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# ARTICLES

# The Courts, *Daubert*, and Environmental Torts: Gatekeepers or Auditors?

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## Introduction

In *Daubert v. Merrell Dow Pharm., Inc.*,[1] the Supreme Court declared that admissibility of an expert opinion is not to be determined by whether the opinion had been generally accepted, but instead on whether the expert used scientific methodologies and principles in reaching the opinion, and whether the opinion offered was relevant to the question presented. This case unleashed the floodgates of motion practice related to the admissibility of expert testimony. By the end of 1996, *Daubert* had been cited in 527 federal cases, 256 state cases, and 362 law review articles and notes.[2] Countless seminars have addressed the question of the post-*Daubert* admissibility of expert testimony, and speakers at virtually every forum that addressed litigation felt compelled to mention, if not expound upon, *Daubert* and its implications.

In 1994, the Federal Judicial Center shifted into high gear and produced a Reference Manual on Scientific Evi-

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1. 43 F.3d 1311 (9th Cir. 1995).

2. *See id.* at 1318 n.10.

dence[3] which included articles designed to help judges understand scientific intricacies. Additionally, this Reference Manual included an Evidentiary Framework section written by Professor Margaret A. Berger, which explained the *Daubert* holding and how it should be applied.[4] Regrettably, judging by the decisions of courts that faced *Daubert* challenges, both the *Daubert* opinion and all its subsequent analysis have only produced more confusion and delay, instead of clarifying the issues and expediting the resolution of pending cases.

Some of this confusion is directly traceable to the *Daubert* opinion itself. Rather than simply stopping at declaring the *Frye*[5] rule inapplicable in federal court,[6] *Daubert* attempted to provide guidance on how to implement Rule 702 of the Federal Rules of Evidence and related rules dealing with expert opinions. As laudable as this goal may have been, the briefs of the case provided the Court with little real guidance on this question.[7] In addition, because the Court itself was not seeking to apply Rule 702 to any particular set of facts, "observations" by the majority "tend[ed] to be not only general, but [also] vague and abstract."[8]

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3. REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, Federal Judicial Center (1994).

4. *See id.*

5. Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). Essentially, the *Frye* rule states:

> [j]ust when the scientific principle or discovery crosses the line between the experimental and demonstrable states is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

*Id.* at 1014. This rule was expanded until it prohibited the admission of any expert scientific opinion unless the opinion was generally accepted in the scientific community.

6. The Justices were of the unanimous opinion that the *Frye* rule is inapplicable in federal court. *See Daubert*, 113 S. Ct. at 2793.

7. The Supreme Court considered twenty-four briefs in reviewing this case, including twenty-two amicus briefs. *See Daubert*, 113 S. Ct. at 2799 (Rehnquist, C.J. and Stevens, J., concurring in part and dissenting in part).

8. *Id.*

As the *Daubert* concurrence and dissent noted, this problem was compounded by the unusual nature of the underlying scientific issues, which were "matters far afield from the expertise of judges."[9] With particular foresight, the concurrence and dissent noted that the majority's addition of the concept of "reliability" to the "relevance" requirement of Rule 402 raised many more questions than it resolved:

> [q]uestions arise simply from reading this part of the Court's opinion, and countless more questions will surely arise when hundreds of district judges try to apply its teaching to particular offers of expert testimony.[10]

Finally, the concurrence and dissent stated:

> I do not doubt that Rule 702 confides to the judge some gatekeeping responsibility in deciding questions of the admissibility of proffered expert testimony. But I do not think it imposes on them either the obligation or the authority to become amateur scientists in order to perform that role.[11]

Significantly, the majority did not join issue with the concurrence and dissent on the most important question - how far should the district judge go in resolving conflicting scientific testimony? It is therefore not surprising that the district courts, and now some courts of appeal, have come up with markedly different answers to that question. It is how to resolve the problem of conflicting scientific testimony in environmental toxic tort cases, that is the subject of this article.

## The Role of Expert Opinion

As the subsequent discussion illustrates, and as the concurrence and dissent in *Daubert* predicted, there is a wide disagreement about the nature of the inquiry to be undertaken when applying *Daubert*. A principle source of that disagreement may be a misunderstanding about the purpose of

9. *Id.*
10. *Id.* at 2800.
11. *Id.*

expert opinion. Underlying the view that courts should undertake a searching inquiry into the correctness of the expert's application of accepted scientific methodology is an assumption that it is the role of the jury and the court to decide the very issue which the expert is addressing by, in effect, becoming an expert on that matter. It is clear from the history of Rule 702 that when experts offer conflicting opinions the court is not to decide which expert is correct. Even in those instances where the expert only provides the necessary information for the fact finder to then form an opinion on the subject, only the jury, and not the court, are to make that decision.

When the current version of Rule 702 was adopted in 1972, the Advisory Committee Notes observed that the role of an expert opinion is to assist the jury in evaluating the facts.[12] Sometimes, the advisors note, the expert only explains the processes by which the facts are evaluated and then the jury makes the evaluation.[13] However, it is also permissible for the expert to reach a conclusion by indicating the "inference which should be drawn from applying the specialized knowledge to the facts."[14]

Rule 702 presupposes that only when the expert opinion will assist the jury in deciding a question may it be offered. If the question is one which the jury can resolve without expert opinion, no opinion is to be offered. Since the premise of the expert opinion is that the jury cannot comprehend the matter without an expert, it certainly makes no sense to assume that from the expert testimony the jury will become sufficiently expert to actually decide the scientific question. Rather, the rule contemplates that what the jury will do is decide which expert is more credible and rely on that expert, not seek to decide scientifically which expert is correct.

This role of the expert opinion is reflected in court opinions before the adoption of Rule 702. Those earlier opinions recognized that the expert's opinion does not answer the fac-

12. *See* FED. R. EVID. 702 advisory committee's note.
13. *See id.*
14. *Id.*

tual question which the jury must decide; it only provides the jury with an expert's view of what the answer to the question should be, and it is for the jury to decide whether the expert opinion is credible and what weight to give that opinion.[15] One of the critical factors to be used by the jury in deciding what weight to give the expert opinion is to assess the bases offered by the expert for that opinion.[16]

What is significant is that at no time did the courts look to the jury to decide if the expert was correct - that is, to decide the scientific issue - but only to decide what weight if any to give to the expert opinion. That experts will have widely differing opinions about the same subject was not a cause for the court to decide which expert was correct, but to recognize the inherent uncertainty among experts in some areas and to leave to the jury the task of deciding which expert, if either, to believe.[17] Since Rule 702 did not alter the function of the expert opinion, but merely liberalized its admissibility, these early cases are relevant to understanding the role of the expert opinion.

Professor Imwinkelried has noted that critics of easy admissibility of expert opinions have argued that juries often reach the wrong conclusion - that is, they pick the wrong expert.[18] He concludes, citing several studies of jury verdicts, that the assumption is wrong and that juries actually have an excellent record of reaching the correct conclusion in cases where conflicting scientific evidence is offered.[19] It is significant that juries reach these results, not by becoming scientists, but by using their own common sense to decide which expert is more credible.

As the following discussion will demonstrate, those courts which have become enmeshed in deciding not only whether the expert has used accepted scientific methodology,

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15. *See, e.g.*, United States v. Harper, 450 F.2d 1032, 1037 (5th Cir. 1971).

16. *See id.*

17. *See, e.g.*, Mims v. United States, 375 F.2d 135, 142-43 (5th Cir. 1967).

18. *See* Edward J. Imwinkelried, *The Standard for Admitting Scientific Evidence: A Critique From the Perspective of Juror Psychology*, 100 MIL. L. REV. 99, 112 et seq. (1983).

19. *See id.*

but whether the expert used it correctly and reached the correct conclusion, have done so because of the mistaken assumption that it is the task of the court and the jury to actually decide the scientific question. However, that has never been the task of the judge nor the jury. Experts offer opinions to assist the trier of fact in deciding how to interpret the facts of the case. Like the facts themselves, the expert opinion is one piece of evidence for the fact finder to interpret. Just as it is not the task of the fact finder to attempt to independently re-enact the events which are the subject of the case in order to decide what happened, so too it is not the task of the fact finder to recreate the scientific process of the expert in order to decide what is the correct scientific conclusion.[20]

The application of the expertise of the expert in the form of judgments about what conclusions to draw from the relevant scientific data is what separates the expert from the lay judge and the lay jury. It is nonsensical to believe that lay judges or lay juries can substitute their inexperience to form more correct judgments. All the judge can and should do is to decide that the expert is offering an opinion which is scientific and not conjecture, and all the jury can do is to decide which expert opinion is more credible and give it whatever weight they deem appropriate.[21]

## Some History of the Dispute and the *Daubert* Holding

In order to understand the current conflict over the appropriate role for courts when faced with conflicting scientific opinion, it is necessary to understand the origins of the dispute which gave rise to *Daubert*. While *Daubert* involved a

20. Courts are actually very reluctant to allow lawyers to attempt to re-enact events in the courtroom because of the difficulty of getting everything precisely right. It is even less likely that the lawyer would be able to recreate for the jury, or the judge, the entirety of the scientific process so that they can attempt to decide the scientific question.

21. One of the ways in which the credibility of an expert opinion may be attacked is to examine some of the data reviewed by the expert in front of the jury in an attempt to show the jury that the expert reached irrational conclusions. However, that trial tactic is a far cry from examining all of the scientific data and attempting to reach a scientific judgment based upon that review.

claim that Bendectin®[22] was the cause of certain limb-reduction birth defects, that issue was merely a vehicle for resolution of a larger controversy. That larger controversy was over the extent to which, if at all, courts and juries were being bamboozled into rendering verdicts based upon the testimony of scientific experts expressing opinions based on "junk science."

Those who believed "junk science" was overwhelming courts and juries and favoring plaintiffs' claims looked to such popularized versions of the argument as Peter Huber's 1991 book entitled *Galileo's Revenge: Junk Science in the Courtroom*.[23] On the other hand, those who favor the view that it is defendants, with their vast resources, who actually corrupt good science and perpetuate "junk science," often cite Robert N. Proctor's 1995 book *Cancer Wars* and the 1996 book *Toxic Deception* by Dan Fagin and Marianne Lavelle. Regardless of the argument's foundation against "junk science," the goal was to restrict expert opinions in courts to those whose views were essentially non-controversial.

The defendant's goal in *Daubert* was to establish that only universally accepted scientific opinions, or at least those that held the backing of the general scientific community, should be allowed in the courtroom.[24] However, this approach of "expert opinion by popular ballot of the scientific community" was firmly rejected by the Supreme Court when it rejected the *Frye* rule.[25] The Court did make "general acceptance" of the methodology used by the scientist one of the many factors to be weighed by a court in deciding whether the expert testimony is reliable. Moreover, and most importantly, it was the methodology used, not the opinion, which was to be reviewed for "general acceptance." The Court em-

22. A drug given to pregnant women for morning-sickness. *See* PHYSICIAN'S DESK REFERENCE 1109 (31st ed. 1977).

23. This book was cited by the Ninth Circuit when it applied the *Frye* rule and rendered the opinion for the defendants in Daubert v. Merrell Dow Pharm., Inc., 951 F.2d 1128, 1131 (1991). For a stinging critique of *Galileo's Revenge*, see Kenneth J. Chesebro, *Galileo's Retort: Peter Huber's Junk Scholarship*, 42 AM. U. L. REV. 1637 (1993).

24. *See Daubert*, 113 S. Ct. at 2792.

25. *See id.* at 2792-94.

phasized that the "focus, of course, must be solely on principles and methodology, not on the conclusions that they generate."[26] Thus, the original *Frye* rule, which focused on the general acceptance of the expert's opinion, did not survive *Daubert* in any form.

Advocates for restricting the role of scientific opinion in court, whether representing plaintiffs or defendants, must have been extremely disappointed by the *Daubert* outcome. Not only did the Court reject the *Frye* rule, but it made clear that the admissibility inquiry should not focus on the opinion of the expert, but rather on the methodology used.[27] In short, the Court could not exclude an extremely unconventional opinion from the jury so long as it was arrived at using appropriate scientific methodology. "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence."[28] In fact, when the Supreme Court decided *Daubert*, it established new, more liberal guidelines for evaluating the admissibility of expert testimony under those rules, and not, as some have argued, further restrictions on admissibility.

The Court held that in deciding admissibility, the district court should be mindful of the jury's paramount role as fact finder and dispute resolver, of the adversarial process as a finder of truth, and should not take upon itself the process of deciding which of two competing experts is correct.[29] Subsequent decisions by various circuit courts have confirmed that the effect of the *Daubert* decision was to liberalize the admissibility of evidence, not restrict it.[30] However, while courts generally agree that *Daubert* liberalizes the admissibility of expert testimony, there is sharp disagreement about the pro-

26. *Id.* at 2797.

27. *See id.* at 2795.

28. *Id.* at 2798.

29. *See Daubert*, 113 S. Ct. at 2795-96.

30. *See, e.g.*, United States v. Chischilly, 30 F.3d 1144, 1152 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 946 (1995).

cess through which the court determines whether an expert opinion should be admitted.[31]

This disagreement focuses on two separate, although related, considerations. First, when should a court hold a hearing under Rule 104(a) of the Federal Rules of Evidence[32] on admissibility of expert testimony, and what kind of hearing should it hold? Second, how deep should a court probe into the reasoning and basis of the expert's opinion to determine whether it was arrived at by the use of proper scientific methodology? In order to explore these concepts in a realistic context, and thus hopefully avoid the concern of the concurrence and dissent in *Daubert* about the danger of examining these issues in the abstract,[33] this discussion will focus on the use of expert testimony in environmental toxic tort cases. This field spawns enormous controversy over the use of experts, particularly on the issue of whether exposure to toxic substances can cause or contribute to adverse health conditions.

## Central Elements of the Toxic Tort Case

Some background is essential to understand the competing points of view. In an environmental toxic tort case, the

31. Other issues have arisen under *Daubert* upon which there is sharp disagreement. For example, does the *Daubert* reasoning apply only to "scientific" opinions or does it also apply to "technical or other specialized knowledge?" *See, e.g.*, Edward J. Imwinkelried, *Admissibility of Nonscientific Expert Testimony: Should Courts Import the Near Miss Doctrine?*, TRIAL, Oct. 1996, at 58, *available in* 1996 WL 13323184. *See also* Thomas v. Newton International Enterprises, 42 F.3d 1266, 1270 n.3 (9th Cir. 1994) (holding the *Daubert* analysis is limited to experts who offer scientific knowledge and is not applicable where the expert testimony is based solely on "specialized knowledge or skills."). Another *Daubert* issue on which sharp division exists is the standard of review to be used by an appellate court examining a trial courts application of *Daubert*. *See infra* note 128.

32. In part, Federal Rule of Evidence 104 provides:

> (a) 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 of subdivision (b). In making its determination it is not bound by the rules of evidence except those with respect to privileges.

FED. R. EVID. 104(a).

33. *See supra*, note 8 and accompanying text.

plaintiff is often exposed to a low dose of some toxic substance, such as a solvent, pesticide, or heavy metal. Subsequently, the plaintiff develops a severe disease, such as cancer or autoimmune disease, which is alleged to have been caused by the low dose exposure many years earlier.[34]

The principal experts in such cases are usually environmental engineers and environmental and occupational health doctors. Environmental engineers determine whether and at what level the plaintiffs were exposed to the substance in question. The environmental and occupational health doctors evaluate the plaintiff's health, health history, and current disease to determine whether it is more probable than not that the toxic exposure caused or contributed to the disease. The environmental engineer usually requires hard evidence, such as environmental monitoring, or evidence of the use and disposal of toxic substances from which pollution of air, water, soil or groundwater can be ascertained.[35] Moreover, information on the nature of the movement of air, soil dust, surface water or groundwater is added. Finally, the expert must use scientific judgment to assimilate the compiled information and draw conclusions from it.

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34. Adverse health effects from exposure to prescription and over-the-counter drugs are arguably also within the scope of this controversy, but since the amount of the exposure is usually known and because scientific studies of the effect of use of the drug are often controlled human experiments, the battle lines are drawn differently, although the debate over causation is often similar. However, because virtually all drugs have been subjected to human testing, courts have often been led to the erroneous belief that only if statistically significant epidemiologic evidence (that is, testing for adverse health outcomes on human populations after exposure to a toxic agent) exists can there be proof of causation. *See, e.g.*, Brock v. Merrell Dow Pharm., Inc., 874 F.2d 307, 313, *modified*, 884 F.2d 166, 167 (5th Cir. 1989). *But cf.* Benedi v. McNeil-P.P.C. Inc., 66 F.3d 1378, 1384-85 (4th Cir. 1995); DeLuca v. Merrell Dow Pharm., 911 F.2d 941, 953-57 (3d Cir. 1990); *In re* Paoli R.R. Yard PCB Litig., 916 F.2d 829, 856-57 (3d Cir. 1990)[hereinafter *Paoli I*]. The view that causation can only be proven where there is epidemiologic evidence has been rejected by the scientific community. *See, e.g.*, David P. Rall, *Relevance of Results from Laboratory Animal Toxicology Studies*, in PUBLIC HEALTH AND PREVENTIVE MEDICINE 515, 515-19 (John M. Last, M.D., D.P.H. ed., 12th ed. 1986). *See generally* Anthony Z. Roisman, *Conflict Resolution in the Courts: The Role of Science*, 15 CARDOZO L. REV. 1945, 1945-50 (1994).

35. The monitoring can be done either at the time of the alleged exposure or at some future time.

The expert's judgment is incorporated into the computer modeling or other mechanism which is used to evaluate the magnitude of the exposure. Exposure is then converted into a dose using modeling techniques to ascertain how much of a certain substance was inhaled, ingested, or absorbed by the skin.[36] However, sometimes it is possible to calculate a dose by using biomarkers,[37] some of which detect toxic substances accumulated in the body, such as lead, or other heavy metals, some of which detect biologic changes in cells that cause adverse health effects, and some of which detect increased susceptibility to diseases.[38] Whether calculated by external exposure evidence or evidence of internal biologic change, the dose number is only a range, not a precise number. Since each human is different, knowing the precise dose is not essential in proving the connection to an adverse health effect, but establishing a range can be important.

The medical experts then take the dose values, submitted by the environmental engineers, to determine the cause and effect. Occasionally, as in the case of asbestosis, the disease may be uniquely related to a particular exposure. If the plaintiff has been exposed and has that disease, the cause and effect relationship is very straightforward. However, it is far more common that the plaintiff has a disease which could have been caused or contributed to by multiple factors.

Generic causation is established when the medical expert ascertains whether the plaintiff's disease is the type which could be caused by exposure to the toxic substance involved, by relying on medical literature, personal experience, and training. Next, the expert reviews the relevant medical literature, including reports of government agencies and international organizations. Finally, the expert subjectively determines whether it is more probable than not that the

36. *See* National Research Council, *Biologic Markers in Immunotoxicology*, National Academy Press 83-98 (1992).

37. Biomarkers are detectible changes in the body which are in the nature of a footprint left by the toxic substance. Also known as "biologic markers," these "are measurements on biologic specimens that will elucidate the relationship between environmental exposures and human diseases, so that such exposures and diseases can be prevented." *Id.* at 11-12.

38. *See id.* at 13-15.

toxic substance could cause or contribute to the plaintiff's disease.

Subsequently, a separate analysis is required to determine whether the particular exposure caused or contributed to that particular plaintiff's disease. Such an analysis requires careful review of the plaintiff's medical history, work history, and environmental exposure history, including habits such as smoking and alcohol use. Also, the dose levels from the substances at issue are evaluated. In sum, because there is a massive amount of material which an expert will have to review to reach an opinion on toxic exposure and causation, it is important to clarify the process courts use to evaluate the admissibility of expert opinions.

The Rule 104(a) Hearing: When and What Kind?

A *Daubert* hearing arises under Rule 104 of the Federal Rules of Evidence. Even before reaching the question of the nature of the Rule 104(a) hearing, it is necessary to determine when such a hearing must be held. In *Hopkins v. Dow Corning Corp.*,[39] the Ninth Circuit held that "[t]he district court is not required to hold a Rule 104(a)[*Daubert*] hearing . . . ."[40] In *Daubert v. Merrell Dow Pharm., Inc.*,[41] the court noted that when the proponent of the testimony makes a prima facie showing of admissibility, a 104(a) hearing is held only if the opposing party demonstrates that a "material dispute" exists regarding the alleged failure of the expert to follow accepted scientific methodology or reasoning.[42]

Even if the moving party meets the material dispute test, the court must still decide what kind of hearing to hold under Rule 104(a). Using the discovery process, a party should be able to develop all relevant evidence for a *Daubert* challenge. Professor Berger notes that the discovery process, including depositions and other devices to adversarially test the positions of the parties, are preferable to the use of affidavits

39. 33 F.3d 1116 (9th Cir. 1994), *cert. denied, sub nom.* Dow Corning Corp. v. Hopkins, 115 S. Ct. 734 (1995).

40. *Id.* at 1124.

41. 43 F.3d 1311 (9th Cir. 1995).

42. *See id.* at 1318 n.10.

(which then require an evidentiary hearing), which cannot be so tested.[43] The existence of the new Rule 26 of the Federal Rules of Civil Procedure provides even more reason to avoid evidentiary hearings on expert admissibility.

When Rule 26 was amended in 1993, it added significant new disclosure requirements on experts. These new requirements included a full explanation of the opinions offered, the reasons and basis for those opinions, and the automatic right to depositions.[44] Failure to fully disclose the opinions of an expert under Rule 26 can result in exclusion of additional expert opinions pursuant to Rule 37(c)(1) of the Federal Rules of Civil Procedure.[45] Thus, each party has a full opportunity to explore in detail the reasoning and basis for expert opin-

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43. *See* Margaret A. Berger, *Procedural Paradigms for Applying the Daubert Test*, 78 MINN. L. REV. 1345, 1374-75 (1994).

44. *See* FED. R. CIV. P. 26(a)(2)(B), which provides:

> [e]xcept as otherwise stipulated or directed by the court, this disclosure shall, with respect to a witness who is retained or specially employed to provide expert testimony in the case or whose duties as an employee of the party regularly involve giving expert testimony, be accompanied by a written report prepared and signed by the witness. The report shall contain a complete statement of all opinions to be expressed and the basis and reasons therefor; the data or other information considered by the witness in forming the opinions; any exhibits to be used as a summary of or support for the opinions; the qualifications of the witness, including a list of all publications authored by the witness within the preceding ten years; the compensation to be paid for the study and testimony; and a listing of any other cases in which the witness has testified as an expert at trial or by deposition within the preceding four years.

*Id.* The right to depose identified experts whose opinions may be presented at trial is authorized by Rule 26(b)(4).

45. *See* FED R. CIV. P. 37(c)(1), which provides:

> A party that without substantial justification fails to disclose information required by Rule 26(a) or 26(e)(1) shall not, unless such a failure is harmless, be permitted to use as evidence at a trial, at a hearing, or on a motion any witness or information not so disclosed. In addition to or in lieu of this sanction, the court, on motion and after affording an opportunity to be heard, may impose other appropriate sanctions. In addition to requiring payment of reasonable attorney's fees, caused by the failure, these sanctions may include any of the actions authorized under subparagraphs (A), (B), and (C) of subdivision (b)(2) of this rule and may include informing the jury of the failure to make the disclosure.

*Id.*

ions during the discovery phase of the case, unlike pre-1993, when the experts offered only a summary opinion and depositions of experts were discretionary with the court. This exploration should provide each party with all the necessary information to demonstrate to the court why a particular expert's opinion should or should not be accepted.

Despite the strong reasons for avoiding an evidentiary hearing, the Courts are split on the nature of the 104(a) hearing. Some urge wide-ranging evidentiary hearings which may last weeks, while others lean toward a paper hearing where lawyers extract the best arguments from the depositions and reports of the experts. Professor Margaret Berger,[46] often considered as the leading scholar on the *Daubert* process, has sided with those who favor the paper hearing, in which primary reliance is placed on the record developed in discovery.[47] Professor Berger's view is consistent with the language of Rule 104(a) and the *Daubert* opinion itself, where the Supreme Court held that the Rule 104(a) inquiry was to be a "preliminary assessment."[48]

While logic, case law, and the structure of the Federal Rule support the view that a Rule 104(a) hearing should normally not be evidentiary, the Third Circuit and its district courts, particularly those in Pennsylvania, have rejected that view and have created a virtual "cottage industry" out of *Daubert* hearings. *In re Paoli R.R. Yard PCB Litig.*[49] is a case where the district court held five days of evidentiary hearings based, in part, on a directive from the court in *Paoli I* to hold an in limine hearing.[50] The process allowed the parties to introduce affidavits and testimony of experts at the

46. Author of the Federal Judicial Center's "Evidentiary Framework" portion of its Reference Manual on Scientific Evidence. MARGARET A. BERGER, FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE: EVIDENTIARY FRAMEWORK (1994).

47. *See* Margaret A. Berger, *Procedural Paradigms for Applying the Daubert Test*, 78 MINN. L. REV. 1345, 1375 (1994).

48. *See* Daubert v. Merrell Dow Pharm., Inc., 113 S. Ct. 2786, 2796 (1993). This holding was compelled by the Rule 104(a) description of evidence admissibility as a "preliminary assessment." *See id.*

49. 35 F.3d 717 (3d Cir. 1994) [hereinafter *Paoli II*].

50. *See id.* at 736.

hearing, whose only focus was the *Daubert* standards and whether they had been met.[51]

The Third Circuit, while reversing the district court, essentially endorsed this prolix approach.[52] In the case *In re TMI Litig. Cases Consol. II*,[53] the district court expanded on the lessons of *Paoli II*, noting in its opinion: "[a]ccommodating the parties for two rounds of in limine hearings required clearing the court's calendar for most of November 1995, part of February 1996, and part of March 1996."[54] In effect, courts in the Third Circuit now appear to be creating a second trial, complete with witnesses and cross-examination, which sometimes last for weeks, just to decide the question of whether experts should be allowed to testify at the actual trial. It is difficult to imagine that the Supreme Court intended such a result.

Obviously, those courts which hold an expanded *Daubert* hearing are, for the most part, focusing on a far broader range of issues and in a more intrusive manner than courts which resolve *Daubert* issues on paper or with relatively brief, non-evidentiary *Daubert* hearings. Thus, the issue of how expansive a hearing should be and how deeply to probe the issues are related. However, a separate issue exists regarding the wisdom of an expanded hearing format that would apply even if the breadth of judicial inquiry were quite wide. That issue involves the uses of judicial resources and the potential for biasing the case outcome, not on the basis of merit, but on the basis of resources.

Courts inherently possess the authority to grant a directed verdict after presentation of the plaintiff's case and to

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51. *See id.*

52. Curiously, the Third Circuit endorses Professor Berger's view that prior to the in limine hearing there should be full discovery of the experts, including depositions, but nonetheless the in limine hearing is allowed (perhaps encouraged) to replow the same ground with evidentiary presentations and cross-examination. *See Paoli II*, 35 F.3d at 738-39. Also noteworthy, particularly in light of the manner in which district courts in the Third Circuit are applying *Daubert*, the *Paoli II* court admonished the district courts not to create a trial when holding an in limine hearing. *See id.* at 747.

53. 922 F. Supp. 997 (M.D. Pa. 1996)[hereinafter *TMI*].

54. *Id.* at 1005.

grant a judgment notwithstanding the verdict after a jury verdict has been rendered. Thus, allowing testimony by a scientific expert whose methodology and reasoning might not meet the *Daubert* test, and leaving it to the jury to reject the expert's opinion, does not translate into a faulty verdict.[55] It really involves an issue of resources: for example, should the court and the parties be required to endure a costly trial if, in fact, one party has no case because one of the key experts offers inadmissible testimony?[56]

If the real issue is resources, a court needs to weigh the relative resource costs of a lengthy *Daubert* hearing against the potential resources involved in a full trial. Moreover, since *Daubert* hearings are only critical if the plaintiff, who has the burden of proof, loses a key expert, they represent win-win situations for defendants - the real advocates of these lengthy *Daubert* hearings. For a defendant, a lengthy hearing offers the possibility of convincing the court to reject a plaintiff's key expert. Even if unsuccessful, the defendant gains additional insight into the plaintiff's expert and drains the plaintiff's resources. In cases where the resources of the two sides are disparate, and the disparity favors the defendants, courts which allow lengthy evidentiary hearings under

55. In fact, the Supreme Court encouraged courts to err on the side of admissibility, trusting to the jury and the trial process to find the truth. *See* Daubert v. Merrell Dow Pharm., Inc., 113 S. Ct. 2786, 2798 (1993) ("Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence."). *Id.* (citing Rock v. Arkansas, 483 U.S. 44, 61 (1987)).

56. In theory, the challenge could be made to an expert whose exclusion will not doom the party's case, but in practice is usually only made, at least on behalf of defendants, when exclusion will lead to summary judgment because plaintiff is left with no evidence on a key issue in the case. However, sometimes this strategy fails and while the expert's opinion is excluded, the court admits the underlying evidence. In this instance, the jury is allowed to consider the underlying evidence and find for the plaintiff, without the aid of expert testimony. *See* Carroll v. Litton Systems, No. 92-2219, 1995 U.S. App. LEXIS 2015 at *10-18, 47 F.3d 1164 (4th Cir. 1995)(unpublished table decision), *cert. denied*, 116 S. Ct. 70 (1995) (excluding expert testimony regarding whether plaintiff had been exposed to toxic levels of contaminants in groundwater, but allowing the jury to consider and infer that although the levels today in the groundwater were below toxic minimums, the levels could have been higher in the past, based upon past dumping practices and the plaintiff's illnesses).

*Daubert* should be certain it is really necessary and that the defendant has a strong *prima facie* case before proceeding.

A Modest Proposal

If expert discovery provides a full opportunity to identify alleged flaws in the expert's methodology and reasoning, and if separate *Daubert* experts or untested *Daubert* affidavits are not allowed, why should there ever be an evidentiary hearing? The only valid reasons would seem to be those driven by the needs of a court, not the wishes of the parties. If, after reviewing all relevant material, the court determines that it has questions for the experts, then the court can sanction a hearing on those questions. But such a hearing would bear no relationship to the weeks of hearings held by Judge Rambo in *TMI*.[57] It would make the court's inquiries the central focus of the hearing, not the opposing lawyers' cross-examination.

The court-sanctioned hearing has several advantages. First, it places control of the nature of the Rule 104(a) hearing in the hands of the court, and does not subject it to the wishes of the parties. One of the "gatekeeper" functions of the court should be to exercise its judgment by taking a hard look at whether a Rule 104(a) hearing is warranted and to exercise its judicial power to require the parties to use discovery and their own expert opinions to make their arguments on *Daubert* issues, rather than to force the court to "hear" the same evidence "live."[58]

Second, this approach provides two thresholds which must be crossed before there is an evidentiary hearing: a showing that a "material dispute" exists as to whether an expert's opinion is admissible *and* a determination by the court that the court needs to ask questions of the experts to resolve that dispute.

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57. 922 F. Supp. 997 (M.D. Pa. 1996).

58. Since a court acting as a "gatekeeper" must not base its opinion on the credibility of the expert, there is no reason to have the court see the expert in person and hear live testimony. *See In re* Joint E. & S. Dist. Asbestos Litig., 52 F.3d 1124, 1133 (2d Cir. 1995).

How Deeply Should a Court Probe?

Whether courts follow the court-sanctioned hearing approach urged above or follow the expansive hearing approach of the courts in the Third Circuit, the issue remains of just how deeply the courts should probe in deciding whether an expert opinion is admissible under Rule 702.[59] There is some guidance from the language of Rule 104(a) and the Supreme Court, which both refer to a preliminary, as opposed to an in-depth, inquiry, but there is still a wide range of judicial opinion in practice on this issue. The analysis begins with the clear declaration by the Supreme Court that courts must only look at methodology and principles to see if they are consistent with scientific thought, and not consider the opinions of the expert.[60]

While this should have been a fairly bright line distinction, it has not produced uniform results in the courts. The problem may arise from attempts by courts to deal with several separate, but related, issues. First, under Rule 702, the evidence must be scientific, which according to *Daubert*, means it must have been based on the use of scientific methodology and principles.[61] Second, the expert may rely on non-record facts and data if it is "of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject" according to Rule 703.[62]

Third, even relevant admissible opinions are excludable if the danger of prejudice "substantially" outweighs the probative value according to Rule 403.[63] Finally, the court can nullify the effect of expert testimony by directing judgment[64], or it may grant summary judgment before trial if it concludes that the testimony is insufficient to allow a reasonable juror

59. *See* FED. R. EVID. 702, which provides that "[i]f 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."

60. *See* Daubert v. Merrell Dow Pharm., Inc., 113 S. Ct. 2786, 2797 (1993).

61. *See id.* at 2795.

62. *Id.* at 2797-98.

63. *See id.* at 2798.

64. *See id.* at 2798 (citing FED. RULE CIV. P. 50(a)).

to conclude that the position supported by the testimony more likely than not is true.[65] The question remains whether a court in addressing these other issues can probe any deeper into the expert opinion than it did in deciding the Rule 702 questions.

For example, is a court free to probe into the reliability of laboratory data used by an expert which the expert believes is sufficiently reliable, and then reject the expert if the court disagrees with the expert's opinion of the reliability of the laboratory data? Such an approach is allowed in the Third Circuit.[66] As developed in *Paoli II*, the Third Circuit heartily endorsed the district court approach of deciding which expert opinion was correct regarding whether a particular laboratory procedure was or was not reliable, by using the provisions of Rule 703 as its justification for an in-depth inquiry.[67] But, if for purposes of Rule 702 a court is prohibited from choosing among competing expert opinions or from further probing an expert opinion, why should it be able to engage in essentially the same prohibited process so long as it acts under Rule 703?[68]

The reasoning in *Daubert* clearly supports the proposition that a court inquiry is intended to be a general one, to provide the court with confidence that the expert is not merely speculating. The Supreme Court says as much in summary when it concluded that "[p]ertinent evidence [that is, it is relevant] based on scientifically valid principles will satisfy [the reliability and relevance] demands [of the Federal Rules of Evidence]."[69] If the Supreme Court had intended that the nature of the inquiry under Rule 703 or 403, or for purposes of summary judgment, was to be different than that under Rule 702, it would have said so.

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65. *See Daubert* 113 S. Ct. at 2798 (citing FED. R. CIV. P. 56).

66. *See Paoli II*, 35 F.3d 717, 747-49 (3d Cir. 1994).

67. *See id.* at 771-778.

68. *See* Mendes-Silva v. United States, 980 F.2d 1482, 1485 (D.C. Cir. 1993) (holding, in a pre-*Daubert* case, that an inquiry under Rule 703 must look only at the methodology and not the opinion of the expert).

69. *Daubert*, 113 S. Ct. at 2799.

The question to be answered by courts under each of those four provisions is different. However, that difference does not alter the fact that the depth of the court's inquiry must be limited, or else the federal rules would run afoul of the prohibition against courts resolving factual disputes between parties. For example, when courts have addressed the issue of what type of evidence is permissible for an expert to rely upon under Rule 703, the inquiry has been very preliminary, focusing only on the question of whether the evidence is like the evidence an expert would use, not on whether the expert is wrong about what conclusion he draws from the evidence. Any further inquiry would go beyond deciding if the evidence is the "type" upon which an expert would rely.[70]

If *Daubert* stands for the proposition that clear limits exist on how far a court may go in deciding whether to permit an expert opinion in evidence, regardless of the Rule or procedure under which the inquiry is being made, then courts can no more challenge the expert's opinion of the scientific data which he relies on under Rules 403, 703, or summary judgment processes than they could do under Rule 702. But just how deep should a court probe into the underlying science?

What Have the Courts Decided?

In *Paoli II*, the court went far beyond the task of merely assuring that the expert had used accepted scientific methodology. Instead, the court became enmeshed in resolving disputes between competing experts.[71] For example, the court examined such scientific esoterica as whether a laboratory was using an established protocol for testing. The question turned on whether, if the protocols were published in peer-reviewed journals but were not contained in a bound docu-

70. *See, e.g.*, Mannino v. International Mfg. Co., 650 F.2d 846, 851-52 (6th Cir. 1981) *quoting with approval from* United States v. Williams, 447 F.2d 1285, 1290 (5th Cir. 1971)(en banc) (holding that "[t]he rationale for this exception [the judicial precursor to Rule 703] to the rule against hearsay is that the expert, because of his professional knowledge and ability, is competent to judge for himself the reliability of the records and statements upon which he bases his expert opinion.").

71. *Paoli II*, 35 F.3d at 771-78. A more restrained view of the court's role is reflected in *Holbrook v. Lykes Bros. Steamship Co.*, 80 F.3d 777 (3d Cir. 1996).

ment in the laboratory itself, the protocols were proper.[72] The plaintiffs expert relied upon the laboratory results because in his opinion they were sound. In rejecting the expert because of his reliance on the laboratory data, either the court was choosing among competing opinions, which the Supreme Court has forbidden, or it was resolving factual controversies, which is forbidden under the Seventh Amendment to the U.S. Constitution.[73]

In a recent opinion, the Fifth Circuit appeared to adopt the approach used by the Third Circuit, when it focused on whether it agreed with the experts' opinions about the meaning and significance of certain scientific reports. In *Allen v. Pennsylvania Eng'g Corp.*,[74] the court acknowledged that the plaintiff's experts had examined the appropriate data for reaching a decision on whether exposure to ethylene oxide was the cause of the plaintiff's brain cancer, but the court itself examined the same data and concluded that it did not support the conclusions reached by the plaintiff's experts. The scientific errors in the court's opinion were legion, the most glaring of which was its piecemeal examination of the relevant data. By testing each type of data to see if it alone sustains the experts' conclusions, the court turned scientific methodology on its ear. Scientific methodology requires combining all the relevant data and giving weight to each piece, not judging and rejecting each piece of data because it will not, by itself, sustain the conclusion reached.[75]

Most other circuit courts have taken a markedly different approach to the issue of scientific expert opinion. Adhering

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72. *See id.*

73. U.S. CONST. amend. VII. The Seventh Amendment, in pertinent part, states: "In suits at common law, . . . the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law." *Id.*

74. 102 F.3d 194 (5th Cir. 1996).

75. *See* Joiner v. General Elec. Co., 78 F.3d 524, 532 (11th Cir. 1996), *cert. granted*, (holding that "[o]pinions of any kind are derived from individual pieces of evidence, each of which by itself might not be conclusive, but when viewed in their entirety are the building blocks of a perfectly reasonable conclusion, one reliable enough to be submitted to a jury along with the tests and criticisms cross-examination and contrary evidence would supply.").

more closely to both the letter and spirit of *Daubert*, these courts have taken a sufficient look at the expert opinion to be confident that the opinion is based on scientific methodology and principles, not on pure speculation. These courts have eschewed any attempt to be drawn into the second and third level arguments embraced by the Third and Fifth Circuits, where the courts not only examine whether the methodology used is scientific, but whether it was used in an unobjectionable manner.[76]

In *McCullock v. H.B. Fuller Co.*,[77] the court ruled that disputes about whether a doctor had used the scientific methodology (differential etiology) correctly or the absence of scientific articles supporting the causal connection with the precise illness were matters for consideration by the jury and not for weighing in a *Daubert* analysis.[78] "Disputes as to the strength of his credentials, faults in his use of differential etiology as a methodology, or lack of textual authority for his opinion, go to the weight, not the admissibility, of his testimony."[79]

The Second Circuit again applied its view of the limited role of the court in examining experts in the context of a summary judgment motion in *In re Joint Eastern & Southern Dist. Asbestos Litig.*.[80] This case involved the sufficiency of the expert opinion in a summary judgment context, where the court of appeals explored the decision of the district court in substantial depth.[81] The court of appeals found that the district court's decision

76. The Eighth Circuit has adopted a middle ground ruling that courts should look behind the methodology used to see if it was used correctly, but should disregard any flaw in the application of the methodology, unless it can be shown that the flaw makes the opinion unreliable. *See* United States v. Martinez, 3 F.3d 1191, 1198 (8th Cir. 1993). Thus, for example, in *Paoli II*, the Eighth Circuit would have looked to see if the laboratory had a manual containing its protocols, but would have excluded the expert from relying on the lab results only if the absence of the manual was shown to have actually (as opposed to theoretically) effected the reliability of the laboratory results.

77. 61 F.3d 1038 (2d Cir. 1995).

78. *See id.* at 1043-45.

79. *Id.* at 1044.

80. 52 F.3d 1124 (2d Cir. 1995).

81. *See id.* at 1132-37.

> was certainly thorough and well-documented, [but] it was rife with independent assessments of witnesses' conclusions and comparative credibilities, often in a manner that appears to us to stretch the above-cited passages in *Daubert* beyond their limit. We believe that the district court, in many instances, did engage in the proscribed practices of 'assess[ing] the weight of conflicting evidence, pass[ing] on the credibility of the witnesses [and] substituting its judgment for that of the jury.'[82]

Since admissibility is more of a threshold analysis, and arguably even less stringent than the sufficiency analysis, it is even more evident that the type of analyses conducted by the Third Circuit, in the context of a Rule 702 or 703 inquiry, is too invasive of the functions of the jury.[83]

In *Joiner v. General Elec. Co.*,[84] the Eleventh Circuit overturned a district court decision excluding the plaintiff's expert testimony on exposure and causation. Affirming, as have the Ninth and Second Circuits, that *Daubert* was intended to liberalize the rules regarding admissibility of expert testimony, the court concluded:

> [t]his gatekeeping role is simply 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. Thus, the gatekeeping responsibility of the trial courts is not to weigh or choose between conflicting scientific opinions, or to analyze and study the science in question in order to reach its own scientific conclusions from the material in the field. Rather, it is to assure that an expert's opinions are based on relevant scientific methods, processes, and data, and not on mere speculation, and that they apply to the facts in issue.[85]

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82. *Id.* at 1133 *quoting* Smith v. Lightning Bolt Prods., Inc., 861 F.2d 363, 367 (2d Cir. 1988).

83. *See generally Paoli II*, 35 F.2d 717 (3d Cir. 1994).

84. 78 F.3d 524 (11th Cir. 1996), *cert. granted.*

85. *Id.* at 530.

Among the factors deemed relevant by the court in accepting the testimony of plaintiff's experts was, first, that the reliability of the expert testimony was enhanced by their extensive qualifications and experience, second, that the district court had improperly attempted to evaluate the number and reliability of the articles which the experts relied upon rather than determining only whether relying on scientific articles was methodologically acceptable, and finally, that the district court had improperly evaluated whether the experts were correct in their opinion that the articles supported their conclusions.[86]

> The assessment of reliability also involves reviewing the basis for an expert's opinion. As previously noted, when an expert relies on specific research to form an opinion, the district court must ascertain whether such research is reliable. To accomplish this, the court examines whatever evidence is proffered supporting or criticizing the research, keeping in mind the purpose of the inquiry, i.e., to exclude opinions based on mere speculation. While this inquiry cannot be made without some consideration of the quality of the research in question, the district court's focus is a narrow one and does not encompass deciding which expert's conclusions are better reasoned or more appealing. Nor should the court make independent scientific judgments on the basis of individual studies.[87]

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86. *See id.* at 532-533.

87. *Id.* at 532. Comparison of this approach to the Third Circuit's handling of a similar issue underscores the wide gap between the circuits on how to apply *Daubert*. In *Paoli II*, the Third Circuit, while giving lip-service to the admonition of *Daubert* to look only at methodology and not opinion, comes up with a rationalization for avoiding that directive:

> [i]f the judge thinks that the conclusions of some other expert are correct, it will likely be because the judge thinks that the methodology and reasoning process of the other expert are superior to those of the first expert. This is especially true given that the expert's view that a particular conclusion "fits" a particular case must itself constitute scientific knowledge - a challenge to "fit" is very close to a challenge to the expert's ultimate conclusion about the particular case, and yet it is part of the judge's admissibility calculus under *Daubert*.

*Paoli II*, 35 F.3d at 746 (footnote omitted). It is difficult to accept this cynical view of the legal process where the court defends a judicial disregard of the

The District of Columbia Circuit also follows the principle that the role of the court in a *Daubert* proceeding is a limited one. In *Ambrosini v. Labarraque*,[88] the court reversed the district court's decision to exclude the opinions of two key plaintiff experts.[89] The district court disagreed with the expert's opinion about the meaning and significance of certain scientific studies and concluded that, absent specific scientific literature directly linking the plaintiff's birth defect to the particular drug exposure, no causal opinion could be rendered.[90] The circuit court rejected this analysis, finding that the plaintiff's expert had adequately explained the scientific basis of drawing conclusions about one birth defect from data related to other birth defects.[91] The court concluded that "[b]y attempting to evaluate the credibility of opposing experts and the persuasiveness of competing scientific studies, the district court conflated the questions of the admissibility of expert testimony and the weight appropriately to be accorded such testimony by a fact finder."[92]

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Supreme Court's prohibition on looking at expert opinions, rather than methodology, based upon the assumption that what the judge is really doing is using methodology as an excuse to throw out the opinion of an expert with which the judge does not agree. Nonetheless, apparently in reliance on this rationalization, the court later delves deeply into the opinions of the experts regarding the reliability of data relied upon by one of the experts and resolves the dispute.

88. 101 F.3d 129 (D.C. Cir. 1996).

89. *See id.* at 131.

90. *See id.* at 137.

91. *See id.* at 138-41.

92. *Id.* at 141. Another panel of the same court, reached a somewhat different result in a case involving Bendectin®. *See* Raynor v. Merrell Pharm. Inc., 104 F.3d 1371 (D.C. Cir. 1997). However, that subsequent panel went out of its way to distinguish the opinion in *Ambrosini* by noting what it believed were the unique facts associated with Bendectin®. *See id.* at 1374. It focused on what it considered a wealth of epidemiologic studies of Bendectin® all of which failed to find a statistically significant association between the drug and limb related birth defects. *See id.* This distinction appears to have little scientific merit as a basis for rejecting the plaintiffs' experts, as the trial judge in Blum v. Merrell Dow Pharm., Pennsylvania Court of Common Pleas of Philadelphia County, No. 1027, decided December 13, 1996, made abundantly clear in rejecting defendants JNOV motion in another Bendectin® case. Even though Pennsylvania still follows *Frye*, the court, in a well-reasoned and thoughtful review of the relevant data, had no problem finding there was ample admissible evidence that Bendectin® is capable of causing limb related birth defects, in that case severe clubfeet. See Blum v. Merrell Dow Pharm., Inc., 560 A.2d 212 (Pa.

The Ninth Circuit has also defined a circumscribed role for courts in undertaking a *Daubert* analysis. In *United States v. Sherwood*,[93] the court noted that the four suggested criteria in *Daubert* (general acceptance, peer review, testability and error rate) should be applied to the "theory or technique the expert employs," thus, appropriately steering the inquiry away from the opinions of the expert.[94] The Ninth Circuit has also held that it is sufficient for admissibility purposes that the experts "based their opinions on the types of scientific data and utilized the types of scientific techniques relied upon by medical experts in making determinations regarding toxic causation where there is no solid body of epidemiological data to review."[95] By focusing on the "types" of data and methodology, the court avoids an inquiry into the application of those general types of data and methodology and thus maintains a more reserved role in passing on admissibility.[96]

The Tenth Circuit has also identified a limited role for the *Daubert* inquiry. In *Compton v. Subaru of America*,[97] the court found it acceptable for an expert to offer his opinion on

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Super. Ct. 1989) for a history of this case. The arguments that swayed the District of Columbia Circuit in *Raynor* were viewed by the judge in *Blum* as evidence of differences of opinion about the meaning of relevant data, a matter for resolution by the jury, not the court.

93. 98 F.3d 402 (9th Cir. 1996).

94. *See id.* at 408.

95. Hopkins v. Dow Corning Corp., 33 F.3d 1116, 1124-25 (9th Cir. 1994).

96. In light of these findings, a case which bears attention is Hall v. Baxter Healthcare Corp., 947 F. Supp. 1387 (D. Oreg. 1996). In this case, the district court considered essentially the same breast implant information as did the Ninth Circuit in *Hopkins*, yet, after an extensive analysis of the scientific merit of the information, resolved the question differently, excluding the plaintiff's experts. *See id.* at 1411-12.

A principle consideration in Ninth Circuit cases has been the requirement that the expert give a full explanation of why her approach is different than the conventional approach. *E.g.*, Schudel v. General Electric, 120 F.3d 991 (9th Cir. 1997). Significantly, the Ninth Circuit does not then evaluate the merits of the explanation but leaves such issue to the weight of the evidence and not its admissibility. *E.g., see supra* Scischilly.

97. 82 F.3d 1513 (10th Cir. 1996). The Ninth Circuit also recognizes that the admissibility tests are different when the expert is not offering "scientific" knowledge. *See* McKendall v. Crown Control Corp., 1997 U.S. App. LEXIS 21035 (9th Cir. Aug. 8, 1997); Masayesva v. Hale, 118 F.3d 1371 (9th Cir. 1997).

the crashworthiness of a vehicle without using any particular methodology where, as in that case, there was no well-defined methodology to use.[98] Instead, it was sufficient for the expert to rely upon "general engineering principles and his twenty-two years of experience as an automotive engineer."[99]

Gatekeeping, Not Auditing

Following the approach of a limited inquiry for *Daubert* purposes does not mean, as some may argue, that the courts are abdicating their "gatekeeper" function. Rather, it means limiting the court's role to being a gatekeeper and not expanding it into being an auditor. By offering some factors to be considered in implementing the *Daubert* decision, the Supreme Court suggested, by inference, what type of inquiry the courts should undertake.[100] Nowhere do those inquiries include factors such as determining whether the court agrees with the expert that the peer-reviewed scientific article relied upon by the expert actually supports the expert's opinion, or whether the court finds data from approved testing methods which the expert relies upon to be unreliable.

As to the type of articles upon which an expert might rely, the Supreme Court only noted that a factor to consider is whether there was publication of the scientific method used, or theory proposed, by the expert in a peer-reviewed journal.[101] If the Court had believed the judge should also review the article to see if he agreed with the expert's opinion of the meaning of the article, the Court would have said so, and the concerns expressed in the concurrence and dissent from the Chief Justice and Justice Stevens would have been substantially magnified.

Similarly, the only aspect which the Supreme Court focused on, regarding the data upon which the expert based his opinion, was the "known or potential rate of error," and whether the data was gathered using a methodology that fol-

98. *See id.* at 1519-20.
99. *Id.*
100. *See* Daubert v. Merrell Dow Pharm., Inc., 113 S. Ct. 2786, 2794-95, n.7 (1993).
101. *See id.* at 2797.

lowed standard procedures, assuming such procedures existed.[102] There was no suggestion that a court should expand its inquiry into whether it believed the data gathering entity properly collected or analyzed the data. Inasmuch as the "known or potential rate of error" is only one factor to be considered by the court, and not a dispositive consideration, it is not surprising that the inquiry would stop before reaching that level of detail.

Not only did the Supreme Court opinion in *Daubert* suggest several non-exclusive factors to be considered in determining the admissibility of expert testimony, but the Ninth Circuit further elucidated those factors in *Daubert v. Merrell Dow Pharm. Inc.*[103] on remand. Among the factors to be considered for admissibility is whether the expert's opinions were developed solely for litigation or whether they arose out of their pre-existing work.[104]

One district court, quoting from the Ninth Circuit's *Daubert* opinion, has confirmed that the "most persuasive reason for concluding that an expert's testimony is derived from scientific method is that 'the testimony . . . is based directly on legitimate, preexisting research unrelated to the litigation.'"[105] This factor seems particularly persuasive because it provides the court with assurance that the expert is not merely "making up" an opinion for the purposes of the litigation and that either scientific journals or funders of scientific research have deemed the expert's views to be sufficiently reliable to publish or support them. Once such acceptance is shown, it is difficult to see how it would be appropriate for a court to undertake any further inquiry into the scientific validity of the methodology used by the expert, much less into the merits of the scientific conclusions reached by that expert. That would stretch the court's expertise well beyond its capabilities and would conjure up the specter of

102. *See id.* at 2796-97.
103. 43 F.3d 1311 (9th Cir. 1995).
104. *See id.* at 1317.
105. United States v. Crumby, 895 F. Supp. 1354, 1360 (D. Ariz. 1995).

the "amateur scientists" of which the concurrence and dissent in *Daubert* warned.[106]

Another factor which courts have accorded substantial weight in making the *Daubert* inquiry are the credentials and experience of the expert. In *Joiner*,[107] the court noted that if the opinion is offered by a scientist with extensive experience and expertise in the area of the opinion, it augments the reliability of the opinion.[108] A similar conclusion was reached by the courts in *Hopkins*[109] and *Ambrosini*.[110]

At the root of the differences between the circuits on how deeply to probe the expert opinion and what issues to resolve may be a fundamentally different view of how the scientific process functions. One explanation for the approach taken in *Paoli II*[111] and other courts in the Third Circuit is that they believe courts must resolve disagreements between experts about the reliability of data relied upon by the expert, and must choose between competing scientific opinions about how to implement accepted methodologies. That belief may stem from the view that there is a single scientific truth, and that it is the duty of courts to decide whether the proffered expert is offering that truth.

That view was rejected in *Daubert* when the Court concluded "[o]f course, it would be unreasonable to conclude that the subject of scientific testimony must be 'known' to a certainty; arguably there are no certainties in science."[112] The Court placed the focus of the inquiry on the reliability of the evidence, not its correctness.[113] Deciding whether the testing protocol used by a laboratory was proper, as the court did in *Paoli II*, goes beyond testing for reliability of methodology used and enters the forbidden territory of deciding if the expert's opinion regarding the appropriateness of the methodol-

106. *See Daubert*, 113 S. Ct. at 2800.
107. 78 F.3d 524 (11th Cir. 1996).
108. 78 F.3d 524, 532 (11th Cir. 1996).
109. 33 F.3d 1116, 1124-25 (9th Cir. 1994).
110. 101 F.3d 129, 137-40 (D.C. Cir. 1996).
111. 35 F.3d 717 (3d Cir. 1994).
112. *Daubert*, 113 S. Ct. at 2795 (citations omitted).
113. *See id.* at 2797.

ogy used is correct. On that latter subject, experts can and do disagree; it is the task of the fact-finder, not the gatekeeper, to weigh that evidence.

As the *Joiner* court concluded, the opinions of the expert about what weight to place on a particular scientific article or what conclusions to draw from it are themselves opinions which are immune from inquiry under the *Daubert* test.[114] Similarly, disputes about the interpretation of scientific data normally relied upon by experts are not disputes to be resolved by the court sitting as a gatekeeper. As the Ninth Circuit held in *United States v. Chischilly*,[115] "the mere existence of scientific institutions that would interpret data more conservatively scarcely indicates a 'lack of general acceptance' under Daubert's fourth factor."[116]

The District of Columbia Circuit, which originated the *Frye* test in 1923, offered an important insight into what it means to examine the "methodology" used by an expert in an opinion decided almost a decade before *Daubert*. In *Ferebee v. Chevron Chemical Co.*,[117] counsel for plaintiff offered the testimony of treating physicians that the cause of plaintiff's death was exposure to paraquat.[118] Defendant argued that unless plaintiff could produce epidemiology[119] and animal studies that showed paraquat was capable of causing the illness and death claimed by the plaintiff, then the plaintiff could not prevail.[120]

In rejecting this demand for generic causation proof, the court held:

> [a]s long as the basic methodology employed to reach such a conclusion is sound, such as use of tissue samples, stan-

114. *Joiner*, 78 F.3d at 532. *Accord Ambrosini*, 101 F.3d at 135-37.

115. 30 F.3d 1144 (9th Cir. 1994).

116. *Id.* at 1154.

117. 736 F.2d 1529 (D.C. Cir. 1984).

118. *See id.* at 1535.

119. Epidemiology is the "[s]cience concerned with defining and explaining the interrelationships of factors that determine disease frequency and distribution." AM. JUR. 3d *Proof of Facts* Taber's Cyclopedic Medical Dictionary 606 (1989).

120. *Ferebee*, 736 F.2d at 1535.

> dard tests, and patient examination, products liability law does not preclude recovery until a 'statistically significant' number of people have been injured or until science has had the time and resources to complete sophisticated laboratory studies of the chemical. In a courtroom, the test for allowing a plaintiff to recover in a tort suit of this type is not scientific certainty but legal sufficiency; if reasonable jurors *could* conclude from the expert testimony that paraquat more likely than not caused Ferebee's injury, the fact that another jury might reach the opposite conclusion or that science would require more evidence before conclusively considering the causation question resolved is irrelevant.[121]

In cases such as *Paoli II*[122] and *TMI*,[123] virtually all the experts used a standard methodology to reach their conclusions. Plaintiffs' experts were rejected by the courts because the courts concluded they did not agree with how the methodologies were applied by the expert or because the courts decided to agree with one of two competing conclusions about which methodology was appropriate. Opinions from the Third and Fifth Circuit contrast with the opinions of the D.C. Circuit,[124] the Second Circuit,[125] the Ninth Circuit,[126] and the Eleventh Circuit,[127] which resolve this question differently, thus presenting an issue ripe for resolution by the Supreme Court.[128] As the Eighth Circuit observed in *Sorensen By And*

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121. *Id.* at 1535-36 (emphasis in original).

122. 35 F.3d 717 (3d Cir. 1994).

123. 922 F. Supp 997 (M.D. Pa. 1996).

124. *See Ferebee*, 736 F.2d 1529 (D.C. Cir. 1984); Ambrosini v. Labarraque, 101 F.3d 129 (D.C. Cir. 1996).

125. *See* McCullock v. H.B. Fuller Co., 61 F.3d 1038 (2d Cir. 1995).

126. *See* Hopkins v. Dow Corning Corp., 33 F.3d 1116 (9th Cir. 1994).

127. *See* Joiner v. General Electric Co., 78 F.3d 524 (11th Cir. 1996).

128. Indeed, that review may be coming since on March 17, 1997, the Supreme Court granted certiorari in General Elec. Co. v. Joiner, 78 F.3d 524 (11th Cir. 1996), *cert. granted*, 65 U.S.L.W. 3629 (U.S. Mar. 17, 1996)(No. 96-188). While arguably the Supreme Court is only asked to answer the question of what standard of review an appellate court should use in reviewing a *Daubert* decision of a district court, it is likely the Court will also have to answer the question of the proper nature of the district court review, since the Eleventh Circuit based its reversal on the failure of the district court to apply the proper legal standard of review under *Daubert*.

*Through Dunbar v. Shaklee Corp.*,[129] "[t]he application of *Daubert* to difficult admissibility questions concerning expert testimony, such as those illustrated by the above cases, remains subject to development in the courts."[130]

129. 31 F.3d 638 (8th Cir. 1994).
130. *Id.* at 651.