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JUNK SCIENCE - THE LAWYER'S ETHICAL RESPONSIBILITIES

Dick Thornburgh

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The following offers some observations designed to advance the cause of resolving the dilemma presented to judges and lawyers alike by the escalating concern over "junk science" in our nation's courtrooms.

Nowhere has this phenomenon been more starkly, or sadly, described than in a recent *New York Times* review of a television documentary on women affected by breast cancer:

They are convinced that they were poisoned by their toxic environment. . . . Are crops sprayed with pesticides? Well, then of course pesticides caused breast cancer. Do we use electricity? Well, of course electromagnetic fields caused breast cancer. How about those plastics we use with such abandon? Once again, the women hear, those plastics contain chemicals that can cause breast cancer.\(^1\)

The reviewer described the women interviewed as "far removed from the universe of scientists and others who make distinctions between hypotheses and evidence, who believe that speculation is not proof and that when evidence fails to support a hypothesis, the hypothesis should be abandoned."\(^2\)

Broadly speaking, I hold that "junk science" in the courtroom emanates from testimony by expert witnesses hired not for their scientific expertise, but for their willingness, for a price, to say whatever is needed to make the client's case. Put simply, I believe that it is unethical lawyers who are largely to blame for introducing, or, in settlement negotiations, threatening to introduce this so-called "expert" testimony. As one commentator noted, "lawyers casting about for new theories to use to sue manufacturers of

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* Former Attorney General of the United States; Counsel, Kirkpatrick & Lockhart LLP. This article is based on an address given at Fordham University School of Law on Tuesday, October 21, 1997.

2. *Id.*
drugs, medical devices and other products create a limitless demand for junk science.\(^3\)

A recent example of this phenomenon was reported on the front page of the *New York Law Journal* in September 1997.\(^4\) Within days of the withdrawal of weight reduction medications Fen-Phen and Redux from the market, lawyers across the country were in court seeking damages and simultaneously placing ads in newspapers in search of plaintiffs.\(^5\) By mid-November, at least three nationwide and more than two dozen statewide class action suits, as well as hundreds of individual cases and a shareholder suit were pending.\(^6\)

As the litigation explosion expands in this country, junk science is producing "junk law" that is pervading our courtrooms. The ultimate victims are America's workers and consumers through the increased costs, diminished innovation opportunities, and foregone product availabilities imposed on enterprises engaged in scientific research and development and product manufacturing.

As pointed out in the recent best-seller, *Science on Trial*, by Dr. Marcia Angell, the Executive Editor of the *New England Journal of Medicine*, breast implant litigation, threatening the existence of breast implant manufacturers and other suppliers, is but the most prominent of the abounding examples of this phenomenon.\(^7\) In 1992 the Food and Drug Administration ("FDA") imposed a mora-

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5. See id.

6. Mark Hansen, *Fen-phenomenal Tort Battle Brewing*, 84 A.B.A. J., Jan. 1998, at 24. This issue of the *ABA Journal* also reports on law suits by health care workers against the latex glove industry. Mark Hansen, *Wheeze, Sneeze . . . 'Scalpel, Please': Health Care Workers Alleges Latex Gloves Cause Severe Allergic Reaction*, 84 A.B.A. J., Jan. 1998, at 25. As of mid-November 1996, more than 200 lawsuits relating to latex allergies had been filed in state and federal court and have been consolidated for discovery purposes in United States District Court in Philadelphia. *See id.* The plaintiffs, nurses and doctors, allege that they have developed a "severe allergic reaction" to latex due to continued exposure through use of latex gloves. *Id.* They further allege that the latex glove makers were aware that continued exposure would cause such severe allergies, yet they did nothing to make a safer glove. *See id.* The latest research, an epidemiological study conducted by the National Center for Health Statistics, shows that there is no causal connection between working in the health care industry and latex sensitivity. *Id.* The National Center for Health is a federal, nonpartisan agency and the study is the largest epidemiological study on the subject ever done. *See id.* This is yet another apparent example of junk science litigation.

torium on the sale of silicone gel breast implants and subsequently restricted the sale and use of the implants. Deluged with lawsuits, Dow Corning, the implant makers, entered into bankruptcy in 1995. Reliable epidemiological data, however, has since demonstrated that silicone breast implants do not cause the maladies they were alleged to cause in the myriad lawsuits brought by women implanted with them. In her book, Dr. Angell argues that the breast implant litigation has threatened the entire industry of medical devices, as well as an important area of medical research — epidemiological studies.

The classic example of this phenomenon was the Bendectin litigation. Faced with claims that the anti-nausea drug Bendectin caused defects in fetuses, Merrell Dow Pharmaceuticals was forced to withdraw this drug from the market despite the lack of evidence demonstrating such a causal connection. Indeed, although Bendectin litigation had been pending in the courts for over a decade, the United States Court of Appeals for the Ninth Circuit noted:

the only review plaintiffs' experts work has received has been by judges and juries, and the only place their theories and studies have been published is in the pages of the federal and state reporters. . . . Despite the many years the controversy has been brewing, no one in the scientific community — except defendant's experts — has deemed these studies worthy of verification, refutation, or even commentary. It's as if there were a tacit understanding within the scientific community that what's going on here is not science at all, but litigation.

Another recent target of junk science litigation is the contraceptive device Norplant. An avalanche of lawsuits has been brought by many of the same lawyers who engaged the makers of silicone breast implants. In addition, many of the same medical "experts" and laboratories that prospered from the breast implant litigation are assisting these lawyers in bringing suits against the makers of Norplant. Norplant entered the United States market in 1991, after thirty years of development and testing, and has been used by

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8. See id. at 99-103, 110, 195-96; see also Junk Science, supra note 3 at 398.
9. See id. at 84-87.
about one million American women.\textsuperscript{14} Approximately 50,000 women have sued the company’s manufacturer, alleging that it failed adequately to warn users of side effects like headaches, weight gain, ovarian cysts, and depression.\textsuperscript{15} A total of 2800 lawsuits are now pending in just one federal court in Texas.\textsuperscript{16}

The Texas Supreme Court was obliged to delay lawsuits that were set for trial while it ruled on defendant’s motion to disqualify plaintiffs’ lawyers for hiring a paralegal who used to work for the defense and for paying an expert $10,000 to switch sides.\textsuperscript{17} Despite extensive litigation and media coverage, the FDA and physician groups still insist the product is safe. Sales, nonetheless, have dropped dramatically — from $141 million in its first full year on the market to $3.7 million last year.\textsuperscript{18}

Junk science is made possible in part by so-called “experts” who will testify to any theory the lawyer wants for a price. A look at the classified section of any legal publication will produce samples of a whole industry of “experts” advertising their abilities to provide a wide range of expert testimony. Many of them get right to the point, highlighting jury awards or settlement amounts gained as a result of their testimony. One of the largest expert witness referral services maintains a list of 24,000 experts in 5500 fields. Their business is litigation, not science. Their motivation raises serious questions about the use of expert testimony generally. Are these experts really seeking to assist the trier of fact, or are they hired guns aiming at a pre-determined result?

At the turn of the century, Judge Learned Hand was among the first to raise issues regarding the role of expert testimony, questioning an expert’s ability to give an unbiased opinion when he is being liberally paid to defend one side to a dispute.\textsuperscript{19} Judge Hand also questioned a jury’s ability to decipher and resolve conflicting expert testimony. As he observed, “the whole object of the expert is to tell the jury, not facts, . . . but general truths derived from his specialized experience. But how can the jury judge between two statements each founded upon an experience admittedly foreign in kind to their own? It is just because they are incompetent for such

\textsuperscript{14} Court Delays Trial’s Start in Norplant Case, Hous. Chron., Aug. 9, 1997, at 35.
\textsuperscript{15} See id.
\textsuperscript{16} See id.
\textsuperscript{17} See id.
\textsuperscript{18} See id.; see also Naomi Freundlich, Science & Technology: Contraceptives, Bus. Wk., June 16, 1997, at 142.
\textsuperscript{19} See Billings Learned Hand, Historical and Practical Considerations Regarding Expert Testimony, 15 Harv. L. Rev. 40, 53-54 (1901).
a task that the expert is necessary at all." No better example of this quandary is presented than in *Daubert*, where the defense expert pointed out that none of the published literature examining a potential causal relationship between prenatal ingestion of Bendectin and birth defects found the product to cause birth defects. In response, plaintiffs presented eight experts who concluded that Bendectin can cause birth defects on the basis of animal studies, in vitro experiments, chemical structure analysis, and "re-analysis" of previously published studies. How is the ordinary lay juror to handle these diametrically opposed conclusions?

How, we might better ask, has this challenge been handled by the courts?

I. Judicial Responses to Expert Testimony

For the most part, judicially-administered evidentiary standards have been the only means — albeit highly imperfect ones — of excluding junk science from the courtroom. The standard of admissibility for expert testimony was first formulated over seventy years ago in *Frye v. United States*. *Frye* was the first case to hold that scientific evidence should be treated differently from any other evidence. The case involved a criminal matter, where a defendant charged with murder wanted to introduce the use of a new systolic blood pressure test to show that he was telling the truth. The court excluded the evidence, finding that the expert testimony was based on a principle not "sufficiently established to have gained general acceptance in the particular field in which it belongs." The *Frye* rule, in what has come to be known as the "general acceptance" standard, required expert testimony based on novel scientific evidence to have gained "general acceptance" by a large scientific group.

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20. Id. at 54.
22. See *Daubert*, 509 U.S. at 583-84.
25. See *Frye*, 293 F. at 1013-14.
26. Id. at 1014.
In 1975, Congress enacted the Federal Rules of Evidence. Rule 702 governs the admission of expert testimony and, in sharp contrast to the Frye rule, provided that: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise." The Rules do not make any specific mention of Frye, and, in light of their more permissive attitude toward the admission of evidence generally, courts and scholars alike questioned whether the strict Frye test still survived. Under this new standard, some courts undertook to consider whether particular expert testimony was reliable. Others just questioned its relevance. And still others continued to apply Frye. Critics complained that some judges were imposing "no meaningful check on science in the courtroom" and were permitting experts "to testify to almost any claim regardless of the weight of contrary opinion," thus, increasingly relying on "junk science."

The United States Supreme Court granted certiorari in Daubert v. Merrell Dow Pharmaceuticals to resolve some of the issues regarding the judicial standard for admission of scientific evidence. As noted, the plaintiffs in this case were children who were born with birth defects and whose mothers had taken the anti-nausea drug Bendectin during their pregnancies. Plaintiffs sought to admit scientific evidence to support their claim that the drug caused the children's birth defects. The district court and the Ninth Circuit Court of Appeals excluded plaintiffs' expert's testimony because it did not satisfy the Frye test and granted summary judgment in favor of the defendant manufacturer.

The Supreme Court reversed and held that the general acceptance test in Frye was at odds with the "liberal thrust" of the Federal Rules of Evidence, and had thus been superseded. Instead, the Court explained, Rule 702 required federal trial judges to make

28. See id. at 528.
29. FED. R. EVID. 702.
30. See Congressional Action to Amend Rule 702, supra note 27, at 529-30.
31. See id.; see also Improving Judicial Gatekeeping, supra note 24, at 944; Congressional Action to Amend Rule 702, supra note 27, at 529-30.
32. Improving Judicial Gatekeeping, supra note 24, at 944.
35. See Daubert, 509 U.S. at 588.
a "preliminary assessment" as to both the reliability and relevance of the scientific testimony offered.\textsuperscript{36} To satisfy the reliability prong, the Court explained that a trial judge must find the subject of the expert’s testimony to be "scientific knowledge." The Court offered a list of four, non-exhaustive factors or "general observations" for the trial judge to consider in determining whether the testimony was reliable scientific knowledge: (1) whether the theory or technique can be, or has been, tested; (2) whether it has been subjected to peer review and publication; (3) the known or potential rate of error; and (4) the degree to which the theory or technique is widely accepted in the scientific community.\textsuperscript{37}

On remand in \textit{Daubert}, the Ninth Circuit added a further consideration of its own: Was the evidence proffered by experts developed independent of the litigation, or was it developed solely for purposes of litigation and therefore potentially biased?\textsuperscript{38}

\textit{Daubert} was heralded as the case that would resolve the "junk science" debate.\textsuperscript{39} To date, the case has been cited in at least 730 federal cases, 325 state decisions, and over 1000 law review articles.\textsuperscript{40} A quick review of some of these materials, however, makes it clear that the "junk science" debate, and indeed the application of the \textit{Daubert} case itself, is far from settled.

Chief Justice Rehnquist and Justice Stevens warned of such difficulties in their concurrence in \textit{Daubert}.\textsuperscript{41} They agreed that \textit{Frye} had been superseded by the enactment of the Federal Rules of Evidence, but criticized the majority for providing a list of "general observations" to further guide district courts.\textsuperscript{42} Because the Court was not applying these factors to decide whether any particular evidence was admissible, the concurrence argued that the list would give little more than "vague and abstract" guidelines to the district courts.\textsuperscript{43} They also criticized the way in which the majority required that trial judges make a preliminary assessment as to whether scientific evidence is reliable: "Questions arise simply from reading this part of the Court's opinion, and countless more

\begin{itemize}
\item \textsuperscript{36} See \textit{id.} at 592-93.
\item \textsuperscript{37} \textit{Id.} at 593-94.
\item \textsuperscript{38} See \textit{Daubert v. Merrell Dow Pharm. Inc.}, 43 F.3d 1311, 1317 (9th Cir. 1995).
\item \textsuperscript{40} See \textit{Critical Examination}, supra note 39, at 227.
\item \textsuperscript{41} See \textit{Daubert}, 509 U.S. at 598.
\item \textsuperscript{42} \textit{Id.}
\item \textsuperscript{43} \textit{Id.}
\end{itemize}
questions will arise when hundreds of district judges try to apply its teaching to particular offers of expert testimony."

Finally, the concurrence questioned the extent to which federal judges would now, under the dictates of Daubert, be faced with "either the obligation or the authority to become amateur scientists."\(^4\)

II. Review of the Law Under Daubert

Just as the Daubert concurrence predicted, federal courts have been confronted with seemingly endless questions as they struggle to determine what evidence is admissible under the rules articulated in Daubert.\(^5\)

Consider, for example, the question of whether courts should hold hearings (under Federal Rule of Evidence 104(a)) as part of their "preliminary assessment" of the proffered evidence.\(^6\) Any such hearing, as one commentator noted, is really a "win-win" situation for defendants since extended hearings can drain plaintiffs' resources and result in plaintiffs' loss of a key expert.\(^7\) The Ninth Circuit has held that district courts are not required to hold such hearings.\(^8\) That Court also requires a party challenging scientific evidence to make a prima facie case showing that the expert failed to follow accepted scientific methodology or reasoning before it will proceed with any kind of Rule 104(a) hearing.\(^9\) The Third Circuit, on the other hand, has created something of a "cottage

\(^{44}\) Id. at 600.

\(^{45}\) Id. at 600-01.

\(^{46}\) See District Judge Takes Issue With Circuit Court's Application of Gatekeeping Role, Federal Discovery News, Aug. 1997, at 4 (discussing Hon. Sam C. Pointer, Jr.'s comments on Daubert at a July ALI-ABA conference) [hereinafter Federal Discovery News].

\(^{47}\) Federal Rule of Evidence 104 (a) provides:

*Questions of admissibility generally: Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court, subject to the provisions (b). In making its determination it is not bound by the rules of evidence except those with respect to privilege."

*Relevancy conditioned on fact. When the relevancy of evidence depends upon the fulfillment of a condition of fact, the court shall admit upon it, or subject to, the introduction of evidence sufficient to support a finding of the fulfillment of conditions.*

\(^{48}\) See Emerging Law, supra note 39, at 390-91.


\(^{50}\) See Hopkins, 33 F.3d at 1124.
industry” out of Daubert hearings. In one case, for example, a court in that circuit scheduled most of one month and part of two other months for the preliminary assessment alone.

Consider, also, the extent to which judges are indeed becoming “amateur scientists,” as the Daubert concurrence predicted. Different circuits seem to look differently at how deeply they should probe in determining whether an expert’s testimony is admissible under Daubert. Must a court, after Daubert, simply consider the type of scientific data and methodology used by the expert? Or must the court go further and inquire into the reliability of specific data or procedures used by the expert? Must a court now reject expert testimony if it finds that the data or implementation of the methodology in that particular instance was unreliable?

The Third Circuit says yes. In the Paoli II litigation, where plaintiffs who lived near a rail yard alleged that they were exposed to and injured by PCBs, the district court engaged in a five-day hearing and extensive analysis to determine the admissibility of certain evidence. That court added three criteria in addition to the four proposed in Daubert and left open the possibility that other factors could be relevant. As part of its inquiry, the Third Circuit considered whether the methodology used was scientific and whether that methodology was used in an unobjectionable manner. It excluded some testimony because it determined that cer-

51. See Emerging Law, supra note 39, at 388-89 (discussing In re Paoli R.R. Yard PCB Litigation II, 35 F.3d 717 (3d Cir. 1994), cert. denied, 513 U.S. 1190 (1995) and subsequent district court holdings in that circuit). The author states that “in effect, the courts in the Third Circuit now appear to be creating a second trial, complete with witnesses and cross-examination, and lasting sometimes for weeks, just to decide the question of whether experts should be allowed to testify at the real trial.” Id. at 389.

52. See id.

53. See id. at 394-408.

54. See id.

55. PCBs is an acronym for polychlorinated biphenyls.

56. See In re Paoli Railroad Yard PCB Litigation, 35 F.3d 717, 742 & n.8 (3d Cir. 1994) (ruling that district courts should take into account factors set forth in United States v. Downing, 753 F.2d 1224, 1238-39 (3d Cir. 1985), in addition to factors set forth in Daubert), cert. denied, 513 U.S. 1190 (1995). The court advised that factors deemed important by Daubert and Downing include the following:

(1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique’s operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; (8) the non-judicial uses to which the method has been put.

Paoli, 35 F.3d at 742 n.8.

57. See id. at 777-78.
tain protocol and quality control techniques had not been undertaken by the laboratory.\textsuperscript{58}

Other circuits would answer the question differently. The Second Circuit, for example, has held that disputes about whether an expert correctly employed a particular scientific methodology should be left to the jury.\textsuperscript{59} These disputes, and others concerning the strength of an expert's credentials or the lack of textual authority for an expert's opinion, should (according to the Second Circuit) be "explored on cross-examination" because those issues go to the weight or credibility of the expert's testimony, not its admissibility.\textsuperscript{60} The Eleventh Circuit interpreted \textit{Daubert} as "loosen[ing] the strictures of \textit{Frye} and mak[ing] it easier to present legitimate conflicting views of experts for the jury's consideration."\textsuperscript{61}

The Supreme Court recently reversed the Eleventh Circuit's decision in \textit{Joiner v. General Electric Company}, resolving a split in the circuit courts of appeal regarding the appropriate standard of review for expert testimony.\textsuperscript{62} In \textit{Joiner}, the Eleventh Circuit overruled a district court's exclusion of expert testimony and restored plaintiff's claim that his exposure to PCBs and other chemicals caused or helped to "promote" his lung cancer. (The plaintiff had been a smoker for eight years, his parents had both been smokers, and his family had a history of lung cancer.)\textsuperscript{63} Applying what it described as "\textit{Daubert}'s lower threshold" and a "particularly stringent" standard of review, the court emphasized the limited nature of its "gatekeeping role."\textsuperscript{64} The circuit court explained that the role of the gatekeeper was only to "guard the jury from considering as proof pure speculation presented in the guise of legitimate scientifically based expert opinion. It is not intended to turn judges into jurors or surrogate scientists."\textsuperscript{65} The court further opined that the

\textsuperscript{58} See id.
\textsuperscript{59} See McCullock v. H.B. Fuller Co., 61 F.3d 1038, 1043-44 (2d Cir. 1995).
\textsuperscript{60} Id. at 1043.
\textsuperscript{62} Six circuits apply a "manifestly erroneous" standard; four circuits apply an abuse-of-discretion standard; and two circuits apply the "particularly stringent" standard discussed in \textit{Joiner}, 78 F.3d at 529 (11th Cir. 1996), \textit{rev'd}, 118 S. Ct. 512 (1997). See \textit{David L. Faigman et al., 1 Modern Scientific Evidence § 1-3.5} (1997).
\textsuperscript{64} See \textit{Joiner}, 78 F.3d at 529-30.
\textsuperscript{65} Id. at 530.
trial court should leave it to the jury "to decide the correctness of competing expert opinions."  

The Supreme Court reversed, applying the abuse of discretion standard in reviewing the trial court's decision and concluding that the trial court did not abuse its discretion in excluding the expert testimony. The Court ruled that "[t]he [animal] studies were so dissimilar to the facts presented in this litigation that it was not an abuse of discretion for the District Court to have rejected the experts' reliance on them." The Court also upheld the district court's conclusion that "the four epidemiological studies on which respondent relied were not a sufficient basis for the experts' opinions."  

Citing Daubert's language that the "focus . . . must be solely on principles and methodology, not on the conclusions that they generate," the respondent argued that the district court erred in focusing on the conclusions of the experts rather than the methodology. The Court in Daubert, however, did not provide much guidance regarding the distinction to be made between methodology and conclusion. In Joiner, the Court stated,

But conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the ipse dixit of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.

In other words, trial courts may focus on the conclusions of the experts in determining whether the data actually supports the conclusion. Thus, the ambiguity in Daubert, which on the one hand stressed the gatekeeping role of the trial judge, and on the other hand the "liberal thrust" of the evidentiary rules and the call for juries to resolve evidentiary disputes, was clarified in Joiner. The Court in Joiner reemphasized the importance of the trial judge’s role as gatekeeper.

66. Id. at 533.
67. See Joiner, 118 S. Ct. at 516.
68. Id. at 518.
69. Id.
70. See id. at 519 (quoting Daubert v. Merrell Dow Pharm., 509 U.S. 579, 595 (1993)).
71. Id.
72. See Daubert, 509 U.S. at 588, 597.
Presently, there are bills pending in Congress that propose amendments to Federal Rule of Evidence 702 relating to the admissibility of scientific evidence. These proposals would add a presumption of inadmissibility of such evidence, and, incidentally, would disqualify an expert witness whose compensation is contingent on the outcome of the case, a most salutary suggestion.

Critics, like Judge Ralph K. Winter of the Court of Appeals for the Second Circuit, complain that the bills do not accurately codify the decision in Daubert. Another commentator remarked that the amendment would improperly take away the jury’s responsibility to decide right and wrong, scientific truth and scientific falsity, and gives it “to a handful of government officials appointed for life.” This critic further observed that the attempted codification, captioned, felicitously, the “Honesty in Evidence Act,” would “be a wonderful lawyers’ full employment act for lawyers paid by the hour who will litigate for the next ten years over whether or not Congress was codifying the Daubert opinion.” One supporter praises the bill for ensuring “that the science that jurors and judges hear in a courtroom is not inferior to the science that scientists and researchers hear at their professional meetings.” He also notes that it is unlikely that the average juror will comprehend weaknesses in expert testimony brought out during cross examination.

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Rule 702 of the Federal Rules of Evidence is amended... by adding at the end the following: (b) Adequate basis for opinion. Testimony in the form of an opinion by a witness that is based on scientific knowledge shall be inadmissible in evidence unless the court determines that such opinion is - (1) based on scientifically valid reasoning; and (2) sufficiently reliable so that the probative value of such evidence outweighs the dangers specified in rule 403.

(c) Disqualification. Testimony by a witness who is qualified as described in subsection (a) is inadmissible in evidence if such witness is entitled to receive any compensation contingent on the legal deposition of any claim with respect to which such testimony is offered.
76. Id.
78. See id.
This review of the law under *Daubert*, and most recently *Joiner*, is certainly not intended to be exhaustive, but is meant to highlight the types of questions that courts continue to face when confronted with proffers of expert testimony. This analysis is also to dispel any notion that *Daubert* really did decide the junk science debate.

III. The Lawyer’s Role

It is abundantly clear that lawyers cannot hide behind the guise of *Daubert* and contend that there is no need for further thought or debate about the proper use and role of junk science in our courtrooms. Instead, I suggest that it is time for lawyers to confront their own obligations in bringing this “expert” testimony to the courts in the first place.

We have discussed the role of the expert, the jury, the judge; but what is, or what should be, the lawyer’s role? *Daubert* may provide some guidance as to what expert testimony will or will not be accepted by courts, but it surely does not provide all the answers. Consider the following example, the facts of which are taken from an actual case in the Sixth Circuit. Plaintiff alleged that use of the drug Ritodrine caused plaintiff’s cardiomyopathy.79 One year before trial, plaintiff’s only causation expert opined that it was “least likely and least provable from a scientific standpoint” that the cardiomyopathy was caused by use of Ritodrine.80 On the eve of his testimony, however, the same expert informed plaintiff’s counsel that he had “moved up” his hypothesis to a more likely explanation based on subsequently discovered literature. The expert informed the lawyer that he was now prepared to testify that Ritodrine had a direct toxic effect on the plaintiff’s heart condition.81

Should plaintiff’s lawyer have proceeded with the case knowing, up until the eve of testimony, that his own “expert” believed that it was “least likely and least provable” that the drug caused the heart ailments? If so, how should the lawyer have proceeded when the expert suddenly changed his opinion? It turned out, in this (pre-*Daubert*) case, that the district court and the Sixth Circuit rejected defendant’s claim that the expert’s testimony was “junk science” and, surprisingly, allowed the testimony.82 This sort of result only

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80. Id. at 540.
81. See id.
82. Id. at 533-34.
compounds the lawyer's dilemma: should he, as a zealous advocate, simply try to introduce any evidence that would advance his client's claims? In short, what, if any, obligation does the lawyer have to scrutinize the expert testimony he seeks to admit?

It is clear that the lawyer does have a duty to determine whether he believes expert testimony will be admissible before trying to introduce such evidence in court. This duty arises both out of the lawyer's ethical obligation to represent a client zealously and his obligation to represent a client within the bounds of the law. To be an effective advocate, the lawyer must vigorously prepare for the presentation of facts and law and, in doing so, needs to test the accuracy and reliability of any testimony, including expert testimony, he wishes to introduce. At the same time, as an officer of the court, the lawyer has a duty to the adversarial system of justice not to introduce frivolous or unreliable expert testimony.

As the Model Code of Professional Responsibility declares,

the advocate, by his zealous preparation and presentation of facts and law, enables the tribunal to come to the hearing with an open and neutral mind and to render impartial judgments. The duty of a lawyer to his client and his duty to the legal system are the same: to represent his client zealously within the bounds of the law.

The partisan striving of an advocate is not compromised by a lawyer's duty of complete candor and loyalty to the legal system. The Supreme Court of the State of Washington recognized this notion in stating: "Vigorous advocacy is not contingent on lawyers being free to pursue litigation tactics that they cannot justify as legitimate. The lawyer's duty to place his client's interests ahead of all others presupposes that the lawyer will live with the rules that govern the system." Essentially, under this court's analysis, a lawyer's duty to scrutinize (and perhaps withhold) his own expert's testimony goes hand-in-hand with other obligations the lawyer owes to his client.

In this light, my thesis — that a lawyer has an ethical duty not to introduce junk science — may not seem so controversial. Ethical issues arise with regard to all strategic decisions made by the advocate in preparing a case for trial, and in conducting a trial. Charles

Wolfram notes in his treatise on legal ethics that "an assumption that underlies the adversarial system is that the mutually contentious strivings of relatively equal advocates will make truth and justice apparent to the judge and, if different, the fact finder." 87

But the lawyer's ethical duty is immeasurably more complex when scientific expert testimony is at issue. The ethical rules recognize that the law is ambiguous, but require that a lawyer must insure there is a good faith basis for the admissibility of evidence prior to introducing such evidence. 88 When scientific evidence is at issue, the lawyer himself must first gain a comprehensive understanding of technical scientific data and methodology in order to make this determination in good faith. The Supreme Court observed in Daubert that, the law must "resolve disputes finally and quickly," while "scientific conclusions are subject to perpetual revision." 89 Science is also, as the Supreme Court recognized, furthered by "broad and wide-ranging consideration of a multitude of hypotheses." 90 Such conjectures, which are a part of the scientific process, are of little use to a lawyer who needs to reach a relatively quick, final decision regarding admissibility. 91 In the face of this uncertainty, a lawyer must decide, before he seeks to introduce scientific testimony into evidence, that there is a good faith basis to believe that evidence is reliable scientific evidence.

The Daubert standards do not make this job any easier. District and circuit courts have had trouble applying the Supreme Court's standards or "general observations" in determining what is valid, reliable scientific knowledge. 92 The decision in Joiner has clarified some of the ambiguities in Daubert, but it leaves the question of admissibility up to each trial judge's discretion. This will likely lead to varying standards of admissibility. As yet, there is certainly no consensus among the courts as to what scientific testimony should pass muster under Daubert. Even the Supreme Court in Daubert admitted that, under the standard it established for admissibility, "shaky" scientific evidence could still be admissible. 93

87. See CHARLES W. WOLFRAM, MODERN LEGAL ETHICS 619 (1986).
90. Id.
91. See id. But see In re Breast Implant Cases, 942 F. Supp. 958, 960 (E.D.N.Y., S.D.N.Y. 1996), wherein Judge Weinstein has decided to allow plaintiffs' claims to stay alive rather than "rush to judgment," despite the lack of scientific support, because plaintiffs' scientific evidence "may have the scintilla of plausibility that merits reservation of judgment while evaluation goes forward."
92. See Daubert, 509 U.S. at 593.
93. See id. at 596.
IV. The Lawyer’s Obligations to the Client

Lawyers, therefore, have no clear guidelines on what will, or will not, be deemed admissible scientific expert testimony. If the courts set no clear standards, how, then, should a lawyer define “junk science”? If Daubert acknowledges that “shaky” evidence may be admissible, does this mean that an attorney may, under the good faith standard embodied in the ethical rules, introduce “shaky” scientific evidence? How much time must the lawyer spend in determining whether the evidence constitutes junk science, and who is to be billed for this time?

Judges have acknowledged the daunting task they behold in deciding the admissibility of expert testimony. One judge bluntly stated:

Our responsibility, then, unless we badly misread the Supreme Court’s opinion [in Daubert], is to resolve disputes among respected, well-credentialed scientists about matters squarely within their expertise, in areas where there is no scientific consensus as to what is and what is not ‘good science,’ and occasionally to reject such expert testimony because it was not ‘derived by the scientific method.’

Finally, if, as noted above, the federal courts are applying Daubert differently, it is certain that individual attorneys will also have different interpretations of what constitutes junk science. Will an ethical lawyer who goes up against a less scrupulous advocate be at a disadvantage? If lawyers now undertake the task of screening out junk science, will their clients be deprived of a level playing field? In today’s competitive legal market, will lawyers hold fast to their ethical obligations at the risk of losing business?

Clients should not be underestimated regarding their responsiveness to advice with respect to the long-term costs a particular legal tactic may produce. A relevant ethical obligation of the attorney is to:

exert his best efforts to insure that decisions of his clients are made only after the client has been informed of relevant considerations. . . . In assisting his client to reach a proper decision, it is often desirable for a lawyer to point out those factors which may

94. Daubert v. Merrell Dow Pharm., Inc., 43 F.3d 1311, 1316 (9th Cir. 1995).
95. See MARY ANN GLENDON, A NATION UNDER LAWYERS 84 (1994).
96. See id.
lead to a decision that is morally just as well as legally permissible.97

The report of the Joint Conference on Professional Responsibility remarked, in 1958, that:

[t]he most effective realization of the law's aims often takes place in the attorney's office . . . . Contrary to popular belief, the compliance with the law thus brought about is not generally lipserving and narrow, for by reminding him of its long-run costs the lawyer often deters his client from a course of conduct technically permissible under existing law, though inconsistent with its underlying spirit and purpose.98

It has often been noted that a lawyer's role as advisor to the client is equally important as his role as advocate. The lawyer's ethical obligation would require him or her to counsel the client regarding the dangers of offering junk science into evidence, and the long term costs of such a tactic both to the client's case and to the legal system.

One retort to the proposition that a lawyer has an ethical obligation to refrain from introducing junk science is that the adversary system is designed to weed out unreliable evidence. As noted, the Supreme Court reiterated this observation in Daubert, in stating that “[v]igorous cross examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means” of preventing the consideration of junk science.99 Aren't motions in limine, objections, and cross-examination sufficient to protect the court process from junk science? Why should the lawyer advocating the position have to do his adversary's job by refraining from introducing evidence which is questionably reliable? Similar questions have been raised by Judge Sam Pointer, who has been charged with supervising the thousands of nationwide silicone breast implant lawsuits. In remarking on the judge's role as gatekeeper, Judge Pointer commented that, in the absence of a sufficiently strong basis or argument by an objecting party to the expert's opinion, trial judges should not be required to


99. DABERT, 509 U.S. at 596.
automatically resolve issues regarding the admissibility of scientific evidence.\textsuperscript{100}

There are certain problems with this argument in the context of a lawyer's obligations. One major problem with relying on the protections of the adversary system is that many times discussions take place during settlement negotiations, where the natural boundaries of the adversary system are not present. Lawyers can gain bargaining power by threatening to introduce junk science through qualified expert testimony. Take the example of the breast implant litigation. Dow Corning, the breast implant maker, agreed to a $4.25 billion class action settlement in 1994 (including $1 billion earmarked for lawyers) and filed for bankruptcy a year later. The manufacturer agreed to these concessions even though there had been no scientific evidence showing a causal connection between immune system disorder and silicone gel implants.\textsuperscript{101} Some say that the settlement has fallen apart, however, because Dow Corning has been winning lawsuits in the wake of the \textit{Daubert} decision.\textsuperscript{102} If such is so, in the settlement context, the adversary system is not sufficient to protect against the consideration of junk science. A lawyer's adherence to his ethical obligations, however, would help to prevent junk science from being improperly used as a sword in settlement negotiations.

Another issue to consider is whether the lawyer, as a gatekeeper of sorts, can help to prevent junk science from pervading our courtrooms. And here we are not talking just about claims bottomed on theories of astrology, numerology, or phrenology. Assume you are faced with a highly qualified expert with excellent credentials who is willing to testify in support of the proposition you are advocating. In your investigation, you discover that the vast weight of authority runs contrary to your expert's testimony. You have a good faith basis to believe it could be admissible, however, based on the expert's qualifications. Do your ethical obligations require you to refrain from introducing this evidence? At least one ethics expert has said "no." Professor Geoffrey Hazard has opined that, even if an attorney is aware that an expert's views are not respected by his

\textsuperscript{100} See \textit{Federal Discovery News}, \textit{supra} note 46, at 4.
\textsuperscript{101} \textit{Angell}, \textit{supra} note 7, at 57-61, 99-103, 195-96.
or her colleagues in the field, hiring such an expert is not unethical.\textsuperscript{103} Taking this hypothetical case further, assume that the evidence is admitted and you win the case. What if you later discover that the "scientific expert" whose testimony you introduced was actually a charlatan who testified to nothing more than junk science? Just as a criminal defense lawyer who learns after a trial that his client lied on the stand must report the perjury to the tribunal, a lawyer who later discovers his expert was a quack should report this information to the court.\textsuperscript{104} The disciplinary rules require that a lawyer promptly disclose instances where "[a] person other than the [lawyer's] client has perpetrated a fraud upon a tribunal."\textsuperscript{105}

In this hypothetical case, an attorney's ethical obligations would not be enough to prevent the admission of junk science. If, in addition to acting as gatekeeper, an attorney were to be held accountable for introducing evidence that later turns out to be junk science, attorneys would be less likely to risk the introduction of junk science. To the extent that it is discovered before the conclusion of proceedings that certain evidence presented was, in fact, junk science, the offering attorney could be sanctioned pursuant to Rule 11.\textsuperscript{106} In this regard, one observer goes so far as to suggest that "[i]f the individual scientist in fact presents views that have not


\textsuperscript{104}. See Model Code of Professional Responsibility, DR 7-102(A)(6) (1981) (in his representation of a client, a lawyer shall not "participate in the creation or preservation of evidence when he knows or it is obvious that the evidence is false"); Model Rules of Professional Conduct, Rule 3.3 (1983). See also, \textit{Wolfram}, supra note 87, at 657-60.

\textsuperscript{105}. \textit{MODEL CODE OF PROFESSIONAL RESPONSIBILITY} DR 7-102(B)(2)(1996).

\textsuperscript{106}. Rule 11 of the Federal Rules of Civil Procedure:

\begin{quote}
(b) By presenting to the court (whether by signing, filing, submitting, or later advocating) a pleading, written motion, or other paper, an attorney or unrepresented party is certifying that to the best of the person's knowledge, information, and belief, formed after an inquiry reasonable under the circumstances, — . . .(3) the allegations and other factual contentions have evidentiary support or, if specifically so identified, are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery
\end{quote}

\textit{FED. R. CIV. P. 11.}

Rule 11 only applies:

- to assertions contained in papers filed with or submitted to the court. It does not cover matters arising for the first time during oral presentations to the court, when counsel may make statements that would not have been made if there had been more time for study and reflection. However, a litigant's obligations with respect to the contents of these papers are not measured solely as of the time they are filed with or submitted to the court, but include
been derived, shared or checked by other scientists, there is a subtle but serious problem of misrepresentation." 107 There are bills pending in Congress pushing amendments to Rule 11, proposing that its sanctions be made mandatory. 108

V. Solutions

Are there other alternatives? Judge Hand, who as you may recall had great distrust about the jury's ability to sort through complex and conflicting expert testimony, 109 proposed that a court-appointed board of experts or advisory tribunal hear the expert evidence and then advise the jury. 110 A similar suggestion is made by Dr. Marcia Angell, a non-lawyer and the author of the book Science on Trial, 111 which discusses the clash of medical evidence and the law in the breast implant case. Judge Pointer, as part of his supervision of the breast implant suits, has recently followed Judge Hand's advice and has convened a panel of four independent experts to evaluate the current evidence regarding the causal connection between silicone and immune system disorder. 112 In so doing, Judge Pointer is seen as "turning over science decisions to the scientists." 113 Is he providing an easy out for attorneys, or does his answer just beg the question as to the lawyer's own ethical obligations?

Justice Stephen Breyer, in his concurring opinion in Joiner, makes the case for this approach, citing Federal Rule of Evidence 706 and the availability of expert assistance from organizations such as the National Academy of Sciences and the American Association for the Advancement of Science.

Given the current state of the law, there may be no pat answer for today's litigators. It is no longer sufficient to cite the advice of that great New York lawyer, Elihu Root, who once opined: About

reaffirming to the court and advocating positions contained in those pleadings and motions after learning that they cease to have any merit.

Id. at Rule 11 (advisory committee notes). In the case of junk science, it is arguable that Rule 11 is violated by an attorney who files a complaint which is based entirely on junk science.

109. See supra text accompanying notes 18-19.
110. See Hand, supra note 19, at 56-58.
111. See supra note 7.
113. Id.
half of the practice of the decent lawyer consists in telling would-be clients that they are damned fools and should stop. The rush of science and technology and post-Daubert confusion in the courts have robbed this admonition of much of its worth when it comes to claims based on scientific evidence.

I am bold to suggest, however, that there is a workable tripartite framework within which to approach the dilemma of the attorney in dealing with his obligations to the court and to his client in such cases. First, is the full recognition of the lawyer's professional obligation to carefully scrutinize the integrity of his own expert's proposed testimony within the limits of his capacity and resources? Second, is the concern legitimate that his opponent will perform a similar examination of the proposed evidence, keeping in mind the availability of Rule 11 sanctions as an inducement to oblige that he present only bona fide expert scientific theories in his case? Finally, as a cap to this process, the court should always reserve the right to refer disputes over alleged "junk science" to an independent panel of experts, not to decide the question in controversy, but to assess the quality of the expertise as required under the "gatekeeping" regimen of Daubert.

My own view, I must admit, is more tilted toward the solutions put forward by Judge Hand and Dr. Angell, but I recognize the commitment, long a part of our jurisprudence, to the sanctity of the jury, not the expert, as the ultimate finder of fact. This task is not eased by the following notation by the Supreme Court in Daubert: "There are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly."

What is required, I suggest, to best fulfill this task is that lawyers from both sides of a particular case, the judge and the experts, begin to take their obligations to juries and to the legal system, within which they all operate, much more seriously. In an era of vast and rapid scientific and technological advances, this is a necessary burden to be borne by all involved in advancing and preserving the rule of law.

114. PHILIP C. JESSUP, ELIHU ROOT 1845-1909 133 (1938).
115. Daubert, supra note 89.