlated to the expert's success with the jury. When the plaintiff's expert's pay was low, moderate, and high, he was able to persuade 57%, 42%, and 19% of the jury, respectively.¹³⁰

In sum, the implication of the study is that when a jury has difficulty understanding the content of testimony, they focus on other aspects to assess credibility.¹³¹ Not all agree with this conclusion. Vidmar and Diamond argue that the Cooper-Nehaus study is ambiguous, because it neglected to measure the comprehension of the jurors.¹³² According to them, another explanation for the results would be that the jurors did in fact understand the testimony, but rejected it, thinking that a highly paid expert was biased.¹³³ Additionally, mock jurors may have concluded that an expert was using complexity to obfuscate the truth, as answers that come off as overly technical, rather than being misunderstood, might reasonably be viewed as evasive and, therefore, less trustworthy.¹³⁴ While it is true that the studies did not quiz the mock jurors on their understanding of the testimony, Vidmar and Diamond overlook the fact that Cooper and Nehaus asked the jurors not only which expert was more persuasive, but also asked them to rate the experts in terms of likeability and annoyingness.¹³⁵ Jurors did not simply disbelieve those they perceived as

¹²⁶ *Id.* at 158.

¹²⁷ *Id.* at 160-62.

¹²⁸ Both versions had the same meaning, used the same number of words, and had similar paragraph structure. The only differences were in the sentence structure and difficulty of vocabulary. *Id.* at 163-64.

¹²⁹ *Id.* at 165-66.

¹³⁰ *Id.*

¹³¹ *Id.* at 169.

¹³² Vidmar & Diamond, *supra* note 85, at 1156.

¹³³ *Id.*

¹³⁴ *Id.* at 1141, 1156.

¹³⁵ Cooper & Neuhaus, *supra* note 121, at 158, 160-62.

“hired guns,” they found them offensive.¹³⁶ Far from merely making a rational choice regarding trustworthiness, jurors also had emotional reactions to experts’ level of pay, *which were not present* when the complexity of the testimony was toned down.¹³⁷

As this Note argued earlier, jurors bring a host of attitudes and biases into the jury box and yet, in most cases, they do not have an overwhelming direct effect on the verdict. However, as Cooper and Nehaus, among others, have shown, when presented with complex, conflicting, or altogether unintelligible testimony, jurors become “liberated . . . from the discipline of evidence.”¹³⁸ While this would only point to an unpredictable verdict (as jurors could have negative reactions to either the plaintiff’s or defendant’s experts), one additional factor related to the problem of peripheral processing hinders defendants’ attempts to disprove causation in mass product liability litigation.

D. Reverse-Outcome Reasoning

A particularly effective heuristic is reverse-outcome reasoning. “[T]o avoid the complicated and often contradictory scientific evidence in a typical personal injury or mass tort lawsuit,” writes Worthington, “jurors will tend to reason back from what actually happened - viewing the evidence retrospectively . . .”¹³⁹ Doing so is a matter of “cognitive efficiency.”¹⁴⁰ Research has found that jurors have difficulty applying abstract evidence, such as the probabilistic and statistical information found in epidemiological studies, to concrete facts.¹⁴¹ While people make use of minor forms of probabilistic thinking in their daily lives, “most people do not understand the underlying principles associated with statistical probability.”¹⁴² Accordingly, “when outcome knowledge is available, jurors use it as a ‘shortcut’ around the

¹³⁶ *Id.*

¹³⁷ *Id.* at 163-64; JONKAIT, *supra* note 20, at 236 (“Various studies support the conclusion that the more complex the case, the more likely that jurors will peripheral processing to assess it.”). For further scholarship and research on peripheral reasoning, *see* Worthington et al., *supra* note 34, at 156-58.

¹³⁸ JONAKAIT, *supra* note 20, at 230. This “liberation hypothesis” was posited by Kalven and Zeisel, the authors of the University of Chicago Law School’s Jury Project, which surveyed 500 judges on 3576 cases and their impressions of the juries involved. For more on the Jury Project, *see* HARRY KALVEN, JR. & HANS ZEISEL, *THE AMERICAN JURY* (1966).

¹³⁹ Worthington et al., *supra* note 34, at 157.

¹⁴⁰ *Id.* at 156.

¹⁴¹ Vidmar & Diamond, *supra* note 85, at 1149-50.

¹⁴² Worthington et al., *supra* note 34, at 159; *see also*, Vidmar & Diamond, *supra* note 85, at 1136 (noting that studies have shown that most people’s basic intuitive ability to estimate probability in their daily lives does not translate to the abstract statistical reasoning in a courtroom).

complexity of the information presented and thereby simplify their decision-making task.”¹⁴³

Moreover, studies have shown that people tend to trust an opinion or belief over statistical or probability data.¹⁴⁴ “We all seek certainty,” writes Jonkait,

[i]n trials, stories told with certitude can be assessed to see how fully and plausibly they account for the evidence, but stories based on probabilities are not so easily weighed. Indeed, this helps explain why jurors tend to find experts who state definite conclusions more persuasive than those who do not.¹⁴⁵

In cases like those involving breast implants, Bendectin, and asbestos, the plaintiffs’ evidence tends to be more anecdotal, while the defendants’ evidence tends to rely on abstract statistical data. As such, jurors have an easier time incorporating less persuasive evidence, such as case studies, into their narrative framework than making sense of statistical evidence, like epidemiological data, even though the latter is more probative to the issue of causation.¹⁴⁶

E. Summary of the Findings

Vidmar and Diamond ultimately conclude that “[a]lthough jurors have greater difficulty with probabilistic and statistical evidence, there is little evidence that they are simply impressed by jargon and awed by experts’ credentials to the point that they are overwhelmed by and uncritical of the testimony,” adding, “[n]or is there evidence that they simply ignore complex expert testimony.”¹⁴⁷ What Vidmar and Diamond overlook is that the real problems with jury decision-making in complex cases present themselves not because jurors are asked to accept or reject evidence, but because they are required to apply it. Jurors do not disregard evidence because they do not understand it or because they harbor some aversion to science. Rather, when faced with the need to make a decision, and lacking the proper tools to evaluate the options, they turn to secondary or peripheral considerations. This may include using preexisting ideas to sort out facts, gut reactions to evaluate the trustworthiness of a source, or whatever type of information is easier to incorporate into one’s mental framework of a situation. This is not a deficiency of jurors in particular, but the product of thousands of years of evolution. This is how human beings make difficult decisions. Laypeople simply do not have the *a priori* tools to make judgments about competing scientific evidence in fields that require decades of study.¹⁴⁸ Moreover, as

¹⁴³ Worthington et al., *supra* note 34, at 156 (citation omitted).

¹⁴⁴ *Id.* at 168.

¹⁴⁵ JONAKAIT, *supra* note 20, at 240.

¹⁴⁶ Worthington et al., *supra* note 34, at 169.

¹⁴⁷ Vidmar & Diamond, *supra* note 85, at 1166.

¹⁴⁸ Worthington et al., *supra* note 34, at 157. *See also* Sanders, *supra* note 32, at 45 (stating that “[t]he jury did its best under difficult circumstances.”). Sanders later reiterates this point, adding, “[n]othing in this article should cause one to infer any lack of effort or

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discussed above, the trial process is inherently ill-suited to teach them how to make such decisions.

IV. DEFENSES OF THE JURY IN COMPLEX CASES

Few dispute that litigation today deals with more complex scientific issues than it did in the past.¹⁴⁹ If, in light of the previous discussion, it is accepted that jurors have difficulty in accurately evaluating certain kinds of complex evidence on its merits, it is worth revisiting some traditional justifications for the jury institution to see if they continue to hold water.

A. *The Jury as a Lie Detector*

One argument in favor of the jury is that the combined perceptive abilities of the jurors operate as a lie detector.¹⁵⁰ When two witnesses have differing versions of a situation, perhaps the jury is best-equipped to discern the truth. One problem with this idea is that it is completely empirically inaccurate. Research has shown that people are not particularly good at spotting liars, consistently scoring no better than the chance level.¹⁵¹ As Fisher puts it, “[o]ur unguarded confidence that jurors are up to this task is the more remarkable for being so probably wrong.”¹⁵²

The jury’s lie detecting role, dubious though it may be,¹⁵³ is perhaps forgivable when it comes to certain questions, such as whether a stoplight was green or red. When one cannot know who is telling the truth, the jury may not be able to guess correctly, but neither can any other method. The situation changes, however, in the context of scientific testimony. When two opposing experts testify, neither actually lies. Rather, each simply relates a possible conclusion, and it is up to the jury to decide which best accounts for the rest of the evidence. Therefore, in cases that turn on a point of science, such as the probability of causation, whatever lie detecting function the jury is able to exercise is useless.

B. *The Jury as a Guardian of Common Sense and Community Values*

Thomas Jefferson wrote that the “common sense of twelve honest men gives

diligence on the part of the *Havner* jurors.” *Id.* at 65.

¹⁴⁹ JONAKAIT, *supra* note 20, at 49, 234.

¹⁵⁰ See generally George Fisher, *The Jury’s Rise as Lie Detector*, 107 YALE L.J. 575 (1997).

¹⁵¹ JONAKAIT, *supra* note 20, at 51.

¹⁵² Fisher, *supra* note 150, at 578.

¹⁵³ One can scarcely imagine a greater deficiency than being premised on a disproved assumption.

a still better chance of just decision [than any other trial method].”¹⁵⁴ Though this argument smacks of the jury as lie detector, it is not dependent on it. Even those ready to concede the jury’s deficiencies may make political arguments in its favor.¹⁵⁵ In *Williams v. Florida*, Justice White wrote that “the essential feature of a jury obviously lies in the interposition between the accused and his accuser of the commonsense judgment of a group of laymen”¹⁵⁶ The idea is that the law should not become divorced from those whom it serves. The jury acts as a “guardian of the public trust and the voice of the community’s values inside a legal system dominated by lawyers and judges.”¹⁵⁷ These egalitarian sentiments are most persuasive when the jury’s duty is to make moral judgments. For instance, in the civil context, it makes sense for the jury to determine issues of negligence. In that context, the jury uses community values to determine the proper standard of conduct.¹⁵⁸ The jurors, collectively, represent the reasonable person against whom the defendant is compared.

Unfortunately, this position’s reliance on the jury does not transfer to cases involving scientific evidence. This Note has previously argued that research has shown that commonsense notions of statistics and probability, for example, actually inhibit jurors’ understanding of these types of evidence.¹⁵⁹ In mass tort liability cases, the counter-intuitive nature of the evidence makes the deferral to common sense not merely inadequate, but leads to erroneous conclusions.¹⁶⁰ Common sense and community values are desirable when tailoring a point of law such as the standard of negligence, but they do not contribute to, and may actually detract from, the resolution of factual problems such as causation.

C. *The Jury as a Black Box*

“By permitting the jury to resolve credibility conflicts in the black box of the jury room,” writes Fisher, “the . . . system can present to the public an

¹⁵⁴ JOHN GUNTHER, *THE JURY IN AMERICA* 209 (1988). Jefferson had more faith than most in the power of common sense, once writing, “State a moral case to a ploughman and a professor. The former will decide it as well, and often better than the latter, because he has not been led astray by artificial rules.” Letter from Thomas Jefferson to Peter Carr (Aug. 10, 1787), in 12 *THE PAPERS OF THOMAS JEFFERSON, 7 AUGUST 1781 TO 31 MARCH 1788*, at 15 (Julian P. Boyd ed., 1955).

¹⁵⁵ Kevin M. Clermont & Theodore Eisenberg, *Trial By Jury or Judge: Transcending Empiricism*, 77 *CORNELL L. REV.* 1124, 1150 (1992).

¹⁵⁶ *Williams v. Florida*, 399 U.S. 78, 100 (1970).

¹⁵⁷ Roger M. Young, *Using Social Science to Assess the Need for Jury Reform in South Carolina*, 52 *S.C. L. REV.* 135, 137 (2000) (quoting John Paul Ryan, *The American Trial Jury: Current Issues and Controversies*, 63 *SOC. EDUC.* 458, 458 (1999), available at <http://members.ncss.org/se/6307/630711.html>).

¹⁵⁸ See JONAKAIT, *supra* note 20, at 71.

¹⁵⁹ See *supra* notes 141-47.

¹⁶⁰ *Id.*

‘answer’ — a single verdict . . . — that resolves all questions of credibility in a way that is largely immune from challenge or review.”¹⁶¹ The idea of the jury as a black box has elements of the previous two defenses, and yet is distinct in one significant way. Like the others, it admits that some questions are empirically unanswerable¹⁶² and forwards the jury as the method to resolve them.¹⁶³ However, the argument justifies this conclusion not by pointing to the jury’s ability to resolve disputes correctly, but to its ability to resolve them legitimately.¹⁶⁴ In this manner, the modern jury is superior to the ancient trial by Ordeal, in which disputes were decided by God,¹⁶⁵ who took the form of a random and usually grotesque game of chance. The open arbitrariness of the Ordeal belied its legitimacy, and the practice was eventually phased-out.¹⁶⁶

Surely, placing the truth-seeking process in the hands of ordinary mortals made the endeavor more palatable, but that is only half of the formula. The real benefit of the jury is that it is secret, and that “the privacy of the jury box shrouds the shortcomings of its methods.”¹⁶⁷ The jury room has been compared to a sausage factory; if we knew what went on inside, we could not stomach it anymore.¹⁶⁸ But, if the purpose of the black box is to increase legitimacy, then how can it stand if it is shown to produce arbitrary results in some cases or in a specific subset thereof? It must, after all, at least *appear* to be accurate. Furthermore, the allure of the black box requires that society acknowledges that there may be no more seemingly legitimate way of determining the correct answer.

Ultimately, the black box argument suffers from the same weakness as the lie detector argument. It applies persuasively only when one cannot know the answer from any objective data. Though a witness may be lying, it is impossible for anyone, save an eyewitness, to know what actually happened.¹⁶⁹ As such, we defer to the jury, not due to its ability to discern the truth, but to

¹⁶¹ Fisher, *supra* note 150, at 579.

¹⁶² *Id.* at 578 (noting that there is little evidence that juries do better than chance at detecting lies).

¹⁶³ *Id.* at 577 (“[W]e name jurors our sole judges of credibility and call on them to declare each witness truth-teller or liar.”).

¹⁶⁴ *Id.* at 698, 704-05.

¹⁶⁵ Young, *supra* note 157, at 142. One method mentioned by Judge Young was the burning of the defendant’s hand with a red-hot iron or boiling water, then bandaging it and waiting to see if the wound became infected. Infection signified guilt. *Id.*

¹⁶⁶ Fisher, *supra* note 150, at 586.

¹⁶⁷ *Id.*

¹⁶⁸ JONAKAIT, *supra* note 20, at 274.

¹⁶⁹ Fisher, *supra* note 150, at 578-79 (noting that the jury “does not guarantee accurate lie detecting.”).

ensure the perception of legitimacy in its finding.¹⁷⁰ However, in cases where the main factual finding turns on scientific proof, the existence of evidence on both sides does not preclude an empirically discoverable correct answer. This makes erroneous findings apparent to observers like Angell, Sanders, as well as Selvin and Picus. Such findings allow society a peek inside the black box, unraveling its mystique and diffusing its aura of legitimacy.

Finally, it cannot be enough to simply say that jurors legitimize verdicts.¹⁷¹ That simple argument has a simple response: there are myriad critiques of juries, so whether they actually legitimize the trial as a mode of dispute resolution is in controversy.¹⁷² When complex scientific issues are in dispute, our reliance on the jury to resolve them only further exposes its shortcomings. Fisher acknowledges this paradox: “Perhaps the allure of the black box as a means toward apparent certainty in an uncertain world has tempted us to entrust the jury with more and harder questions than it has the power to answer.”¹⁷³

V. POTENTIAL REFORMS

The preceding discussion has forwarded three main propositions. First, cases involving complex scientific evidence, especially those dealing with probabilistic or statistical evidence, present unique problems for juries.¹⁷⁴ Second, these problems stem from jurors’ inability, as laypeople, to analyze certain kinds of data that are particularly crucial to defendants in mass torts where causation is disputed.¹⁷⁵ Third, at least some of the traditional justifications for trial before a jury do not apply in the context of these cases.¹⁷⁶ These propositions lead to the conclusion that the current way the jury functions in complex cases impairs both the effectiveness and the legitimacy of the trial process. Several reforms have potential to remedy the jury’s current shortcomings.

A. *Blue Ribbon Juries*

One possible method of improving the way juries function in complex cases is to change the makeup of the jury itself. While the typical jury is composed of individuals from all backgrounds,¹⁷⁷ complex cases might require a more selective jury pool. Studies of juror comprehension have shown that college-

¹⁷⁰ *Id.*, at 579.

¹⁷¹ JONAKAIT, *supra* note 20, at 81.

¹⁷² *Id.*

¹⁷³ Fisher, *supra* note 150, at 708.

¹⁷⁴ *See supra* Part II.

¹⁷⁵ *See supra* Part III.

¹⁷⁶ *See supra* Part IV.

¹⁷⁷ JAMES OLDHAM, TRIAL BY JURY: THE SEVENTH AMENDMENT AND ANGLO-AMERICAN SPECIAL JURIES 177 (New York University Press 2006).

educated jurors are better equipped to handle the information presented at trial.¹⁷⁸ One possible reason for this is that being in a courtroom requires learning a great deal of new information, and those who have had more experience in an educational setting are more adept at absorbing this information in a similar courtroom setting.¹⁷⁹ Another possibility would be empanelling a jury of experts who specialize in the subject of the trial.¹⁸⁰

The formation of Blue Ribbon juries to deal with complex cases is not without precedent in English common law¹⁸¹ and was once common in the United States.¹⁸² As the right to a jury trial in certain civil cases comes from the Seventh Amendment,¹⁸³ and the Supreme Court has construed the breadth of that Amendment with a historical test,¹⁸⁴ one could argue that nothing in the Constitution opposes the practice. Nonetheless, such historical support is inapposite when it contravenes other fundamental principles.¹⁸⁵ Congress acted upon these principles when it passed the Jury Selection Act, which stated that all American citizens would be eligible to serve on a jury, unless they were under the age of twenty-one, illiterate, mentally infirm, or felons.¹⁸⁶ Luneburg and Nordenberg, upon reviewing the legislative history, conclude that one purpose of the Act was specifically to abolish Blue Ribbon juries.¹⁸⁷ As such, while the formation of a Blue Ribbon jury might increase the likelihood of an accurate verdict, it is unlikely that courts will adopt the practice.

B. Taking the Question Away From the Jury

Rather than trying to create a specialized jury, another possible solution to

¹⁷⁸ William V. Luneburg & Mark A. Nordenberg, *Specially Qualified Juries and Expert Nonjury Tribunals: Alternative for Coping with the Complexities of Modern Civil Litigation*, 67 VA. L. REV. 887, 947 (1981).

¹⁷⁹ *Id.*

¹⁸⁰ OLDHAM, *supra* note 177, at 177, 196.

¹⁸¹ Luneburg & Nordenberg, *supra* note 178, at 902-03 (noting extensive use of special juries in eighteenth-century England).

¹⁸² OLDHAM, *supra* note 177, at 194-96.

¹⁸³ U.S. CONST. amend. VII (“In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved . . .”).

¹⁸⁴ Luneburg & Nordenberg, *supra* note 178, at 901 n.45 (citing “countless decisions” originating from *U.S. v. Wonson*, 28 F. Cas. 745 (C.C.D. Mass 1812)).

¹⁸⁵ *Id.* at 904 (citing *Glasser v. U.S.*, 315 U.S. 60, 85 (1942) for the proposition that the jury trial has developed in the United States, responding to “our basic concepts of a democratic society and a representative government”); OLDHAM, *supra* note 177, at 177 (“Elite special juries surely are antithetical to the hard-fought, long-delayed goal of opening up jury service to everyone.”).

¹⁸⁶ 28 U.S.C. § 1865(b) (1976).

¹⁸⁷ Luneburg & Nordenberg, *supra* note 178, at 915.

the jury's comprehension difficulties is to take the complex issues away from it altogether. There are several proposed ways of achieving this, including recognizing a complexity exception to the Seventh Amendment right to a jury trial.¹⁸⁸ While the Supreme Court has yet to decide the issue, the federal circuits are split as to whether such an exception exists.¹⁸⁹ Those that have found support for a complexity exception have cited footnote 10 in the Supreme Court case of *Ross v. Bernhard*,¹⁹⁰ which states "[a]s our cases indicate, the 'legal' nature of an issue is determined by considering, first, the pre-merger custom with reference to such questions; second, the remedy sought; and, third, *the practical abilities and limitations of juries*."¹⁹¹ This reasoning is quite weak, as Lempert notes, because the argument would "require one to believe that the Court would choose to use a cryptic footnote to authorize an important inroad into the Seventh Amendment right to jury trial"¹⁹²

One could also argue that the finding of a complexity exception would be consistent with the Supreme Court's decision in *Markman v. Westview Instruments*,¹⁹³ which took away from juries the task of patent construction, often the most important element in patent cases.¹⁹⁴ The argument fails, however, as the Court did not find the patent construction element to be too complex for the jury, but rather relied on a historical test, unanimously determining that when the Seventh Amendment right to a civil jury was adopted in 1791, English common law did not consider patent construction to be a jury issue.¹⁹⁵ Applying the historical test to complexity is tricky, and there is debate as to whether there existed a complexity exception to the jury trial in English common law.¹⁹⁶ Even if such precedent exists, Lempert points to other difficulties in creating (or recognizing) such a complexity exception. For one thing, there would be no principled way to determine what qualified as complex enough.¹⁹⁷ Further, the availability of this exception may cause a "party preferring a bench trial [to] do its best to create the prospect of a lengthy trial that will turn on esoteric expert testimony."¹⁹⁸

¹⁸⁸ OLDHAM, *supra* note 177, at 17-24.

¹⁸⁹ See, e.g., *In re U.S. Fin. Sec. Litig.* 609 F.2d 411 (9th Cir. 1979) (rejecting a complexity exception); *In re Boise Cascade Sec. Litig.*, 420 F.Supp. 99 (W.D. Wash. 1976) (striking-down a jury demand due to the complexity of the case).

¹⁹⁰ 396 U.S. 531 (1970); *Lunenburg and Nordenberg*, *supra* note 178, at 892.

¹⁹¹ *Ross v. Bernhard*, 396 U.S. at 538 n.10 (emphasis added).

¹⁹² Lempert, *supra* note 69, at 76.

¹⁹³ *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996).

¹⁹⁴ OLDHAM, *supra* note 177, at 7-8.

¹⁹⁵ *Id.*

¹⁹⁶ *Id.* at 18-21 (arguing that precedent exists). Cf. Lempert, *supra* note 69, at 75-79 (arguing more convincingly there exists no such precedent).

¹⁹⁷ Lempert, *supra* note 69, at 84.

¹⁹⁸ *Id.*

A similar, but ultimately stronger argument for taking complex cases away from the jury is that the litigant's right to due process demands it. This elaborates upon the complexity argument: it is not simply that an issue is too complex for a jury, but rather that the complexity renders the jury unable to decide the issue in a competent way, thus depriving a party of due process of law.¹⁹⁹ The first case to note this potential conflict was *In re Japanese Electronic Products Antitrust Litigation*,²⁰⁰ which held that striking-down a jury demand was appropriate "when a jury will not be able to perform its task of rational decisionmaking with a reasonable understanding of the evidence and the relevant legal standards."²⁰¹ In other words, in a conflict between the Fifth and Seventh Amendments, the Fifth should carry the day.²⁰²

This argument for removing complex cases from the jury may be tempting, but it suffers from the same problems as the complexity exception mentioned above. Namely, it presents the similar line-drawing problems over what is too complex and would encourage parties to overcomplicate litigation. In addition, as Lempert writes, "[a]rguably, due process only gives a litigant the right to have a case withdrawn from the jury after the evidence is in and after the judge has determined that the jurors as a group have so misunderstood the evidence . . . as to be incapable of rational deliberation."²⁰³

The more fundamental problem with taking complex cases away from the jury, either by a complexity exception or a due process objection, is that neither applies if the judge is not likely to do a better job.²⁰⁴ Often, lawyers simply presume that a judge will be more competent than the jury,²⁰⁵ but there is reason to suspect otherwise, or at least not take the proposition for granted. After all, most judges, in pursuing their legal studies, likely shirked science courses.²⁰⁶ As Chief Judge Mayer noted in *Markman*, "there is simply no reason to believe that judges are any more qualified than juries to resolve the

¹⁹⁹ *Id.* at 71.

²⁰⁰ *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 631 F.2d 1069 (3d Cir. 1980).

²⁰¹ *Id.* at 1086.

²⁰² *Id.* ("In lawsuits of this complexity, the interests protected by this procedural rule of due process carry greater weight than the interests served by the constitutional guarantee of jury trial."); See Lempert, *supra* note 69, at 88 (noting that the Fifth Amendment is more solidly enshrined in constitutional law than the Seventh).

²⁰³ Lempert, *supra* note 69, at 89.

²⁰⁴ See *supra* Part II.c; Lempert, *supra* note 69, at 90 ("[T]here is no clash if the judge shares the jury's deficiencies in dealing with complex cases or has other deficiencies that render him equally incapable of reaching a rational judgment in accordance with the law.").

²⁰⁵ See HANS & VIDMAR, *supra* note 96, at 114-15; JONAKAIT, *supra* note 20, at 235; Clermont & Eisenberg, *supra* note 156, at 1149.

²⁰⁶ JONAKAIT, *supra* note 20, at 49.

complex technical issues often present in patent cases.”²⁰⁷ Thus, there is reason to think that giving complex scientific questions to the judge may not yield better or less arbitrary results than letting the jury decide the issue. If there is no guarantee of a fairer outcome, it is unclear what benefit there is in allowing either a complexity exception or the due process objection, especially considering the fact that both propositions are, as discussed above, constitutionally suspect.

C. Heightening the Evidentiary Standard

As some cases may present insurmountable challenges for both judges and jury, this Note proposes that a higher evidentiary standard in certain cases may protect litigants from arbitrary or unsound verdicts. This would be most readily applicable to class action toxic torts, similar to those discussed above. As this Note has argued, without a demonstrable link between the substance and disease, individual case studies, *in vivo* animal studies, and anecdotal evidence are insufficient to prove causation.²⁰⁸ As such, epidemiological evidence, showing a significant increase in the likelihood of contracting the alleged disease by a population exposed to the product in question, should be required for the claim to reach trial. Given epidemiological evidence to the contrary, other studies should not be able to, as a matter of law, prove causation. Though this may seem a harsh measure, fantastic claims require fantastic evidence. If a class of perhaps thousands of plaintiffs is unable to show that the defendant’s product is likely to have caused their ailments, it should not take its claims before jurors in the hope that they misconstrue the scientific data in the plaintiffs’ favor. By making this an evidentiary threshold test, the proposed remedy protects against the difficulties faced by finders of fact in these cases. The most appropriate time to require that plaintiffs present this evidence is at the summary judgment phase of the litigation. This way, plaintiffs will have had the benefit of discovery in assembling their evidence of causation.

This proposed standard should be limited to class actions, as it would be unfair for individual litigants to have to show class-wide causation. While epidemiological evidence linking the product and the disease would be most probative, individual plaintiffs need only to prove that the defendant’s product caused their own disease. They are not, like a large class, making a population-wide claim. Also, as a practical concern, individual plaintiffs are not likely to have access to the same resources that are enjoyed by plaintiffs in class actions, so it would be unduly burdensome to require them to undertake expensive research.

It is important to note that other tests of toxic causation do not become irrelevant under this proposed standard. They may provide support for a

²⁰⁷ *Markman v. Westview Instruments*, 52 F.3d 967, 993 (3d Cir. 1995) (Mayer, C.J., concurring).

²⁰⁸ *See supra* Part II.b.

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party's case if epidemiological evidence is inconclusive or legitimately unavailable due to a product's limited market presence.²⁰⁹ Ultimately, this proposal stems from the idea that these cases should not be about tricking the jury. Whether an *in vivo* study is more probative of causation than an epidemiological study is not a question of fact for a judge or jury to decide. It is established in the laboratory that the latter takes precedence. So, too, should it take precedence in the courtroom.

VI. CONCLUSION

In summation, this Note does not conclude that juries are ideologically prejudiced or that they easily succumb to emotion. To the extent which that is true, it is a factor in all cases. Instead, the point is that complex scientific or technical litigation greatly exacerbates these problems, making it more likely that a verdict will be influenced by these factors. The issue of causation in mass tort litigation, in particular, presents unique challenges, as most people lack the cognitive tools to intuit the answers to such questions. As such, it is important to take a critical look at what the legal system asks of judges and juries. Statistical or probabilistic evidence is not simply too difficult to comprehend, it is wholly inconsistent with the way that most people make decisions. If the legitimacy of the trial system depends, largely, on its ability to produce accurate outcomes, then inconsistent or arbitrary verdicts in complex cases could undermine the American legal system. The suggested remedy of a heightened evidentiary standard in mass toxic torts seeks to preserve the integrity of the trial process and of the jury itself. Ultimately, it comes from the proposition that judges and juries should not be put in a position to dismiss scientific fact.

²⁰⁹ Then again, if only a limited number of people are exposed to the substance, and all or most exhibit signs of illness, such evidence should easily pass epidemiological muster.