

March 1995

## Which Scientist Do You Believe - Process Alternatives in Technological Controversies

Thomas G. Field Jr.

*Professor Emeritus, University of New Hampshire School of Law*

Follow this and additional works at: <https://scholars.unh.edu/risk>

 Part of the [Law Commons](#), [Life Sciences Commons](#), [Physical Sciences and Mathematics Commons](#), and the [Social and Behavioral Sciences Commons](#)

---

### Repository Citation

Thomas G. Field, Jr., *Which Scientist Do You Believe - Process Alternatives in Technological Controversies*, 6 RISK 97 (1995).

This Conference Paper is brought to you for free and open access by the University of New Hampshire – School of Law at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in RISK: Health, Safety & Environment (1990-2002) by an authorized editor of University of New Hampshire Scholars' Repository. For more information, please contact [ellen.phillips@law.unh.edu](mailto:ellen.phillips@law.unh.edu).

# Which Scientist Do You Believe? Process Alternatives in Technological Controversies\*

Thomas G. Field, Jr.\*\*

## Introduction

Does Bendectin cause birth defects? Do ailments later suffered by those who served in Desert Storm constitute a "syndrome"? Is DNA evidence reliable enough for use in criminal trials? Does facilitated communication reflect the thoughts of autistic patients or those of facilitators? Such questions regularly make front page news.<sup>1</sup>

"Which Scientist Do You Believe?" is a key to each. Recently,<sup>2</sup> over thirty conferees representing diverse disciplines<sup>3</sup> and experience met to consider processes for addressing that underlying question in widely varying legal and social contexts.

A symposium on the "Science Court,"<sup>4</sup> was the immediate antecedent of the conference. Papers published there identify but do not resolve issues such as the extent to which facts and values *can*, or *need*, be separated.<sup>5</sup> Thus, prospects for a live forum where they could be aired was discussed even before publication. Once Arthur Kantrowitz obtained Hertz Foundation support, this became feasible.

\* Funded in part by the Fannie and John Hertz Foundation and in part by the Ethical, Legal and Social Issues component of the Department of Energy Human Genome Project. We are grateful for their support. Also, I thank Jennifer A. Kispert for careful notes that were very helpful in preparing this paper.

\*\* Professor Field is a founding member of the Franklin Pierce Law Center faculty. He received his A.B. (Chemistry) and J.D. from West Virginia University and his LL.M. (Trade Regulation) from New York University. A former patent examiner, he is also an experienced arbitrator and mediator.

<sup>1</sup> See generally, e.g., *Technical Risk in the Mass Media*, 5(3) *Risk* (Allan Mazur, ed. 1994).

<sup>2</sup> October 6-7, 1994; see Prorgam, *infra*, at 183.

<sup>3</sup> Several individuals conferees hold degrees in diverse disciplines; see *infra* at 184.

<sup>4</sup> 4(2) *Risk* (1993).

<sup>5</sup> See, e.g., Carl F. Cranor, *Science Courts, Evidentiary Procedures and Mixed Science-Policy Decisions*, *id.* at 113 (1993) and Sheila Jasanoff, *Procedural Choices in Regulatory Science*, *id.* at 143. Unfortunately, neither could attend.

### Process Alternatives in Context

Kantrowitz opened the conference, noting that failure to separate facts and values in scientific disputes allows both scientists<sup>6</sup> and policy makers<sup>7</sup> to advance non-technical agendas with claims of expertise. He urged that this can cause grave and multifaceted social harm and observed that better separation is possible if we *try*.<sup>8</sup>

Still, disputes that harbor technical issues do not necessarily turn on scientific credibility. For example, if fear of electromagnetic radiation reduces residential property values near power lines, its scientific rationality should be irrelevant in actions to recover for landowners' economic losses.<sup>9</sup> Likewise, people who wish to teach creationism in public schools usually admit religious goals, and scientific credibility becomes irrelevant under the First Amendment.<sup>10</sup>

In most controversies, someone must decide which technical questions, if any, need answers. This was underscored by Dalton Paxman who discussed tensions between Members of Congress who seek to require, e.g., technical analysis to support environmental regulation and those who wish to preserve legislation that skirts technical issues.<sup>11</sup> It was also emphasized by Kristin Shrader-Frechette, who urged that those affected by decisions should be, in the name of procedural fairness, entitled to a say in framing issues.<sup>12</sup>

Available resources must also be juggled with the need for technical accuracy. In much the same vein, Sidney Shapiro discussed how additional process, such as using advisory committees, may cause undue regulatory delay.<sup>13</sup> He argued for agency latitude.

<sup>6</sup> *Infra* at 103.

<sup>7</sup> *Id.*; see also Shapiro, *infra* at 132 and Field, *supra* note 6, at 100.

<sup>8</sup> *Infra* at 108.

<sup>9</sup> See, e.g., Linda J. Orel, *Perceived Risks of EMFs and Landowner Compensation*, 6 *Risk* 79 (1995).

<sup>10</sup> See U.S. Const. amend. I, quoted, *infra* at 108.

<sup>11</sup> *Infra* at 163; see, e.g., at 176.

<sup>12</sup> *Infra* at 113; see, e.g., at 118.

This was the topic of a earlier conference. Entitled "Public Participation in Risk Management: Ethics, Science and Law," its papers, including ones by Lubbers, Shapiro and Shrader-Frechette, appear in the first three issues of *Risk*.

As revealed by, e.g., the Los Angeles riots that followed the recent Rodney King police brutality case, lack of faith in process can indeed have serious consequences.

Yet another basic issue underlying technical accuracy is the degree of confidence with which facts must be established.<sup>14</sup> In most civil and regulatory actions, a party who wishes to disturb the status quo usually needs to establish critical facts only by a preponderance of evidence. In contrast, before criminal sanctions can be imposed, prosecutors must establish needed facts beyond a reasonable doubt. However, before facts can be placed on the scale, they must be admitted into evidence.

### Scientific Evidence in Legal Proceedings

Peter Huber<sup>15</sup> and Albert Scherr<sup>16</sup> discussed the admissibility of scientific evidence in civil and criminal litigation, respectively. As explained by Scherr, scientists in admissibility hearings say why they think that evidence is, e.g., reliable or unreliable. Then, lawyers unlikely to have technical training cross-examine, often with experts at their sides,<sup>17</sup> and judges even less likely to have technical training decide whether contested evidence can be presented to juries. The topic was both important and timely.

A recent U.S. Supreme Court case was the focus of Huber's talk.<sup>18</sup> It is likely to influence the admissibility of scientific evidence more than any case in 70 years. Yet, as Huber noted, its impact is so far unclear — particularly because advocates for and against stringent standards of admissibility both claim victory. Huber also said that many mischaracterize the case as involving the right to jury trials. Others,

<sup>13</sup> *Infra* at 125.

<sup>14</sup> Its fundamental nature is well illustrated by an exchange between John F. Merz & H. Christopher Frey and Carl Cranor over Cranor's book, *Regulating Toxic Substances*; see *respectively*, 5 *Risk* 75 (review) and 81 (reply).

<sup>15</sup> *Infra* at 109.

<sup>16</sup> See, e.g., Anthony Flint, *Science's Role in Courtrooms Reassessed*, the Boston Globe, Oct. 20, 1994, at 1. At 17, Scherr is quoted as saying:

Let's say that you establish that with DNA evidence there's a 1-in-40,000 chance that it was someone other than the defendant. Well, how does that square with the idea of reasonable doubt? If you put a number on reasonable doubt... you'll totally change the legal system.

<sup>17</sup> See also, Alvin S. Weinstein et al., *Product Liability: A Study of the Interaction of Law and Technology* 10-13 (1977) (Final Report to the National Science Foundation). At 13, the authors say "The... expert has been described as a resource, not a tool, as a co-equal partner with counsel, not as a filler of an evidentiary gap...."

<sup>18</sup> *Daubert v. Merrell Dow Pharmaceuticals*, 113 S.Ct. 2786 (1993).

however, expressed concern that raising the standards for admissibility could amount to raising the burden of proof in civil trials.

Scherr focused on the admissibility of DNA evidence. This, too, was timely insofar as it had been debated in the widely-reported Simpson trial. He said that DNA evidence was first used in the 80's and was called a "genetic fingerprint." After being quickly admitted in several southern cases, it encountered difficulty in the North where more money is available for indigent defense. A New Hampshire case<sup>19</sup> in which Scherr served as both trial and appellate counsel is entering its fourth year and has cost both sides over \$100,000 for experts alone. Scherr also discussed a recent National Academy of Sciences controversy about DNA evidence that seems to confirm Kantrowitz's opening warning.<sup>20</sup>

Such issues have counterparts in legislative and regulatory settings. Paxman recounted Congressional initiatives for "good" science.<sup>21</sup> Also, Jeffrey Lubbers, gave considerable attention to a recommendation for improved regulatory science<sup>22</sup> from the National Performance Review overseen by Vice President Gore.<sup>23</sup>

### Alternative Dispute Resolution

Conference planning began with the idea that Kantrowitz had never contemplated a forum to resolve legal or policy issues.<sup>24</sup> Proposed decision makers were more akin to *jurors than judges*.<sup>25</sup> Also, to the

<sup>19</sup> State v. Vandebogart, 136 N.H. 365 (1992).

<sup>20</sup> See also, e.g., *Academy Splits on Risk*, 259 Science 759 (1993) (concerning Issues in Risk Assessment (1993)):

(NAS) Committees usually strive for consensus. Congress, the federal agencies, and private groups pay for NAS reports so they can get recommendations, spoken with one voice. So when you see a new NAS report that not only has dissenting opinions, but even offers "majority" and "minority" recommendations, you know that loud debates ranged behind closed doors.

<sup>21</sup> *Infra* at 174.

<sup>22</sup> *Infra* at 159.

<sup>23</sup> Vice President Al Gore, *Creating a Government that Works Better & Costs Less* 58 (1993).

<sup>24</sup> See Arthur Kantrowitz, *Proposal for an Institution for Scientific Judgment*, 156 Science 763 (1967).

<sup>25</sup> See Thomas G. Field, Jr., *The Science Court is Dead; Long Live the Science Court!* 4 Risk 95, 99 (1993).

extent that, e.g., jurisdiction was ad hoc, *arbitration* was even more apt. Moreover, Allan Mazur had observed that academic experiments had proven more mediatory than adjudicatory.<sup>26</sup>

This recalled a much earlier conference. Entitled, "Arbitration of Patent and Other Technological Disputes,"<sup>27</sup> it had been scheduled for soon after the Science Court Colloquium<sup>28</sup> and was also intended to explore a comparatively novel process.<sup>29</sup> After the Colloquium, hoping that he would inspire other law/science process innovation, I asked Kantrowitz to speak. He agreed,<sup>30</sup> and twenty years later, the topics seemed even more related. This sparked specific consideration of alternative dispute resolution (ADR).

However characterized, the "Science Court" and many other ways of resolving technical disputes<sup>31</sup> are *literally* forms of ADR. Norman Balmer defined the basic forms usually contemplated by the term — negotiation, mediation and arbitration.<sup>32</sup> Citing their enormous flexibility, he noted the capacity of ADR to help firms resolve disputes and get on with their businesses. Regarding intellectual property generally, he mentioned that the outcome of disputes can indirectly affect the public and that legislation was needed to ensure that patent disputes could be arbitrated.<sup>33</sup>

As Kantrowitz's proposal has "withered on the vine,"<sup>34</sup> traditional ADR has become increasingly popular.<sup>35</sup> For example, Lubbers noted

<sup>26</sup> See *The Science Court: Reminiscence and Retrospective*, 4 Risk 161, 168 (1993).

<sup>27</sup> See Thomas G. Field, Jr., *Introduction*, 18(4) Idea 1, 2 (1977).

<sup>28</sup> Nov. 29–30 and Sept. 19–21, 1976, respectively.

<sup>29</sup> See, e.g., Field, *supra* note 27, at 3–4 (discussing expanded court review of patent arbitration awards).

<sup>30</sup> See Arthur Kantrowitz, *The Science Court — Another Alternative*, *op cit.*, 61.

<sup>31</sup> E.g., NAS panels or advisory committees. Regarding the latter, see, e.g., Sidney A. Shapiro, *Public Accountability of Advisory Committees*, 1 Risk 189, 190 (raises the problem of entrusting public decisions to private parties).

<sup>32</sup> *Infra* at 147.

<sup>33</sup> See 35 U.S.C. § 294.

<sup>34</sup> *Supra* note 23, at 60.

<sup>35</sup> See, e.g., Thomas G. Field, Jr. & Michael Rose, *Prospects for ADR in Patent Disputes...*, 32 Idea 309 (reports that a larger fraction of patent attorneys favored ADR, particularly mediation, in 1991 than in 1981).

that recent legislation promotes ADR in agencies, themselves a “fourth branch of government” encompassing incredibly diverse and flexible procedures.<sup>36</sup> Yet, *binding* arbitration has little potential: It is one thing to have private neutrals adjudicate patent disputes and quite another to have them ultimately resolve purely public controversies.<sup>37</sup>

In contrast, the potential for mediator-facilitated negotiation has hardly been tapped. For example, Rena Steinzor recounted its novel use to resolve key issues underlying Superfund reauthorization.<sup>38</sup> Major social and economic impacts of that legislation on widely disparate stakeholders made agreement unlikely, but Steinzor described how a skilled mediator was able to secure consensus on most important issues. She suggested that exclusion of public authorities was helpful, if not critical, to candid negotiations. She also related how shared discontent with the federal government had a unifying effect.<sup>39</sup>

### The Science Court Visited and Revisited

Allan Mazur nominated a technical controversy for a “Science Court” experiment<sup>40</sup> — whether trained facilitators convey their own thoughts or those of autistic individuals. After viewing illustrative evidence for opposing sides, no conferee objected.

Scherr also said that rules concerning neutral experts would permit most trial judges to convene mini-science-courts to resolve admissibility issues. However, he speculated that few would have funds — assuming, e.g., that their skepticism could be overcome.<sup>41</sup>

Itzak Jacoby spoke perhaps most strongly in support of a “Science Court.” He cited flaws in judicial processes for resolving ever-more-expensive and otherwise difficult decisions about the clinical utility and

<sup>36</sup> *Infra* at 146.

<sup>37</sup> See *supra* note 23, at 51, n. 7; see also, Shapiro, *supra* note 31.

<sup>38</sup> Still, the reauthorization bill (along with many others) did not pass; see, e.g., Paxman, *infra*, at 163.

<sup>39</sup> See Rena I. Steinzor, *The Reauthorization of Superfund: Can the Deal of the Century be Saved?* 25 *Envtl. L. Rep. (Envtl. L. Inst.)* 10,016, 10,021–28 (1995).

<sup>40</sup> He nevertheless reaffirmed his “agnostic” position; see *supra* note 26, at 165.

<sup>41</sup> See also, Maurice Rosenberg, *Improving the Courts’ Ability to Absorb Scientific Information*, in *Science and Technology Advice to the President, Congress, and the Judiciary* 480 (William T. Golden, ed. 1993).

compensability of new medical technologies. Yet, he found such flaws fully matched by shortcomings in scientific and professional fora. He explained how attempts to approximate the "Science Court" at the National Institutes of Health have fallen short<sup>42</sup> and urged tests of a process more faithful to its original tenets.

### Conclusions

Conference discussions were lively, but outright hostility to "Science Court" proceedings was not evident.<sup>43</sup> This may be related to similar procedures having been tried, both here<sup>44</sup> and in Canada<sup>45</sup> — if not with great success, at least without dire consequences. Even so, more is sure to be involved.

For years, I have wondered why people have not experimented more with science-court-type procedures or why patent attorneys who complain about the technical ignorance of judges and juries do not use arbitration. The answers now seem closely related.

As Balmer urges, willingness and ability to settle are critical. On what do those turn? Cost and delay are very important,<sup>46</sup> but other factors may control. Consider, e.g. advantages that parties forego, vis-a-vis less well-heeled opponents, when they agree on submitting to procedures less expensive than litigation. Consider, too, the incentive for those with weak cases to insist on inexpert decisions.

Where Machiavellian motives can play a role, something more than a threat of litigation is needed to encourage ADR.<sup>47</sup> Even when such motives seem unlikely, additional encouragement is needed.<sup>48</sup> For

<sup>42</sup> *Infra* at 139–40.

<sup>43</sup> But two highly skeptical individuals could not attend; *see supra* note 5.

<sup>44</sup> *See, e.g.,* Sidney A. Shapiro, *Scientific Issues and the Function of Hearing Procedures: Evaluating the FDA's Public Board of Inquiry*, 1986 *Duke L.J.* 288.

<sup>45</sup> Conrad G. Brunk, Lawrence Haworth & Brenda Lee, *Value Assumptions in Risk Assessment: A Case Study of the Alachlor Controversy* (1991) (Haworth attended.)

<sup>46</sup> Field & Rose, *supra* note 35, at 315 (Figure 1).

<sup>47</sup> *See, e.g.,* Phillip Sperber, *Overlooked Negotiating Tools*, 20 *Les Nouvelles* 81 (1985). On agreeing to ADR in patent dispute, he observes, *id.*:

[I]f patent validity or infringement is questionable, why take a chance with an arbitration expert who will know exactly how weak the patent is and how dubious infringement is? It makes sense to take one's chances with a judge inexperienced in the technical and legal aspects involved.

<sup>48</sup> E.g. court-annexed mediation and arbitration, or the kinds of initiatives discussed *infra* by Lubbers.



example, unfamiliarity with a process strongly interferes with its adoption. Attorneys without ADR experience have been found less inclined to use it.<sup>49</sup> Moreover, their inclinations strongly, and negatively, correlate with the amount in dispute.<sup>50</sup>

We should therefore not be surprised that, lacking much if any stake, no conferee objected to Mazur's candidate for a "Science Court" proceeding. Nor need we impugn the motives of those who strongly resisted initially proposed experiments. That procedure was, novel for lawyers, policy makers and scientists alike,<sup>51</sup> and many saw the stakes as very high. No doubt, this has colored the debate ever since.

On reflection, if I were now designing a forum for resolving disputes for which the "Science Court" was proposed, I would choose something more clearly akin to arbitration. Technically- *and* legally-trained advocates would define and refine procedures. They would also *carefully* frame *factual* issues to minimize, if not avoid, giving scientists inappropriate matters to decide and last, but certainly not least, would themselves select panel members. An administrative entity would be helpful but not critical.<sup>52</sup> Proceedings would be public and findings, if warranted, could be subject to regulatory or court review.<sup>53</sup> As stressed by Balmer, flexibility is the hallmark of ADR: Modifications can satisfy varying needs. The biggest problem, as always in public disputes, is: *Who represents "the public"?*<sup>54</sup>

Yet, the bottom line, as I see it, is that those who advance novel processes must start with small stakes.<sup>55</sup> Once bugs are worked out and shibboleths put to rest,<sup>56</sup> the stakes can be raised.




---

<sup>49</sup> Field & Rose, *supra* note 35, at 320.

<sup>50</sup> *Id.* at 321.

<sup>51</sup> *Id.* at 324.

<sup>52</sup> See, e.g., Richard M. Reilly, *The Administrative Machinery of the American Arbitration Association*, 18(4) *Idea* 23, 25 (1976).

<sup>53</sup> See *supra* note 29; see also Rosenberg, *supra* note 41, at 481-2.

<sup>54</sup> See, e.g., *Goyan v. Pacific Legal Foundation*, 664 F.2d 1221 (4th Cir. 1981). See also, *supra* note 12 and accompanying text.

<sup>55</sup> Yet, the stakes cannot be too small, or tests will be useless. This is related to court demands for cases or controversies; see U.S. Const., art. III, § 2.

<sup>56</sup> See also, Field & Rose, *supra* note 35, at 321.