

FOREWORD

DAVID MICHAELS*

NEIL VIDMAR**

Law is heavily dependent on other disciplines when it is called upon to exercise one of its main functions, namely, resolving disputes. Through the use of experts, legal decisionmakers consider evidence bearing on the contested facts at issue in the litigation. But problems frequently arise over the differences in legal assumptions about evidence and how it is to be used and assumptions brought by other disciplines—science among them—about the use of evidence. The disjuncture occurs because the conventions used in the law and in other disciplines differ.

This issue of *Law and Contemporary Problems* is devoted to exploring the conflict between the conventions used in law and the conventions used in these other disciplines. A “convention” is a generally agreed-upon practice within a group or a discipline that facilitates communication and social interaction. It is a rule of discourse or behavior that is generally understood without further explanation or justification, making it efficient but also a source of confusion when the conventions of one group are used in another group’s venue. Even closely related disciplines may have conventions different enough to cause confusion. Law has many conventions involving both substantive and procedural matters. Yet legal decisionmakers are highly dependent on experts from other disciplines to provide evidence upon which their decisions will be grounded. The appearance of the expert—whether a scientist or an expert from the field of history, economics, political science, or art—sets the scene for a classic example of clashing conventions. The styles of discourse, warrants for belief, standards of evidence, and other conventions are often so vastly different between law and other disciplines that they are sources of mischief and

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* Professor and Interim Chairman, Department of Environmental and Occupational Health, George Washington University School of Public Health and Health Services.

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** Russell M. Robinson II Professor of Law, Duke University School of Law. Professor, Department of Psychology and Neuroscience, Duke University.

confusion for legal decisionmakers as well as for the experts from these “outside” disciplines who enter into the legal arena.

For example, the conventions of scientific discourse in the scientific setting and evidentiary conventions of testifying before a trier of fact in a legal setting differ significantly. In the scientific context it is customary (“conventional”) to discuss the many sides of an issue, often in a stylized “on the one hand, on the other hand” manner. On the witness stand, by contrast, the scientist is encouraged to present one side, leaving the experts on the opposing side to present “on the other hand.” Indeed, the rules of presentation in a legal forum severely constrain a balanced presentation. The legal conventions for presenting evidence in common-law, adversarial proceedings are considered a necessary part of providing the judge and jury with clean and understandable arguments about the two sides of a dispute, but they represent an unnatural mode of discourse for scientists and members of other academic disciplines.

The articles in this issue of *Law and Contemporary Problems* are the output of the Fourth Coronado Conference on Scientific Knowledge and Public Policy. The conference was convened by the Project on Scientific Knowledge and Public Policy (SKAPP), based at the George Washington University School of Public Health and Health Services. SKAPP was founded in 2001 by a group of scientists who recognized the value of examining how science is used and misused in government decisionmaking and in legal proceedings.¹ Since then, SKAPP has convened four Coronado Conferences. At each one a group of distinguished scientists, philosophers of science, judges, and policy experts presented papers and discussed issues at the intersection of science, law, and public policy. The papers presented at the first Coronado Conference, entitled “Scientific Evidence and Public Policy,” were published in the *American Journal of Public Health*;² the second, “Sequestered Science: the Consequences of Undisclosed Knowledge,” in *Law and Contemporary Problems*;³ and the third, “Truth and Advocacy: The Quality and Nature of Litigation and Regulatory Science,” in *Environmental Health Perspectives*.⁴

In this issue’s first article, *Irreconcilable Differences?*, Susan Haack provides a brief historical background to the use of scientific experts in law and then proceeds to discuss in greater detail the values underlying scientific inquiry, the uncertainty in the quest of knowledge and understanding, and the methods by

1. At the time of this conference, major support for SKAPP was provided by the Common Benefit Trust, a fund established pursuant to a court order in the Silicone Gel Breast Implant Products Liability litigation. This funding was unrestricted; the funders were not provided the opportunity to review or approve SKAPP publications. The papers presented at each Coronado Conference, along with other scholarly publications of SKAPP staff, are available for downloading at no cost from www.DefendingScience.org.

2. 95 AM. J. PUB. HEALTH (SUPPLEMENT 1) S1 (2005).

3. Symposium, Sequestered Science: the Consequences of Undisclosed Knowledge, 69 LAW & CONTEMP. PROBS. 1 (Summer 2006).

4. Mini-Monograph, 116 ENVTL. HEALTH PERSP. 116 (2008).

which consensus is reached, even if that consensus is always tentative.⁵ She then contrasts scientific inquiry with the law's quest for "truth" in the courtroom and, particularly, the normative and temporal considerations that drive legal decisionmaking. She also emphasizes the selection process by which adversarial lawyers selectively choose experts who will offer evidence congruent with their clients' positions, often producing evidence that is "marginal" to mainstream scientific thinking. She also discusses the constraints on fully exploring disagreements and ambiguity in the current level of knowledge within any one area of scientific knowledge.

Jerome Ravetz's essay both expands on and disagrees with parts of Haack's view.⁶ He argues that the notion of "pure science" that seems to underlie Haack's description may ignore some historical realities. As an example, he notes that scientists in late-nineteenth-century Germany collaborated with their more practically oriented colleagues to produce knowledge. He then compares that collaboration to the present-day use of scientific research in the regulatory process, which informs policy even when scientific knowledge is uncertain and subject to major revisions, including revisions that contradict earlier knowledge. In short, unlike the ideal model of science, the reality of scientific research does not follow a single, overarching method of inquiry. Ravetz also makes the important point that in legal proceedings the scientific evidence presented by experts is often only one part, and sometimes only a small part, of the corpus of factual evidence before the court. Ravetz then cautions against outside scholars drawing conclusions about the use or misuse of science in legal proceedings without considering the total context in which those conclusions are used.

Herbert Kritzer's article, *The Arts of Persuasion in Science and Law*, expands further on Haack's and Ravetz's themes by explicitly drawing attention to the courtroom as a setting for persuasion rather than for truth.⁷ He suggests four dimensions on which scientific investigations and legal investigations can be compared: the choice of "data" or evidence, how the evidence is used, the mindset of the inquirer, and the goals of the inquiry. In a common-law courtroom, Kritzer points out, much of the evidence is presented through oral testimony and focuses on specific events, whereas science is oriented toward conclusions that apply across situations. Partisanship rules in the presentation of the evidence, and much of the persuasion process is oriented toward creating doubt, as opposed to furthering science's quest for certainty. An important theme running through Kritzer's article, consistent with Ravetz's essay, is that the courtroom setting creates conditions that are unfavorable to the neutral presentation of scientific findings.

5. Susan Haack, *Irreconcilable Differences? The Troubled Marriage of Science and Law*, 72 LAW & CONTEMP. PROBS. 1 (Winter 2009).

6. Jerome R. Ravetz, Essay, *Conventions in Science and in the Courts: Images and Realities*, 72 LAW & CONTEMP. PROBS. 25 (Winter 2009).

7. Herbert M. Kritzer, *The Arts of Persuasion in Science and Law: Conflicting Norms in the Courtroom*, 72 LAW & CONTEMP. PROBS. 41 (Winter 2009).

Joseph Sanders' article on expert witnesses builds upon the preceding articles.⁸ He further explores the elements of adversarialism in American legal proceedings by examining evidence presented in the litigation against Merrell Dow Pharmaceuticals, whose morning-sickness product Bendectin allegedly caused horrific birth defects after women took the drug. Using his background in sociology, Sanders explores two themes that emerge from the case study of Bendectin. The first theme is "role" pressures: the adversary system replaces the expert's role as an impartial investigator with a partisan role. The second, related, theme is the replacement of the standard of scientific rigor with a looser standard focused on the specific issues at play in litigation. Sanders concludes by pointing out that, despite many differences, law and science share many conventions, and each has a preferred goal of reaching a proper outcome.

Charles Bazerman's *How Does Science Come to Speak in the Courts* starts with the seemingly very mundane observation that law and science use different conventions for the forms in which supporting literature is cited.⁹ In law the purpose is to build decisions on precedents, the memories of and standards on which prior cases have been decided. In science, standard citation procedures serve a roughly similar purpose, namely, a way of helping to maintain quality. Then Bazerman turns to consider how the differing conventions for citation in epidemiology played out in litigation over the drug phenylpropanolamine, used as an appetite suppressant that allegedly caused hemorrhagic strokes. The *Daubert* hearings in the litigation show a remarkable change in the court's citation of literature and a tilt toward a legal, as opposed to a scientific, perspective on the evidence.

David Kriebel's *How Much Evidence is Enough?* shifts our focus to the use of evidence in regulatory settings.¹⁰ As he asserts in his opening paragraph, a "clash of cultures" also occurs around the use of science in the development and alteration of regulations. Echoing points made in the preceding articles, Kriebel draws attention to the fact that not all scientific research that is undertaken can be considered to have the goal of "pure" science. Environmental-health science is a prime example. Research on environmental hazards is directed toward informing policymakers, but there are often major degrees of uncertainty about causal relationships. Disruptions in natural systems or cycles and their effects on living things have major effects on humans and other organisms, but inferences about the causes of the disruptions and their effects involve a great deal of uncertainty. Yet, for the environmental scientist, there is often an urgency in offering advice to prevent further harm. Kriebel illustrates the many methods used by different researchers, depending on their disciplines and the

8. Joseph Sanders, *Science, Law, and the Expert Witness*, 72 LAW & CONTEMP. PROBS. 63 (Winter 2009).

9. Charles Bazerman, *How Does Science Come to Speak in the Courts? Citations, Intertexts, Expert Witnesses, Consequential Facts, and Reasoning*, 72 LAW & CONTEMP. PROBS. 91 (Winter 2009).

10. David Kriebel, *How Much Evidence Is Enough? Conventions of Causal Inference*, 72 LAW & CONTEMP. PROBS. 121 (Winter 2009).

problems at hand, by considering such disparate fields as anthropology and molecular biology. His central theme is that causation is a judgment call made by scientists.

David Rosner's *Trials and Tribulations* shifts the focus from science to the field of history.¹¹ He traces the use of historians as experts in litigation. Historians have played roles in suits on discrimination and voting rights and, more recently, in toxic-tort cases involving tobacco, asbestos, lead, and the soft-drink industry. Rosner draws attention to the controversy and sometimes bitter disagreement among scholars, not only about the opinions they have been prepared to offer but also about the conditions under which they have been recruited and paid. His article documents what he views as corruptions of knowledge that are produced by adversarial litigation.

Gary Edmond's *Merton and the Hot Tub* is a very salient closing to this symposium issue.¹² Edmond describes the attempts in several Australian jurisdictions to reduce some of the deleterious effects that the adversarial system can have on expert testimony through use of the "concurrent evidence" procedure, known colloquially as "hot tubbing." Following the example of England, experts in those courts are now required to explicitly acknowledge that their obligation in providing testimony is to the court rather than to the party that retained them. Disagreements between opposing experts are subject to informal, face-to-face meetings prior to any formal court appearance. In these meetings, differences between experts' opinions are discussed and issues narrowed. Edmonds describes his observations of a number of hearings and discusses the benefits of the concurrent-evidence procedure.¹³

11. David Rosner, *Trials and Tribulations: What Happens When Historians Enter the Courtroom*, 72 LAW & CONTEMP. PROBS. 137 (Winter 2009).

12. Gary Edmond, *Merton and the Hot Tub: Scientific Conventions and Expert Evidence In Australian Civil Procedure*, 72 LAW & CONTEMP. PROBS. 159 (Winter 2009).

13. New Zealand also uses a similar procedure, which was adopted in 2002. See Code of Conduct for Expert Witnesses, Schedule 4, r25 High Court Amendment Rules 2002, 2002 S.R. 132, available at http://www.ifpi.org.nz/Code_of_Conduct_for_Expert_Witnesses.pdf. Neil Vidmar, the co-Special Editor for this issue, recently testified under these rules in *Solicitor-General of New Zealand v. Fairfax New Zealand Ltd. and Pankhurst* (High Court, Wellington CIV 2008-485-000705, Oct. 10, 2008) (unpublished, on file with author) in a contempt-of-court hearing involving charges of publishing proscribed documents in a criminal proceeding. He and the opposing expert met via an informal telephone conference prior to the formal court hearing, discussed their differences of opinion and wrote a joint "aide memoire" to the court outlining the points of agreement and disagreement in their respective opinions. Subsequently, they testified in formal video-link testimony before a two-judge panel.