THE DAUBERT HANDBOOK: THE CASE, ITS ESSENTIAL DILEMMA, AND ITS PROGENY

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I. INTRODUCTION

This Article is about *Daubert v. Merrell Dow Pharmaceuticals, Inc.* ¹ It is not about whether *Daubert* is a good decision or whether it is a bad decision, although, in my view, *Daubert* is a pretty good decision given the statute the United States Supreme Court had to interpret.² This Article is about what *Daubert* means: what it means inside of itself, what it means in light of the many cases that have interpreted and refined the decision and expanded and contracted it in the nearly three years since *Daubert* was handed down.

Part II of this Article briefly discusses *Daubert*. This section discusses the essential dilemma of *Daubert* and why so many people immediately misunderstood the decision. The *Daubert* rule gives two apparently contradictory tests for the admissibility of expert witnesses under Federal Rule of Evidence 702. This section also discusses the essential dilemma of expert evidence in general: today's “schmexpert” as tomorrow's expert . . . and vice versa. Part II ends with some advice, advice from trial judges and trial lawyers and advice to trial lawyers and trial judges.

Part III begins with the two most important and thorough federal post-*Daubert* expert witness cases, the two most important judicial interpretations of *Daubert* to date. Part III continues with a discussion of the “best of the rest” of the federal post-*Daubert* expert witness cases. To the men and women of the federal bench who must do the *Daubert* testing and to the women and men of the federal trial bar who must present the raw materials of *Daubert* testing, Part III offers a discussion of what federal courts are actually doing regarding the details of post-*Daubert* expert testimony.

Part IV is a Case Digest that includes every significant federal case decided in the roughly two and one-half years between the United States Supreme Court's opinion in *Daubert* and the publication of this Article.

II. *DAUBERT v. MERRELL DOW PHARMACEUTICALS, INC.*³

A. BLACK-LETTER LAW

Before admitting scientific expert testimony, the trial judge has to favorably assess both the reliability of the general scientific theory and methodology and the reliability of the application of the theory

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¹ 113 S. Ct. 2786 (1993).
and methodology to the facts of the case. That will be done either through judicial notice or an evidentiary hearing on the matter.

The test is no longer whether the theory, the methodology, and their application to the facts meet a standard of "general acceptance." Instead, the test is whether the evidence is "scientific knowledge," whether it will assist the trier of fact, and whether its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury.

B. EVEN BRIEFER BLACK-LETTER LAW

The trial judge must determine whether "an expert's testimony both rests on a reliable foundation and is relevant to the task at hand."8

C. FACTS

While pregnant, Mrs. Daubert took a prescription anti-nausea drug marketed under the name Bendectin by Merrell Dow Pharmaceuticals ("Merrell Dow"). Her son was born with serious birth defects. The Dauberts and another similarly-situated family sued Merrell Dow.

Merrell Dow offered the testimony of a well-qualified expert witness who had reviewed all of the literature on Bendectin and human birth defects and who could not find a single study showing that the drug was capable of causing fetal malformation. This expert concluded that Bendectin was not a risk factor for human birth defects. The district court decided that this was "generally accepted" scientific evidence and held that this expert's testimony was admissible.

The plaintiffs offered the testimony of eight also well-qualified experts who conducted different, more novel tests. These experts con-
cluded that Bendectin could cause birth defects.\textsuperscript{16} The district court decided that the methodology the plaintiffs' experts employed was not "sufficiently established [in the scientific community] to have general acceptance."\textsuperscript{17} In other words, the judge concluded that the evidence was what has been labeled "junk science." Therefore, the judge determined that these experts' testimony was not admissible.\textsuperscript{18}

The district court granted Merrell Dow's motion for summary judgment,\textsuperscript{19} the United States Court of Appeals for the Ninth Circuit affirmed,\textsuperscript{20} and the United States Supreme Court vacated and remanded for application of the test it had announced.\textsuperscript{21} On remand, the Ninth Circuit, using the \textit{Daubert} standard, again concluded that the plaintiffs' experts' testimony was inadmissible and again affirmed the district court's grant of summary judgment to the defendants.\textsuperscript{22}

D. \textbf{HOLDING}

For fifty years, the test for the admissibility of novel scientific evidence in federal court was the common law general acceptance test set forth in \textit{Frye v. United States}.\textsuperscript{23} Fifty years after \textit{Frye}, Congress enacted the Federal Rules of Evidence.\textsuperscript{24} Thereafter, the statute controlled, not the common law. (The common law may aid the interpretation of the Rules, but it no longer controls.\textsuperscript{25})

The general approach of the Federal Rules of Evidence is one "of relaxing the traditional barriers to 'opinion' testimony."\textsuperscript{26} The statutory rule on expert testimony, Federal Rule of Evidence 702, does not include the \textit{Frye} test.\textsuperscript{27} Neither \textit{Frye} nor its test is mentioned in the drafting history of the rule. In sum, "the \textit{Frye} test was displaced by the Rules of Evidence."\textsuperscript{28}

\begin{itemize}
\item \textsuperscript{16} \textit{Id.} at 573.
\item \textsuperscript{17} \textit{Id.} at 572-75.
\item \textsuperscript{18} \textit{See id.} (determining that the testimony of the plaintiffs' experts was not "generally accepted," which was the standard for admissibility).
\item \textsuperscript{19} \textit{Id.} at 576.
\item \textsuperscript{20} \textit{Daubert v. Merrell Dow Pharmaceuticals, Inc.}, 951 F.2d 1128 (9th Cir. 1991).
\item \textsuperscript{21} \textit{Daubert}, 113 S. Ct. at 2799.
\item \textsuperscript{22} \textit{Daubert v. Merrell Dow Pharmaceuticals, Inc.}, 43 F.3d 1311, 1322 (9th Cir. 1995), \textit{cert. denied}, 116 S. Ct. 189 (1995).
\item \textsuperscript{23} 293 F. 1013 (D.C. Cir. 1923).
\item \textsuperscript{24} \textit{Daubert}, 113 S. Ct. at 2794.
\item \textsuperscript{25} United States v. Abel, 469 U.S. 45, 49-52 (1984) (citations omitted).
\item \textsuperscript{26} Beech Aircraft Corp. v. Rainey, 488 U.S. 153, 169 (1988).
\item \textsuperscript{27} Rule 702 provides:

\begin{quote}
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.
\end{quote}

\textit{Fed. R. Evid.} 702.
\item \textsuperscript{28} \textit{Daubert}, 113 S. Ct. at 2794.
\end{itemize}
What, then, is the new test? What is the statutory rule? The Court in *Daubert* states that the rules the judge uses post-statute are Federal Rules of Evidence 702, 703, 706, and 403. In addition, the Court in *Daubert* identifies eleven checks on expert testimony.

More or less in the words of the Court, the checks on expert testimony are:

1) The evidence must be “scientific”; that is, the testimony must be “ground[ed] in the methods and procedures of science.”

2) The evidence must be “knowledge”; does the testimony rise above “subjective belief or unsupported speculation?”

3) The evidence must “assist the trier of fact” by having “a valid scientific connection to the pertinent inquiry.”

4) If the expert opinion is based on otherwise inadmissible evidence, the opinion is “to be admitted only if the facts or data are of a type reasonably relied upon by experts in the particular field in forming opinions or inferences on the subject.”

5) Rule 706 allows the trial court to secure its own expert.

6) Rule 403 applies to this evidence, and its probative value may be “substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury.”

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29. *Id.* at 2797-98 (citations omitted). Rule 403 provides:

Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.

**FED. R. EVID. 403.**

Rule 703 provides:

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to him at or before the hearing. If a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible evidence.

**FED. R. EVID. 703.**

Rule 706 provides in pertinent part:

The court may on its own motion or on the motion of any party enter an order to show cause why an expert should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witness agreed on by the parties, and may appoint expert witnesses of its own selection.

**FED. R. EVID. 706.**


32. *Id.* (citing *Fed. R. Evid.* 702).

33. *Id.* at 2796 (citing *Fed. R. Evid.* 702).

34. *Id.* at 2797-98 (quoting *Fed. R. Evid.* 703).

35. *Id.* at 2798 (citing *Fed. R. Evid.* 706). See also *Fed. R. Civ. Pro.* 53 (allowing the court to appoint a special master).

7) Further, we rely on the capabilities of juries.\textsuperscript{37}

8) We rely on the "traditional . . . means of attacking shaky but admissible evidence" through the adversarial process of cross-examination\textsuperscript{38} and

9) the presentation of contrary evidence.\textsuperscript{39}

10) We rely on careful jury instruction on the burden of proof.\textsuperscript{40}

11) We rely on the power of the directed verdict or summary judgment.\textsuperscript{41} In this regard, whether expert testimony is admissible under \textit{Daubert} and whether it is enough to submit the case to the jury are two separate questions. The answer to either question can be the basis for a directed verdict or a summary judgment.

\textit{Daubert} requires a finding that the expert's evidence is reliable and relevant, both in theory and in the expert's methodology.\textsuperscript{42} The Court in \textit{Daubert} listed some of the things the judge was to consider: whether the scientific knowledge can be and has been tested; whether the theory and methodology have been subjected to peer review, including through publication; the known or potential rate of error; the maintenance of standards controlling the methodology; and, the old \textit{Frye} stand-by, the general acceptance of the theory and methodology.\textsuperscript{43} As indicated, this list is not exclusive. The limits on what a court considers at this hearing are the limits of what is relevant to the reliability of the general theory and methodology and the application of each in the particular case.\textsuperscript{44}

Beyond Rule 702, in an appropriate case, the hearing will also deal with Rule 703. If the expert opinion is based on otherwise inadmissible evidence, then it is "to be admitted only if the facts or data are 'of a type reasonably relied upon by experts in the particular field in forming opinions or inferences on the subject.'"\textsuperscript{45} This part of the

\begin{thebibliography}{9}
\bibitem{37} \textit{Id.}
\bibitem{38} \textit{Id.}
\bibitem{39} \textit{Id.}
\bibitem{40} \textit{Id.} On the subject of jury instruction and expert testimony, see United States v. Rincon, 28 F.3d 921 (9th Cir. 1994), \textit{cert. denied}, 115 S. Ct. 605 (1994), where the Ninth Circuit seems to say that any error on the part of the trial judge in refusing to allow the testimony of an expert was harmless error in part because the court conveyed the substance of the testimony ( unreliable eyewitness testimony) in its jury instructions.
\bibitem{41} \textit{Daubert}, 113 S. Ct. at 2798. Though \textit{Daubert} does express a faith in the power of summary judgment as a check on junk science, \textit{Daubert} testing can make it considerably more difficult to resolve these issues on a motion for summary judgment. \textit{See infra} notes 657-73 and accompanying text.
\bibitem{42} \textit{Daubert}, 113 S. Ct. at 2796.
\bibitem{43} \textit{Id.} at 2796-97.
\bibitem{44} \textit{Id.} at 2797-98.
\bibitem{45} \textit{Id.} at 2798 (quoting Fed. R. Evid. 703). \textit{See} Henry v. Hess Oil Virgin Islands Corp., 163 F.R.D. 237 (D.V.I. 1995) (finding a defect in the basis for the expert's opinions, which defect was due in part to the fact that the data underlying the expert's
hearing is particularly important when dealing with novel scientific testimony based on inadmissible data; here, reliance on this kind of data by other experts in the field and the reasonableness of such reliance is all the more debatable.

Beyond Rules 702 and 703, in an appropriate case, the hearing will also deal with Rule 403: Is the probative value of the evidence "substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury?" This is what Judge Jack B. Weinstein had to say about this: "Expert evidence can be both powerful and quite misleading because of the difficulty of evaluating it. Because of this risk, the judge in weighing possible prejudice against probative force under Rule 403 exercises more control over experts than over lay witnesses."47

Finally, the Daubert Court noted that Rule 706 allows the trial court to secure its own expert.48 "Given the trial court's expanded function in evaluating the reliability of expert evidence, it is now more important than ever for the trial court to take an active role in the presentation of expert evidence."49 One way for the judge to be more active is through use of Rule 706. The Court in Daubert mentioned Rule 706 of the Federal Rules of Evidence: court-appointed experts. I add Rule 53 of the Federal Rules of Civil Procedure: special masters.51

opinions was not data reasonably relied on by experts in the field; this defect presented a question for the trier of law, and it rendered the opinions inadmissible under Rule 703). Henry, 163 F.R.D. at 247.

46. Daubert, 113 S. Ct. at 2798 (quoting Fed. R. Evid. 403). In an appropriate case, the hearing might even begin with the Rule 403 question — and never go any further. See infra notes 579-602 and accompanying text.


50. Judge Weinstein also suggests that the Daubert hearing might replace the depositions of the experts involved. This "may result in necessary education of the court and parties with respect to critical scientific issues without extensive deposition practice." Joint Eastern and Southern Dists. Asbestos Litigation, 151 F.R.D. at 545.

51. See infra notes 633-40 and accompanying text. Rule 53 of the Federal Rules of Civil Procedure provides in pertinent part:

(a) Appointment and compensation. The court in which any action is pending may appoint a special master therein. As used in these rules the word "master" includes a referee, an auditor, an examiner, and an assessor. . . .

(b) Reference. A reference to a master shall be the exception and not the rule. In actions to be tried by a jury, a reference shall be made only when the issues are complicated; in actions to be tried without a jury, save in matters of account and of difficult computation of damages, a reference shall be made only upon a showing that some exceptional condition requires it. Upon the consent of the parties, a magistrate may be designated to serve as a special master without regard to the provisions of this subdivision.
The procedures presented here — in Rule 706 and Rule 53 — can help the trial judge fight through the most complicated areas of expertise. When matters are too complex and the attorneys are not helpful enough, this is the time to use a court-appointed expert or a special master. When the issue is a battle of well-paid experts and the judge does not know how to assess their testimony and does not know who to believe, a court-appointed expert may have an educational value worth considering. Or, when a judge feels that he or she would benefit from some preliminary education before getting into the evidentiary presentations of the attorneys, a court-appointed expert or a special master may be of assistance.

E. My Summary of Daubert

Here is one way to summarize the United States Supreme Court's holding in Daubert: the test for admissibility of expert evidence is no longer whether the theory, the methodology, and their application to the facts meet a standard of "general acceptance." Instead, the test is whether the evidence is "scientific knowledge," whether it will assist the trier of fact, and whether its probative value is substantially out-

(c) Powers. The order of reference to the master may specify or limit the master’s powers and may direct the master to report only upon particular issues or to do or perform particular acts or to receive and report evidence only and may fix the time and place for beginning and closing the hearings and for the filing of the master’s report. Subject to the specifications and limitations stated in the order, the master has and shall exercise the power to regulate all proceedings in every hearing before the master and to do all acts and take all measures necessary or proper for the efficient performance of the master’s duties under the order. The master may require the production before the master of evidence upon all matters embraced in the reference, including the production of all documents. The master may rule upon the admissibility of evidence unless otherwise directed by the order of reference and has the authority to put witnesses on oath and may examine them and may call the parties to the action and examine them upon oath. When a party so requests, the master shall make a record of the evidence offered and excluded in the same manner and subject to the same limitations as provided in the Federal Rules of Evidence for a court sitting without a jury.

(d) Proceedings.

(e) Report.

(4) Stipulation as to Findings. The effect of a master's report is the same whether or not the parties have consented to the reference; but, when the parties stipulate that a master's findings of fact shall be final, only questions of law arising upon the report shall thereafter be considered.

(5) Draft Report. Before filing the master's report a master may submit a draft thereof to counsel for all parties for the purpose of receiving their suggestions.

(f) Applicability of Rule to Magistrates. A magistrate is subject to this Rule only when the order referring a matter to the magistrate expressly provides that the reference is made under this Rule.

52. Daubert, 113 S. Ct. at 2799.
weighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury. The trial judge must assess the reliability and the relevance of the theory and methodology. This involves assessing each of them both in general and as applied by these particular witnesses to this particular case. “General acceptance” is still one factor to consider.

The specifics of Daubert — known or potential rate of error, testability, peer review and publication, and the like — apply to expert scientific evidence. The general point of Daubert — that when expert testimony is proffered and resisted, the trial court should hold a hearing to determine whether the evidence is reliable and relevant — applies to all expert evidence. All expert evidence is, after all, governed by the same handful of federal rules of evidence; that is, the same statutory sections apply whether the evidence is scientific knowledge or any other kind of specialized knowledge.

Before Daubert, the trial judge had to ask: “What do the relevant scientists think about this?” The judge had to decide: “Has the proponent of this evidence shown me that scientists agree with her?” After Daubert, the trial judge has to decide: “Is this good science?” Now, the judge has to exercise independent judgment as regards the reliability of the science. By a preponderance of the evidence, the proponent of the expert evidence has to demonstrate to the judge that it is good evidence, perhaps in spite of what other experts think about it.

And just how will this decisionmaking process work? It is possible that all or part of this requirement can be satisfied using judicial notice. In some cases, there may be prima facie statutory recognition of the reliability of certain scientific technology and methodology, something like a statutory presumption. Or there may even be a burden-shifting presumption. Sometimes an expert’s expertise is so common and well understood that the necessary foundation can be laid while qualifying the witness as an expert during the trial, on the stand, in front of the jury. There may be no need for a separate hearing. If the expert’s evidence is not novel, then the foundation need not be novel either.

53. Id. at 2795-98.  
54. Id. at 2798.  
55. Id. at 2796-97.  
56. See Fed. R. Evid. 702, 703, and 706 (applying to expert testimony in general).  
57. See infra notes 579-602 and accompanying text.  
58. See infra notes 579-602 and accompanying text.  
59. See infra notes 579-602 and accompanying text.  
60. See infra notes 195-244 and accompanying text. See Carroll v. Morgan, 17 F.3d 787 (5th Cir. 1994), reh’g denied, 26 F.3d 1117 (5th Cir. 1994) (providing an example of the Daubert test being satisfied in front of a jury by the normal foundation testimony of an expert). Further, if the scientific evidence is not novel, Daubert might not apply at
Absent judicial notice, a presumption, prima facie statutory recognition, or an in-court, on-the-stand, in-front-of-the-jury foundation, the judge will have to hold what, not surprisingly, is becoming known as a Daubert hearing. The Daubert hearing is a Rule 104 hearing to resolve "[p]reliminary questions concerning . . . the admissibility of evidence." At the Daubert hearing, the proponent of the evidence will have to convince the judge, by a preponderance of the evidence, that the evidence satisfies the Daubert test.

Here is a summary of what the proponent must demonstrate at the Daubert hearing. Rule 702 allows expert scientific testimony when "scientific . . . knowledge will assist the trier of fact . . . ." This means, according to the Court in Daubert, that the district or magistrate judge must assess the reliability and the relevance both of the general scientific theory and methodology and of the application of the theory and methodology to the facts of the case. This is how we decide if the evidence is both "scientific" and "knowledge," and if it "will assist the trier of fact." The proponent of the evidence must show that the evidence is good science and is relevant.

Here, from Zuchowicz v. United States, is the short version of what the trial judge must consider: whether the witness is a qualified expert; whether the testimony's underlying reasoning or methodology is scientifically valid; whether the testimony's underlying reasoning or methodology is capable of being properly applied to the facts of the case at hand; the reasonableness of the expert's assumptions; and Rule 403.

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61. Rule 104 provides in pertinent part:
(a) Questions of admissibility generally
Preliminary questions concerning the qualifications 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 privilege.
FED. R. EVID. 104.

62. Preponderance of the evidence (or, as we have renamed it in Nebraska, greater weight of the evidence, NJI2d 2.12A) is the admission-of-evidence burden in both civil and criminal cases. Bourjaily v. United States, 483 U.S. 171, 175 (1987).

63. FED. R. EVID. 702.

64. Daubert, 113 S. Ct. at 2796-98.

F. The Sixth Circuit's Summary of Daubert

The United States Court of Appeals for the Sixth Circuit in United States v. Bonds discusses and summarizes Daubert in the context of scientific evidence. Daubert, stated the Sixth Circuit, explained that even under the liberal Federal Rules of Evidence, "the trial judge must ensure that scientific testimony is 'not only relevant but reliable.'" The Sixth Circuit stated that the relevance requirement comes "from Rule 702's requirement that the testimony 'assist the trier of fact to understand the evidence or to determine a fact in issue.'" Rule 702 really subsumes the basic relevance requirement of Rule 401. Rule 401's requirement that the evidence "assist the trier of fact to understand . . ." includes the minimum connection between evidence and issues that is required to establish logical relevance, and more. "Assistance" subsumes logical relevance and goes beyond. How far beyond is the question.

The Sixth Circuit stated:

The "reliability requirement" is based on Rule 702's requirement that the subject of an expert's testimony be "scientific . . . knowledge." The [United States Supreme] Court defined "scientific" as having "a grounding in the methods and procedures of science" and "knowledge" as "connot[ing] more than subjective belief or unsupported speculation" and "apply[ing] to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds." While certainty is not required, scientific validity is. It must be based on sound reasoning within the framework of the scientific method. Scientific validity is not dependent on a finding of general acceptance within the scientific community, which was the old Frye test; rather, it is based on sound reasoning within the framework of the scientific method.

This is what, in some cases, makes the trial judge's job much more difficult under Daubert: under Frye, the trial judge could hear testimony from various experts in the field on the subject of whether the particular scientific evidence was generally accepted within that field, decide which of those experts he or she believed, and rule on the evi-
dence. Now, the judge has to decide whether the reasoning is sound within the framework of the scientific method, not just whether others in this field of expertise generally find the reasoning sound within the framework of the scientific method.

The Sixth Circuit stated:

[T]he trial judge must determine at the outset 'whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue.' This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and or whether the reasoning or methodology properly can be applied to the facts in issue.\textsuperscript{73}

The Sixth Circuit determined:

By defining evidentiary reliability in terms of scientific validity, by couching almost the entire discussion of admissibility of scientific evidence in terms of scientific validity, and by requiring that the inquiry be focused solely on the methodology and principles underlying the proffered scientific expert testimony, the \textit{Daubert} Court has instructed the courts that they are not to be concerned with the reliability of the conclusions generated by valid methods, principles and reasoning. Rather, they are only to determine whether the principles and methodology underlying the testimony itself are valid. If the principles, methodology and reasoning are scientifically valid then it follows that the inferences, assertions and conclusions derived therefrom are scientifically valid as well. Such reliable evidence is admissible under Rule 702, so long as it is relevant.\textsuperscript{74}

G. THE ESSENTIAL DILEMMA OF \textit{DAUBERT}

\textit{Daubert} was such a significant decision that it received a great deal of attention outside legal circles. My hometown newspaper, for example, did its own editorial on the case: "Ridding Courts of 'Junk Science.'"\textsuperscript{75} The editorial defined junk science in the courtroom con-

\textsuperscript{73} Id. (citations omitted).

\textsuperscript{74} Id. at 556. \textit{See infra} notes 641-56 and accompanying text (noting the split of responsibility between judge and jury regarding experts' methodologies and their conclusions).


text as "testimony from expert witnesses who operate outside the mainstream of scientific thought."\textsuperscript{76}

The paper editorialized that the United States Supreme Court had held that the trial court's test had been too lenient. This shows the widespread misunderstanding of \textit{Daubert}. What the Supreme Court really held was that the district court's test was too restrictive. The trial judge decided that the evidence was not sound enough to be allowed in court. The Supreme Court reversed and sent the case back to the trial court to see if the testimony of the plaintiffs' eight experts was admissible under the new federal rules standard; that is, to see if their testimony was admissible even though the experts' methods were not generally accepted in the scientific community. Contrary to this and other editorials, \textit{Daubert} made it possible for litigants to get in testimony from scientific experts who operate outside the mainstream.

Before the Federal Rules of Evidence, as interpreted in \textit{Daubert}, scientific testimony was admissible only when the science on which it was based was "generally accepted" in the relevant scientific community.\textsuperscript{77} That rule, the \textit{Frye} rule, kept scientific testimony near the mainstream.

After the Federal Rules of Evidence, as interpreted in \textit{Daubert}, the trial judge acts as "gatekeeper" for the admission of scientific evidence:\textsuperscript{78} scientific evidence is admissible if the trial judge determines that it is in some sense "scientific knowledge" (but it does not have to be generally accepted scientific knowledge) and it will "assist the trier of fact."\textsuperscript{79}

The judge must determine whether the evidence is good science; if it is junk science, then the judge must keep it out. The judge must decide that the evidence is relevant to the case at hand; if the evidence is not sufficiently connected to the issues at hand, then the judge must keep it out. The trial judge is to keep junk science out of the courtroom. In the end, however, the truth is that \textit{Daubert} gives trial judges more discretion to allow new and novel scientific theories into evidence. \textit{Daubert} loosened the standard. \textit{Daubert} allows scientific testimony that is outside the mainstream of science. Interestingly enough, \textit{Daubert} also tightened the standard. In some cases, \textit{Daubert} makes it


\textsuperscript{77} \textit{Daubert}, 113 S. Ct. at 2793.

\textsuperscript{78} \textit{Id}. at 2795.

\textsuperscript{79} \textit{Id}. at 2796. The evidence does not have to be generally accepted scientific knowledge.
more difficult for litigants to admit expert testimony from witnesses who operate inside the mainstream.  

This is the dilemma of *Daubert*: *Daubert* is at the same time both more restrictive of expert evidence and less restrictive of expert evidence.

- First: To say that *Daubert* is less restrictive of expert evidence, to say that it opens the door for the introduction of expert evidence that would not have been admissible under the *Frye* test, is not to say that *Daubert's* test is an easier test. It may be more lenient in that it allows more — and more novel — science into evidence, but it can be much more difficult in that the *Daubert* test can require a more exacting, expensive, and time consuming foundation.

- Second: The *Daubert* rule gives two seemingly contradictory results.

On the one hand, more science comes in. Science does not have to be generally accepted by other scientists to be admissible in court; the universe of admissible science is expanded by doing away with the general acceptance requirement. On the other hand, less science comes in. The trial judge is to act as gatekeeper and is to scrutinize carefully the proffered scientific evidence and to keep out what is not good science. The universe of science actually admitted may be contracted by the close scrutiny judges are supposed to give this evidence. While it may be that most science generally accepted in the relevant scientific community will be good science, it is not necessarily so.

This is what leads to the situation like that found in *McKnight ex rel. Ludwig v. Johnson Controls, Inc.* where the plaintiff "argue[d] that *Daubert* makes expert testimony more readily admissible," and the defendant argued, essentially, that *Daubert* makes expert testimony less readily admissible.

As the Court in *Daubert* said, the trial judge is to act as "gatekeeper" for the admission of scientific evidence. Requiring that the

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80. For example, voice spectrogaphy, although generally accepted by voice spectrographers, may not meet the rigorous standards of reliability that *Daubert* demands. See MOENNSSENS, ET AL., SCIENTIFIC EVIDENCE IN CIVIL AND CRIMINAL CASES §§ 10.06-08, at 638-50 (4th ed. 1995). Although it has been generally accepted by experts in the field, this evidence has not been generally accepted as admissible in court. Id.

81. It may be more difficult, expensive, and time consuming unless there is judicial notice, *prima facie* statutory recognition, or an in-court, on-the-stand, in-front-of-the-jury foundation. See infra notes 579-602 and 694-98 and accompanying text.

82. See supra note 79 and accompanying text

83. 36 F.3d 1396 (8th Cir. 1994).

84. McKnight ex rel. Ludwig v. Johnson Controls, Inc., 36 F.3d 1396, 1406 (8th Cir. 1994).

85. *Daubert*, 113 S. Ct. at 2796.
trial judge act as gatekeeper is nothing new; rather, after *Daubert*, the gate is much bigger.

H. Expert, Schmexpert: The Essential Dilemma of Expert Evidence

*Frye* failed to account for a very important and inevitable phenomenon. The heart and soul of *Daubert* and the Federal Rules of Evidence is that they do try to account for this phenomenon. Today's schmexpert[^86] is tomorrow's expert and vice versa. One of the most famous schmexperts who ever lived was Christopher Columbus. He was foolish enough to have believed the world was round.[^87] Now we honor his memory with a Day, a space shuttle, and namesake cities in half a dozen or so states. Another of history's super-star schmexperts was Galileo. He earned his place in the schmoe hall-of-fame when he put forward his then-preposterous scientific theory that the earth was not the center of the universe, but rather that the earth revolved around the sun. For being such a schmuck, he was tried by the Inquisition, ordered to recant his theories (which he did), and placed under house arrest for the final eight years of his life.[^88]

And vice versa. The ancient Romans discovered lead and used it in many ways. Some expert decided this would be a terrific thing with which to line the aqueducts. And, in so far as they could tell, it was. Lead worked well as an aqueduct liner. The man who first lined an aqueduct with lead was, no doubt, then hailed as a true visionary and as a great expert. There are those who now believe that it was lead poisoning that caused the fall of the Roman Empire.[^89]

We must be careful who we hail as our experts, and this really is what *Daubert* is all about. We want to keep the schmexperts off the stand, but we do not want to put the Galileos under house arrest. We want to allow the real experts to testify, but we do not want lead in our aqueducts. Where *Daubert* is compared with *Frye*, we have placed our faith in federal judges, to a greater extent, and fellow scientists, to a lesser extent.


[^87]: 6 *Encyclopedia Britannica* 111 (William Benton ed. 1971). How much of what Columbus did involved expertise beyond knowing how to sail a boat is open to question. Quoting Columbus, "In carrying out this enterprise . . . neither reason nor mathematics nor maps were any use to me." *Id.*


[^89]: Lead from their food, their cooking pots and serving vessels, and their water delivery system led to the fall of the Roman Empire? Maybe so! S.C. Gilfillan, 7 J. of Occupational Med. 53 (1965).
The Federal Rules of Evidence provide the tools, *Daubert* is the instruction manual, and federal Article III and magistrate judges, with the help of counsel, are the craftspersons. The irony of the federal judge crafting the edifice of scientific evidence in the courtroom is that, in my experience, a chief reason many of us went to law school is that the other choices all seemed to involve science: we fled science; we fled any profession that uses numbers in any more complex way than as volume, page, or section references.\(^9\)

I. **Talks With Judges and Trial Lawyers, Plus Personal Experience**

In preparation for a talk I gave last summer, I spoke with a number of Magistrate Judges and a number of Article III judges about *Daubert* and asked them what they think. For the most part, their reactions — and at first this surprise me — were on two extremes:

- Some said: “It is nothing new. It is no big deal. I don’t understand what’s all the fuss.”
- Others said: “It really is an important case. It will really change the way we do things. There should be a big fuss over this case.”

I spent some time thinking, “What could this possibly mean? Why this difference? I came up with three explanations. But before I get into the explanations, I think that the second group is right — the “It really is an important case” group. *Daubert* is changing the way we do things.

This is how I understand the first group, the judges who said “It is nothing new, no big deal, what’s all the fuss?” One of three kinds of judges makes this kind of comment:

- One group of federal judges to whom *Daubert* is no big deal consists of judges who are the most active anyway and were already doing something like what *Daubert* requires. These are the judges who paid attention to the radar cases that were in all of our Evidence books back in law school. *Daubert* is no different than those early cases involving the use of radar to measure the speed of an automobile. How did we get radar into evidence for the first time in a speeding case? The prosecutor proved that the general theory of radar as a way to measure speed was reliable and relevant to automobiles. Having proved the general science, the prosecutor then proved that the particular application of the theory to the speed of the defendant’s automobile was reliable and relevant.

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\(^9\) See infra notes 687-93 and accompanying text.
1) General theory: The prosecutor called an expert witness who testified to the general theory of the radar.

2) Specific methodology: The prosecutor called the police officer who clocked the defendant's speed to testify that the machine in question was working properly on the day in question, that the police officer knew how to operate the machine, and that he did operate it correctly at the relevant time.

If the science was novel, these judges were already dealing with it at pretrial hearings, at Rule 104(a) hearings. In so far as Daubert involves a different approach to these questions, a pretrial approach, these judges were already taking that approach before Daubert.

The second group of judges to whom Daubert is no big deal is a group whose days are numbered: judges who have not had to face Daubert yet. They have not had a case involving novel science, particularly one involving novel soft-science. Their scientific evidence cases have involved the kind of science these judges have been handling for years — both as judges and as trial lawyers. Perhaps it is medical science. Perhaps it is economics. Perhaps it is ballistics. Whatever. The judge can either use judicial notice or use judicial notice plus the foundational evidence introduced by the lawyers during the trial, in front of the jury. And Daubert poses no particular problem.

In truth, Daubert has not made a difference to those judges, and they have not thought ahead to the case where it will.

The third group of judges who do not see Daubert as a big deal — and my experience is that this is a thankfully small group — consists of Article III judges who figure that the magistrate judges will be doing this work. When these judges say Daubert is no big deal, it is a very personal statement. Magistrates do the pretrial work, they are the ones who hold the Rule 104(a) hearings; they will be the ones who

91. Soft science is defined as "any of the scientific disciplines, as those which study human behavior or institutions, in which strictly measurable criteria are difficult to obtain." WEBSTER'S COLLEGE DICTIONARY 1272 (Random House ed. 1991). Hard science is defined as "any of the natural or physical sciences, in which hypotheses are rigorously tested through observation and experimentation." Id. at 610.

92. These judges may be able to use one or two other techniques as well. Regarding judicial notice, presumptions, and prima facie statutory recognition and the Daubert testing of expert witnesses, see infra notes 597-602 and accompanying text.
will preside over the gathering of the data, sort through the data after it is gathered, and, in general, deal with the details of *Daubert* testing.

In addition to my conversations with judges, I spoke with trial lawyers, including the lawyer at the Torts Branch of the Civil Division of the United States Department of Justice who the torts people told me was their expert on expert witnesses. When I gather together and synthesize what I was told by all of these people, one thing sticks: the need for, and the benefits of, early pretrial hearings regarding novel expert testimony. Whether it is a jury trial or a trial to the judge, early pretrial Rule 104(a) hearings\(^93\) with serious consideration of the motion *in limine* benefits everyone: the judge, the jury, the lawyers, the parties, everyone. How so?

\(^{\Delta}\) An early Rule 104(a) hearing can educate the judge regarding the special vocabulary of the science before the court. And it gives the judge this education in advance, before the evidence starts coming in. It allows the judge to approach the evidence from the very beginning with a background in the language being used. It is like going to Nepal — depending on what you want to get out of the experience, it may be very useful to learn the language before you go, rather than as you stumble along in the country.

\(^{\Delta}\) An early hearing is more cost effective on both sides. In general, having these issues resolved prior to trial, on the record, is a great help to plaintiffs and defendants, saving both time and money.

\(^{\Delta}\) In a jury case, an early hearing will generally lead to better utilization of the jury. If the jury must leave the room when the judge takes the information needed to make this decision, then the pretrial hearing will allow the judge to make the decision before the jury is even empaneled.

My own experience, and that of lawyers with whom I spoke, is that some judges are reluctant to make these decisions pretrial, particularly in non-jury cases. (It seems to differ, depending on how active the judge is and how much experience the judge has had with novel expert evidence.) Judges tend to have been trained in a different way: let the thing go to trial and develop a trial record for appeal. But this is not the "gatekeeper" role envisioned by *Daubert*.

Hold a hearing on a motion *in limine* and develop a record at that hearing. If some or all of the expert evidence does not measure up to *Daubert*, then do not let that science in and dismiss the part of the

\(^{93}\) "Challenges to the scientific reliability of expert testimony should ordinarily be addressed prior to trial... An early evidentiary challenge allows the trial judge to exercise properly the 'gatekeeping role' regarding expert testimony envisioned under *Daubert.*" Hose v. Chicago Northwestern Transportation Co., 70 F.3d 968, n.3 (7th Cir. 1995). See infra note 336 and accompanying text.
case that is dependent on that expert evidence. Get it done before the trial, as far before the trial as you can, so that if it is not admissible, the parties can stop wasting time, effort, and money pursuing it. Or, if it is admissible, the parties can make plans based on that knowledge.

In terms of Daubert, as a general rule, the question of whether the general theory and methodology are relevant and reliable can be handled just as well pretrial as during trial. And whether their application to the case at hand is reliable and relevant can also be handled just as well pretrial. The judge need not wait to see how the occurrence evidence comes in during the trial in order to know whether the scientific evidence meets the test of Daubert.94

Courts should hold Daubert hearings, early and often, with serious consideration of the motion in limine (not a sort of rote postponement of the decision until the evidence has come in at trial). In the most difficult cases, courts should consider the assistance of a court-appointed expert or a special master.

III. HOW THE FEDERAL COURTS ARE ACTUALLY IMPLEMENTING DAUBERT: DAUBERT'S PROGENY

Part III begins with the two most important and thorough federal post-Daubert expert witness cases, the two most important judicial interpretations of Daubert to date. Part III continues with a discussion of the best of the rest of the federal post-Daubert expert witness cases. Part III offers a discussion of what federal courts are actually doing regarding the details of post-Daubert expert testimony.

A. TWO PARTICULARLY IMPORTANT (AND USEFUL) CASES

1. United States v. Bonds95

Facts: In this case of mistaken identity, the deceased was gunned down by members of a motorcycle gang who mistook him for a member of a rival motorcycle gang.96 One of the defendants, John Ray Bonds, "had a serious ricochet wound."97 The evidence in question had to do with blood found in the getaway car.98 Test results showed that the blood could not have been that of the deceased victim but that it did match that of the defendant, Bonds.99

94. See infra notes 301-37 and accompanying text (discussing when a pretrial hearing may not be appropriate).
95. 12 F.3d 540 (6th Cir. 1993).
97. Bonds, 12 F.3d at 547.
98. Id. at 547.
99. Id.
The case involved DNA evidence. I want to address three particular aspects of the DNA evidence in this case:

First: The defendants asked the appellate court to take judicial notice of a report by the National Research Committee ("NRC") of the National Academy of Sciences ("NAS"), entitled "DNA Technology in Forensic Science." The government objected. The court sustained the objection.

The report in question was issued after the trial, so, of course, it could not have been offered at the trial. The report "examines the FBI's method of declaring DNA matches and of calculating the statistical probability of a suspect's pattern of DNA occurring in a particular population" and disagrees with part of its method. The report was authored by a committee of scientists in relevant fields and a federal judge, and it had been subjected to peer review. On appeal, the defendants asked the court to take judicial notice of the report and to make the report part of its consideration of whether the DNA evidence at trial satisfied the relevant test.

Second: The defendants argued that scientific reports published after the trial indicated that the science used at the trial is now known to be insufficiently reliable and argued that the lower court should be reversed even if the best evidence available at the time of the trial was that the science in question was reliable.

Third: Was it reversible error for the trial court to admit into evidence the government's DNA evidence?

Holding: First, judicial notice. "Rule 201 permits a court to take judicial notice only of facts 'not subject to reasonable dispute . . .' There is no dispute that the NRC Report exists, but there is considerable dispute over the significance of its contents." The court found that judicial notice was not appropriate.

Second, timing. "[I]n addressing admissibility of the DNA evidence presented at trial, we find that the key is whether the testimony met the requirements of Federal Rule of Evidence 702 at the time of

100. Id. at 549-51.
101. Id. at 551.
102. Id.
103. Id. at 552.
104. Id.
105. Id.
106. Id.
107. Id. at 551-52.
108. Id. at 552-53.
109. Id. at 549-50.
110. Id. at 553 (citing Fed. R. Evid. 201(b)). See infra notes 113-31 and accompanying text.
111. Bonds, 12 F.3d at 553.
the district court’s admissibility determination, not whether subsequent events provide evidence that contradicts or calls into question the district court’s view at the time of its admissibility ruling.”

Third, *Daubert*, as applied to the facts at bar. This involved the issue of whether the government’s DNA evidence was properly admitted against the defendant. Here is Bonds’ ten-step *Daubert* testing procedure:

1) Is the evidence relevant? Will it assist the trier of fact? “[E]vidence that Bonds’s DNA matched at least to some extent the DNA found in the crime-scene sample clearly is relevant to whether defendant Bonds was [at the crime scene] . . . on the night of the murder. Thus, the DNA evidence was helpful to the jury in determining whether defendants were guilty of the charges.”

This requirement comes from Rules 401 and 702.

2) Can the theory and the methodology be tested? Both the theory and the methodology used by these experts can be tested.

3) Have the theory and the methodology been tested? The technique the FBI used here has been tested. The court noted, “It is irrelevant that there are other methods for DNA matching that could also be or have been tested.”

4) There has been peer review. The defendants alleged that the peer review turned up flaws in the FBI’s theory and procedures. The court stated that “flawed” is not the same as “lacking scientific validity.”

The flaws alleged here go to weight, not admissibility.

5) The rate of error for this particular DNA testing was significant and troubling. This is, however, only one factor among many in *Daubert* testing, and, even though troubling, this rate of error is acceptable to the relevant scientific community.

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112. *Id.* Of course, this only addresses the evidentiary problem. There could be a constitutional problem with a conviction based on bad science: a due process fair-trial problem. See Milone v. Camp, 22 F.3d 693, 702 (7th Cir. 1994), cert. denied, 115 S. Ct. 720 (1995) (finding that the *Daubert* test is an evidentiary test, not a constitutional test). See *infra* notes 224-34 and accompanying text.

In a related vein, the trial court itself must answer *Daubert* questions based on current knowledge, not on some argued future state of knowledge. See *infra* notes 623-32 and accompanying text.

113. *Bonds*, 12 F.3d at 557.

114. *Id.* at 558.

115. *Id.*

116. *Id.* at 559.

117. *Id.*

118. *Id.*

119. *Id.* at 560.

120. *Id.*

121. *Id.*
6) The theory of DNA profiling used by the lab in this case is generally accepted in the relevant scientific community.\textsuperscript{122}

7) The methodology, "the basic procedures used by the lab in this case," are generally accepted in the relevant scientific community.\textsuperscript{123}

8) "[T]he Government experts' testimony was based on data and facts reasonably relied upon by experts in [the relevant fields of expertise]."\textsuperscript{124} This is the requirement of Rule 703, and all it means is that the "experts' scientific knowledge be based on sound methodology."\textsuperscript{125} This point really repeats the last. Rule 703 has not been violated here.

9) The magistrate judge who made the admissibility decision appointed an expert witness.\textsuperscript{126} This is permitted by Rule 706. "The court's appointment of its own expert witness counsels in favor of affirming the admission of the DNA testimony."\textsuperscript{127}

10) Finally, Rule 403 requires that the probative value of scientific testimony not be substantially outweighed by the danger of unfair prejudice, confusion of the issues, or waste of time.\textsuperscript{128} Rule 403 rulings are reviewed for abuse of discretion.\textsuperscript{129} The court found that there was no abuse of discretion.\textsuperscript{130}

"Unfair prejudice" does not mean the damage to a defendant's case that results from the legitimate probative force of the evidence; rather it refers to evidence which tends to suggest decision on an improper basis."\textsuperscript{131}

Commentary: Most of the above discussion boils down to this: the defendants challenged the particular application of the methodology by the FBI in this case.\textsuperscript{132} Had the tests been performed differently, the defendants argued, the results would have been more accurate and, perhaps, different.\textsuperscript{133} The defendants challenged the precision of the FBI's probability estimate.\textsuperscript{134}

\textsuperscript{122} Id.
\textsuperscript{123} Id. at 566.
\textsuperscript{124} Id.
\textsuperscript{125} Id.
\textsuperscript{126} For a post-Daubert case where the expert's opinions were based on data that was not reasonably relied on by experts in the field, see Henry v. Hess Oil Virgin Islands Corp., 163 F.R.D. 237 (D.V.I. 1995) (stating that such a defect is a question for the trier of law; it rendered the opinions inadmissible under Rule 703).
\textsuperscript{127} Id. at 567.
\textsuperscript{128} FED. R. EVID. 403; Bonds, 12 F.3d at 567.
\textsuperscript{129} Bonds, 12 F.3d at 567.
\textsuperscript{130} Id. at 566.
\textsuperscript{131} Id. at 567 (citations omitted).
\textsuperscript{132} See supra notes 95-131 and accompanying text.
\textsuperscript{133} Bonds, 12 F.3d at 560.
\textsuperscript{134} Id.
The court's answer was to recognize that "Daubert requires only scientific validity for admissibility, not scientific precision," and then to spend fifteen pages discussing how it is that this evidence is scientifically valid.

This case produced three significant pieces of black letter law. First, regarding appellate court judicial notice of new scientific papers that challenge the science relied on at the trial, Bonds holds that the appellate court can only take judicial notice of a new paper if its content is "not subject to reasonable dispute." Much science is "subject to reasonable dispute." Further, to the extent that the evidence in question is novel scientific evidence, it may be that all novel scientific evidence is subject to reasonable dispute.

Second, whether Daubert testing is satisfied is a question appellate courts must answer based on the state of knowledge at the time of the trial court's admissibility determination, not on the state of knowledge at the time of the appeal.

A third piece of black letter law from Bonds is this: the existence of a better scientific test does not necessarily render inadmissible the one that is offered into evidence. If a test meets the requirements of Daubert, then qualitative differences between that scientific test and another that also meets the requirements of Daubert go to weight, not admissibility. They are questions for the trier of fact, not for the trier of law.

2. In re Paoli Railroad Yard PCB Litigation

Facts: Polychlorinated biphenyls ("PCB") leaked off the railroad yard into groundwater and into the soil of nearby residents. "The National Institute for Occupational Safety and Health ("NIOSH") identifies the site as containing the worst PCB contamination it has ever encountered during a health inspection." Thirty-eight persons who lived adjacent to or worked in the yard brought suit, seeking damages resulting from exposure to PCBs. They claimed damages for

135. Id. at 558.
136. Id. at 558-74.
137. Id. at 553, see Fed. R. Evid. 201(b). See infra notes 110-11 and accompanying text.
138. Again, however, this only addresses the evidentiary problem. A conviction based on bad enough science could violate the defendant's constitutional right to due process of law. See supra note 112 and accompanying text.
139. Bonds, 12 F.3d at 559.
142. Paoli R.R. Yard PCB Litigation, 35 F.3d at 735.
143. Id.
present personal injury, monitoring for future injuries necessitated by their increased risk, and diminution of the market value of their property.\textsuperscript{144}

The parties designated many experts.\textsuperscript{145} The district court held five days of in limine hearings, where three of the plaintiffs’ designated experts testified as did ten of the defendants’ designated experts.\textsuperscript{146} The court excluded all but one of the plaintiffs’ experts and granted summary judgment to the defendants.\textsuperscript{147}

\textit{Holding:} Here is Paoli’s description of the \textit{Daubert} hearing:

1) The witness must be an expert: “a witness proffered to testify to specialized knowledge must be an expert.”\textsuperscript{148} This is an interpretation of Rule 702. But Rule 702’s requirement in this regard is a liberal one.\textsuperscript{149} It is liberal regarding formal qualifications such as a degree in a particular field, in that formal qualifications are not a necessity.\textsuperscript{150} Rule 702 is also liberal regarding substantive qualifications and their fit with the precise issues of the case.\textsuperscript{151} If the liberal minimum standards are met, the witness’ level of expertise goes to credibility and weight.\textsuperscript{152}

2) Under Rule 702, the general scientific theory and methodology must be reliable.\textsuperscript{153} “[A]n expert’s testimony is admissible so long as the process or technique the expert used in formulating the opinion is reliable.”\textsuperscript{154} This “inquiry into the reliability of scientific evidence . . . requires a determination as to its scientific validity.”\textsuperscript{155} The inquiry into scientific validity requires a determination as to whether the opinion is “based on the ‘methods and procedures of science’ rather than on ‘subjective belief or unsupported speculation.’”\textsuperscript{156}

Some techniques will be so well established that “this inquiry can be resolved by judicial notice.”\textsuperscript{157} Absent judicial notice the trial court

\begin{itemize}
\item 144. \textit{Id.}
\item 145. \textit{Id. at 732.}
\item 146. \textit{Id. at 736.}
\item 147. \textit{Id.}
\item 148. \textit{Id. at 741.}
\item 149. \textit{Id.}
\item 150. \textit{Id.}
\item 151. \textit{Id.} Substantive qualifications may include a witness’ level of expertise and experience.
\item 152. \textit{Id.}
\item 153. \textit{Id. at 742.}
\item 154. \textit{Id.}
\item 155. \textit{Id.} (citing \textit{Daubert}, 113 S. Ct. at 2795 n.9).
\item 156. \textit{Id.}
\item 157. \textit{Id. at 744 n.10.} Regarding judicial notice, presumptions, \textit{prima facie} statutory recognition, and the \textit{Daubert} testing of expert witnesses, see infra notes 579-602 and accompanying text.
\end{itemize}
will have to inquire into and assess the methods and procedures being used.

*Paoli* provides an open-ended list of the factors to consider when inquiring into the expert's methods and procedures:

a) the testability of the expert's hypothesis;¹⁵⁸

b) "whether the methodology has been subjected to peer review and publication";¹⁵⁹

c) "whether the methodology has been generally accepted in the scientific community";¹⁶⁰

d) the rate of error of the methodology;¹⁶¹

e) the existence and maintenance of standards controlling techniques;¹⁶²

f) the degree to which the expert is qualified;¹⁶³

g) "the relationship of a technique to 'more established modes of scientific analysis'";¹⁶⁴

h) "the 'non-judicial uses to which the scientific technique are put,'";¹⁶⁵ and

i) any other factors that are relevant.¹⁶⁶

3) The theory and methodology must both be reliable, not just in general, but also as applied to a case such as the one at bar.¹⁶⁷ Rule 702 also "requires that the expert's testimony must assist the trier of fact."¹⁶⁸ This is a reliability requirement, a requirement of a certain fit between the science and the case.¹⁶⁹ It "extends to each step in an expert's analysis all the way through the step that connects the work of the expert to the particular case."¹⁷⁰

Just how close of a "fit" is required? The court stated that the fit must be "more than a *prima facie* showing . . . that a technique is reliable"¹⁷¹ and "more than bare logical relevance, . . ."¹⁷² but less

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¹⁵⁸. *Bonds*, 12 F.3d at 742 (citing *Daubert*, 113 S. Ct. at 2796).
¹⁵⁹. Id.
¹⁶⁰. Id.
¹⁶¹. Id.
¹⁶². Id. The court in *Paoli* uses some of the same factors that the court in *Daubert* listed. See *Daubert*, 113 S. Ct. at 796-97.
¹⁶⁴. Id. at 742 (citations omitted).
¹⁶⁵. Id. (citations omitted).
¹⁶⁶. Id.
¹⁶⁷. Id. at 743.
¹⁶⁸. Id. at 742-43; *Fed. R. Evid.* 702.
¹⁷⁰. Id. “[A]ny step that renders the analysis unreliable under the *Daubert* factors renders the expert’s testimony inadmissible.” Id. at 745 (emphasis omitted).
¹⁷². Id. at 745.
than "a preponderance of the evidence that the assessments of [the] experts are correct."\textsuperscript{173}

The parties, at the Daubert-Rule 104 hearing, must "demonstrate by a preponderance of evidence that their [experts'] opinions are reliable."\textsuperscript{174} "As Daubert indicates, '[t]he focus . . . must be solely on principles and methodology, not on the conclusions that they generate.'\textsuperscript{175}

[T]he primary limitation on the judge's admissibility determinations is that the judge should not exclude evidence simply because he or she thinks that there is a flaw in the expert's investigative process which renders the expert's conclusions incorrect. The judge should only exclude the evidence if the flaw is large enough that the expert lacks 'good grounds' for his or her conclusion.\textsuperscript{176}

4) Next, the judge must consider Rule 403 — jury confusion or unfair prejudice.\textsuperscript{177} The United States Court of Appeals for the Third Circuit stated that "Rule 403, is rarely appropriate as a basis of pretrial exclusion because a judge cannot ascertain potential relevance until that judge has a virtual surrogate for a trial record."\textsuperscript{178}

5) "While Rule 702 focuses on an expert's methodology, Rule 703 focuses on the data underlying the expert's opinion."\textsuperscript{179} Under this part of the test, the trial judge must make his or her own independent evaluation of the reliability of the data.\textsuperscript{180} This is a Rule 703 decision, but the standards are the same as those used in Rule 702's reliability decision.\textsuperscript{181} The Rule 702 decision assesses the reliability of the meth-

\textsuperscript{173} Id. at 744.
\textsuperscript{174} Id. at 743. See Bourjaily v. United States, 483 U.S. 171, 175 (1987).
\textsuperscript{175} Paoli R.R. Yard PCB Litigation, 35 F.3d at 744 (citing Daubert, 113 S. Ct. at 2797). On the one hand, an expert can have good grounds to hold an opinion even though a judge thinks the opinion is incorrect. Id. On the other hand, "[w]hen a judge disagrees with the conclusions of an expert, it will generally be because he or she thinks that there is a mistake at some step in the investigative or reasoning process of that expert." Id. at 746.
\textsuperscript{176} See infra notes 641-59 and accompanying text (regarding the split of responsibility between judge and jury with respect to experts' methodologies and their conclusions).
\textsuperscript{177} Paoli R.R. Yard PCB Litigation, 35 F.3d at 746.
\textsuperscript{178} Id. at 746-47; Fed. R. Evid. 403. As regards jury confusion, the court noted that "there must be something particularly confusing about the scientific evidence at issue — something other than the general complexity of scientific evidence." Paoli R.R. Yard PCB Litigation, 53 F.3d at 747.
\textsuperscript{179} Paoli R.R. Yard PCB Litigation, 53 F.3d at 747. The plaintiffs in Paoli argued that the record at the pretrial in limine hearing was not sufficient to support the trial court's pretrial Rule 403 ruling "because they did not have an opportunity to depose defendant's experts ahead of time. . . . [T]he in limine hearing here . . . [which lasted five days] was more than adequate." Id.
\textsuperscript{180} Id.
\textsuperscript{181} Id. at 748. See supra notes 153-66 and accompanying text.
odology, and the Rule 703 decision assesses the reliability of the data.182

Commentary: Paoli is a terrific opinion written by Judge Edward R. Becker. One of the elements of Paoli that is worth mentioning again, here in the Commentary, is this aspect of its inquiry into scientific methods and procedures: “the 'non-judicial uses to which the scientific technique are put.'”183 This is reminiscent of the business records exception to the hearsay rule, Federal Rule of Evidence 803(6), which is based, in part at least, on this kind of reasoning: If business relies on it, why shouldn’t the courts?184 Why indeed?

In the case of expert scientific evidence, however, the question of the extent to which the science is relied on outside of the judicial system and the scientific community is a tricky question. There is much science that is relied on by business that I would not be comfortable with in court. Cigarette company science is an example that comes easily to mind: for example, cigarette company experts declaiming a lack of scientific support for a connection between cigarette smoking and cancer or between nicotine and addiction.

B. Differences Between Pre- and Post-Daubert Litigation

The difference between pre- and post-Daubert litigation in federal court is discussed throughout Parts I and II of this Article.185 In re Joint Eastern and Southern District Asbestos Litigation186 sums it up this way: in the early years before Daubert, once an expert’s credentials were established, courts were understandably reluctant to evaluate the expert’s testimony and left that evaluation to the jury.187 In the years immediately preceding Daubert, courts’ fidelity to the traditional standard of deference cracked in the face of some huge cases and huge jury awards that were based on nonexistent or doubtful scientific evidence.188 The standard of deference began to be replaced with less deference; courts began taking steps designed to eliminate perceived abuses of expert testimony; judges began looking more care-

182. Id. at 748-49. How does Part (5) differ from Part (3)? Part (3) focuses on whether the kind of expertise possessed by the witness is relevant to the kind of case at bar. Part (5), this part, focuses on the actual data that the expert has used in applying the science to the case at bar. See id. (discussing the difference between Rule 702 and Rule 703).
183. Paoli R.R. Yard PCB Litigation, 35 F.3d at 742.
184. See Fed. R. Evid. 803(6) (allowing hearsay into evidence if it is in the form of a regularly kept business record).
185. See supra notes 1-94 and accompanying text.
188. Joint Eastern and Southern District Asbestos Litigation, 827 F. Supp. at 1031.
fully themselves, as a matter of law, at the question of whether the expert's testimony was relevant, whether it was more than just speculation, whether it survived Rule 403, and the like. After Daubert, federal trial judges are required to make their own assessment of whether the methodology underlying an expert's opinion is fundamentally sound.

The responsibility for keeping junk science out of the courtroom used to be placed on the experts themselves, to the following extent: all the judge had to decide was whether the science was generally accepted in the relevant scientific community; the standard was how the relevant community of scientists received the science. Now, there need not be a relevant scientific community, and, whether there is or not, the trial court has to make its own decision on the reliability of the science. While general acceptance is still part of the consideration, it is no longer the only consideration. While general acceptance may be a strong indicator of reliability, the trial judge is no longer allowed to rely on that factor exclusively. Further, it is clear that lack of general acceptance by itself is no longer a sufficient reason to invalidate scientific evidence.

There are a number of situations where Daubert should not make any difference at all. There are situations where reliability will be established with judicial notice, through a presumption, by prima facie statutory recognition, or in some way that does not require proof in the typical evidential fashion. There are also situations where Daubert shakes up what used to be settled principles of expert evidence, for instance, in many jurisdictions, the per se rule prohibiting the introduction of polygraph evidence.

C. THE EXTENT OF DAUBERT'S APPLICATION

Where Daubert testing applies, it is mandatory, and the expert evidence cannot be admitted without it. This may not be the bur-

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189. Id. at 1031.
190. Id. at 1033.
192. See infra notes 338-578 and accompanying text.
193. See infra notes 579-602 and accompanying text.
194. See United States v. Posado, 57 F.3d 428, 431-32 (5th Cir. 1995) ("The government concedes that a per se rule against admitting polygraph evidence, without further inquiry, is not viable after Daubert. . . ."); United States v. Crumby, 895 F. Supp. 1354, 1357-58 (D. Ariz. 1995) ("[T]he per se rule prohibiting introduction of unstipulated polygraph evidence' must be reexamined after Daubert). On the general topic of polygraph evidence and the effect Daubert has on its admissibility, see infra notes 231-34, 595-98 and accompanying text, and see the Case Digest, infra, under the heading "Kinds of Evidence," subheading "polygraph."
195. Groca v. Alpha Therapeutic Corp., 51 F.3d 638, 643 (7th Cir. 1995). See Fyrmire-Brinati v. KPMG Peat Marwick, 2 F.3d 183, 187 (7th Cir. 1993) (stating that,
den it seems. There will be cases where Daubert testing will not amount to much and may be barely noticed because it can be done while the expert is testifying before the jury and the lawyer is laying the foundation for the expert’s testimony, because all or part of it can be done through judicial notice, because there is a statute creating prima facie recognition of the reliability of a particular theory or a particular methodology, because of the aid of a burden shifting presumption, or because of some combination thereof. The extent of Daubert’s application may be defined with reference to the kinds of witnesses to whom it applies and the kind of proceedings in which it applies.

1. Kinds of Witnesses

Daubert’s analysis of the judge’s function as gatekeeper under the federal rules regarding expert testimony applies to all experts. It applies to the “hard” physical sciences and to the “soft” social sciences. It applies to “all expert testimony offered under Rule 702.” This seems indisputably clear to me. The same rules of evidence that led the United States Supreme Court to its decision in Daubert — Rules 403, 702, 703, and 706 — apply to all expert witnesses, whether their expertise relates to “scientific, technical, or other specialized knowledge” and whether their expertise is based on “knowledge, skill, experience, training, or education.” The rules ap-

though a trial judge has considerable discretion regarding expert testimony, a trial judge does not have discretion to do away with Daubert testing).

196. See infra notes 579-602 and accompanying text.
197. Berry v. City of Detroit, 25 F.3d 1342, 1350 (6th Cir. 1994). In Berry, the plaintiff’s son was shot to death by a Detroit police officer. Berry, 25 F.3d at 1344. In this § 1983 action, the plaintiff alleged that the City’s general failure to discipline officers other than the shooter was a proximate cause of this shooting. Id. A jury awarded the plaintiff six million dollars. Id. The trial included the testimony of a witness offered as an expert in police procedures. Id. at 1347. The court of appeals applied Daubert and reversed, stating that this witness was not sufficiently qualified (insufficient foundation) and his testimony did not meet the requirements of Daubert. Id. at 1349-56. There was no testing of his theories; no peer review; no evidence his theories were accepted by anyone other than himself, so no evidence of general acceptance; and no field of experts in which he could be put and with which his theories and methods could be compared. Id. at 1349-54. In addition, the expert’s own methodology was suspect. Id. at 1353.
198. In re Aluminum Phosphide Antitrust Litigation, 893 F. Supp. 1497 (D. Kan. 1995). The plaintiff argued that Daubert did not apply to “soft” social sciences such as economics, but only to “hard” physical sciences that could be tested by scientific method. Id. at 1506. The court disagreed, applying Daubert and finding that the economics expert’s testimony was inadmissible because the reasoning and methodology were not “economically valid” and the probative value of the opinion would be substantially outweighed by danger of unfair prejudice. Id. at 1506-07.
199. Berry, 25 F.3d at 1350.
ply to all experts; it is just that Daubert discusses them in the context of the scientific expert. The rules apply to all experts; it is just that in some cases, there is no need for a full-blown, pretrial, Rule 104 hearing on the admissibility of the expert evidence: there are other ways to determine Daubert reliability and relevance.201 There are cases, however, that disagree.202

Daubert testing applies no matter how well qualified the proffered expert may be. Though trial judges "possess considerable discretion in dealing with expert testimony," they do not have the discretion to do away with Daubert testing.203 No matter how well qualified an expert, the trial judge must still assess the reliability of the theory and methodology both in general and as applied to the facts of the case at bar.204

What about Daubert and lay witnesses? One court has stated, "[W]e refuse to hold . . . that all lay witnesses offering opinions that require special knowledge or experience must qualify under Rule 702."205 But then, if the lay witness requires special knowledge or experience, is not that witness really an expert witness? This is the point of Rule 702: "If . . . specialized knowledge will assist the trier of fact . . . , a witness qualified as an expert . . . may testify thereto in the form of an opinion or otherwise."206

Daubert does not apply to the decision as to whether a lay witness is competent to testify. But what if a party offers the judge expert evidence to inform the judge's decision as to whether the lay witness is competent — expert evidence that is not directed at a question of fact and is not offered for the use of the trier of fact, but it is directed at a question of law and offered for the exclusive use of the trier of law? Must the trier of law run Daubert testing on the evidence before deciding whether to take it into account when deciding the admissibility

201. See supra notes 195-96 and infra notes 579-602, 699-708 and accompanying text.
203. Frymire-Brinati, 2 F.3d at 187.
204. Id. at 188-89.

There is, of course, a difference between lay witnesses and witnesses whose experience qualifies them as experts. See infra note 246-90 and accompanying text.
question of law? *Daubert* only directly applies to a trial judge answering the question: Can an attorney submit specialized knowledge evidence to the trier of fact? *Daubert* does not apply (not directly, at least) to a trial judge answering the question: Should I consider specialized knowledge evidence in support of my own resolution of a question of law? *Daubert* does, however, counsel flexibility.

In a case involving the testimony of a lay witness' post-hypnosis recovered memory, the United States Court of Appeals for the Second Circuit stated that the trial judge's test for admissibility "in this case was insufficiently flexible."207 Even though *Daubert* itself does not apply to the admissibility of the testimony of this lay witness, the Second Circuit stated that "it would have been more appropriate for the district judge to have conducted an evidentiary hearing prior to issuing his ruling."208 "Rather than using rigid safeguards for determining whether testimony should be admitted, [Daubert's] approach is to permit the trial judge to weigh the various considerations pertinent to the issue in question."209 This the trial judge did not do. Still, on the record that does exist in this case, the Second Circuit affirmed the trial court's ruling.210

The evidence in *Iacobelli Construction, Inc. v. County of Monroe*211 included summaries and analyses of voluminous and highly technical data.212 The Second Circuit stated:

We believe the district court erred in its rejection of the affidavits of [the defendants' experts]. Its reliance on *Daubert* was misplaced. *Daubert* sought to clarify the standard for evaluating "scientific knowledge" for purposes of admission under Fed. R. Evid. 702. . . .

The affidavits of [the defendants' experts] do not present the kind of "junk science" problem that *Daubert* meant to address. Rather, they rely upon the type of methodology and data typically used and accepted in construction-litigation cases.213

This does not seem correct. *Daubert* interprets the evidentiary rules that apply to the admissibility of "scientific, technical, or other

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208. *Borawick*, 68 F.3d at 609.
209. Id.
210. Id.
211. 32 F.3d 19 (2nd Cir. 1994).
213. *Iacobelli Constr. Inc.*, 32 F.3d at 25 (citations omitted). See Tamarin v. Adam Caterers, Inc., 13 F.3d 51 (2d Cir. 1993); and other cases cited in the Case Digest, infra, under "Limits on Coverage of *Daubert*."

specialized knowledge." There is nothing in *Daubert* to indicate that this interpretation only applies to one part of that rule, the "scientific... knowledge" part, and, even then, only to "junk science." Of course, *Daubert's* details apply to scientific knowledge because that was the context of that case. Its general methods and its discussion of controlling rules, however, apply to all types of specialized knowledge listed in Rule 702. If it takes expertise to construct the summaries involved in this case, then the experts must be qualified and their techniques must be reliable, just as they must be for any other expert. If, on the other hand, an expert is not needed to prepare the summary, then, of course, *Daubert* does not stand in the way any more than does the rule requiring the production of the original writing or the hearsay rule.

What the Second Circuit should have said here is not that the trial court was wrong to rely on *Daubert*, but that the trial court worked the *Daubert* test incorrectly. *Daubert* requires that the evidence be reliable and relevant in theory and methodology. The problem here was that the trial court said this evidence is not reliable when, in fact, the Second Circuit found that it was reliable — in both theory and methodology. On the other hand, perhaps all the Second Circuit is saying that there need not be the kind of *Daubert* testing in which this trial court engaged, because the expert's theory and methodology have been so well accepted by courts that a trial court can, and should, take judicial notice of their reliability.

Similarly, the court in *Lappe v. American Honda Motor Co., Inc.* stated that "*Daubert's* narrow focus is on the admissibility of 'novel scientific evidence'... *Daubert* only prescribes judicial intervention for expert testimony approaching the outer boundaries of traditional scientific and technological knowledge." This seems

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214. FED. R. EVID. 702.
215. See United States v. Posado, 57 F.3d 428, 433 (5th Cir. 1995).
216. FED. R. EVID. 1006.
217. The summaries are not offered to prove the truth of the matter asserted, but just to show that they were said; truth is proved by the underlying documents on which the summaries are based and those underlying documents are admissible under FED. R. EVID. 803(6), the exception for records of a regularly conducted activity.
218. *Iacobilli Constr. Inc.*, 32 F.3d at 24-25.
220. *Lappe v. Am. Honda Motor Co. Inc.*, 857 F. Supp. 222, 228 (N.D.N.Y. 1994) (citations omitted). *Lappe* is a negligence products liability action stemming from a single-vehicle automobile accident. *Lappe*, 857 F. Supp. at 224. The plaintiff was not wearing a seatbelt at the time of the accident and was thrown from his 1984 Honda Civic. *Id*. Spinal cord injury left him permanently quadriplegic. *Id*. The plaintiff claimed that the car was defective with respect to its susceptibility to excessive roof crush and the design and placement of the pedals. *Id*. The court held that "*Daubert's* narrow focus is on the admissibility of 'novel scientific evidence.'... *Daubert* only prescribes judicial intervention for expert testimony approaching the outer boundaries
wrong; it is too limited. There is no basis for saying that Daubert only applies to some scientific evidence. Its test applies to all scientific evidence; it is just that, when scientific evidence is not novel, the test is more easily satisfied.

The correct approach here seems to be that Daubert does apply to non-novel scientific evidence and, in fact, to all expert evidence. With scientific evidence that is not novel, judicial notice may be available to avoid the rigors, the expense, and the time consumption of the presentation-of-evidence approach to Daubert testing.\textsuperscript{221}

In fact, the correct approach seems to be that the essence of Daubert applies to all expert testimony, novel or not, scientific or not.\textsuperscript{222} Daubert explains how to handle expert evidence under the scientific expertise branch of Rule 702. Its general approach should also apply to the other kinds of expertise covered by Rule 702. If the expert is not an expert in “scientific” knowledge, but is an expert in “technical or other specialized knowledge,” the judge still needs to determine whether the witness is in fact an expert, and, if so, the judge needs to consider the reliability of the expert’s general theory and methodology; the reliability and relevance of the expert’s application of the theory and methodology to the facts of the case at bar; and, under Rule 403, whether unfair prejudice, confusion of the issues, and time consumption substantially outweigh its probative value. The court will consider many of the same factors as in a case of scientific expertise.

\textsuperscript{221}Regarding judicial notice, presumptions, and \textit{prima facie} statutory recognition of reliability, as well as reliability established on the stand, in front of the jury, see \textit{infra} notes 579-602 and accompanying text. Regarding judicial notice, see \textit{supra} notes 219-220 and accompanying text.

\textsuperscript{222}Berry, 25 F.3d at 1350. “Although ... Daubert dealt with scientific experts, its language relative to the ‘gatekeeper’ function of federal judges is applicable to all expert testimony offered under Rule 702.” \textit{Id.} See \textit{supra} note 197 and accompanying text for a more complete discussion of this aspect of Berry.
The court will examine such things as peer review, general acceptance, testing, rate of error, existence of standards, and the degree to which the expert is qualified. Even if no one at the hearing ever uses the word "science," this is still a Daubert hearing.\footnote{223}

2. Kinds of Issues

In Milone v. Camp,\footnote{224} a man had been convicted in the 1970s of the murder of a fourteen-year-old girl. His conviction was based in part on evidence of a comparison between his dental impressions and a human bite mark on the thigh of the deceased. He argued that his conviction should be reversed because the evidence that linked his dentition to the bite mark found on the victim is unreliable under the new Daubert standard.\footnote{225} The main question on appeal was whether the conviction was unconstitutional.\footnote{226}

The Daubert test is an evidentiary test, not a constitutional test.\footnote{227} Daubert's test for the admissibility of scientific evidence is not the constitutional floor on the admissibility of such evidence.\footnote{228} The standard for showing that the admission of evidence violated a specific constitutional guarantee is not whether the testimony satisfied the Daubert test, but "rather whether the probative value of the state's evidence was so greatly outweighed by its prejudice to [the defendant] that its admission denied him a fundamentally fair trial."\footnote{229} While the science of forensic odontology might have been in its infancy at the time of defendant's trial, there was no constitutional error in its use and it did not fail the "greatly outweighed" test.\footnote{230} Failure to comply with the requirements set forth in Daubert is not the same as failure to comply with the requirements of the United States Constitution.

Though it did not do so retroactively in Milone, in other cases Daubert is opening up issues that long seemed closed. For example, prior to Daubert, it was clear that the results of polygraph examinations were inadmissible.\footnote{231} In the United States Court of Appeals for the Ninth Circuit, for example, there was a "per se rule prohibiting

\footnote{223. See Starczecypzel, 880 F. Supp. at 1027 (discussing the application of a Daubert standard to non-scientific evidence). See supra note 220 and accompanying text.}

\footnote{224. 22 F.3d 693 (7th Cir. 1994).}

\footnote{225. Milone v. Camp, 22 F.3d 693, 697-702 (7th Cir. 1994).}

\footnote{226. Milone, 22 F.3d at 701.}

\footnote{227. Id.}

\footnote{228. Id.}

\footnote{229. Id.}

\footnote{230. Id.}

\footnote{231. See United States v. Black, 831 F. Supp. 120, 123 (E.D.N.Y. 1993) (stating that polygraph examinations were not admissible under the Frye test because they were not sufficiently reliable and that Daubert does not change the result). See infra notes 595-98 and accompanying text.}
introduction of unstipulated polygraph evidence." In the view of some federal courts, however, Daubert has changed this rule. Daubert has forced federal courts to reexamine polygraph evidence, and some are finding that "[t]he science of polygraphy has made significant progress over the past decade."

3. Kinds of Proceedings

Daubert does not apply at sentencing hearings. As the United States Court of Appeals for the Fifth Circuit stated:

[T]he appropriate standard regarding the admissibility of evidence at sentencing is substantially lower than that governing admissibility at trial. Specifically, '[i]n resolving any reasonable dispute concerning a factor important to the sentencing determination, the court may consider relevant evidence without regard to its admissibility under the rules of evidence at trial, provided that the information has sufficient indicia of reliability to support its probable accuracy.'

Thus, the test for the admission of scientific evidence at the sentencing phase is "sufficient indicia of reliability to support [the evidence's] probable accuracy." Daubert is not the test (and neither is Frye).

Daubert does not apply to decisionmaking at the administrative agency level. In Sierra Club v. Marita, the Sierra Club and others claimed that the United States Forest Service violated several environmental statutes when it authorized certain timber harvesting and road building in two national forests. The Sierra Club claimed that the Forest Service developed forest management plans without properly considering certain ecological principles of biological diversity. In part, the Sierra Club claimed that the Forest Service failed to use high quality science and used scientifically unsupported techniques in addressing some of the relevant concerns. The Sierra Club suggested that the court use Daubert as its guide for the quality of the

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This rule of inadmissibility had begun to break down a bit even before Daubert. See United States v. Crumby, 895 F. Supp. 1354, 1357 (D. Ariz. 1995) (reassessing the per se inadmissibility rule).

233. Id. at 1358.
234. Id. at 1361.
236. McCaskey, 9 F.3d at 380 (citations omitted).
237. 46 F.3d 606 (7th Cir. 1995).
238. Sierra Club v. Marita, 46 F.3d 606, 608 (7th Cir. 1995).
239. Sierra Club, 46 F.3d at 608.
240. Id. at 614.
science the administrative agency must use when it engages in these kinds of agency tasks.\footnote{241} The court declined.\footnote{242}

Administrative agency action is not bound by the Federal Rules of Evidence. The science that supports administrative decisions need not pass through the \textit{Daubert} gate. The agency may use its own methodology, so long as it is not irrational. This approach is correct as a matter of basic constitutional law. The general test for the substantive constitutionality of administrative agency action is reasonableness review; administrative action is upheld unless it is unreasonable, arbitrary, or irrational.\footnote{243} The exceptions are when the administrative action either classifies on the basis of suspect or quasi-suspect criteria or infringes fundamental constitutional rights. Absent one of these exceptions, so long as the agency's decision is not unreasonable, arbitrary, or irrational, it is to be upheld.\footnote{244}

D. LAY WITNESSES

Though \textit{Daubert} itself does not apply to lay testimony, \textit{Daubert}'s methods may have some relevance regarding at least two different kinds of lay witness decisions faced by trial judges. The first deals with the intersection between lay and expert witnesses. The second deals with expert testimony that is to be heard only by the judge to aid the judge's decision as to whether a lay witness is competent to testify.\footnote{245}

1. \textit{Daubert}'s Application to the Actual Testimony of Lay Witnesses

In \textit{Asplundh Manufacturing Division of Asplundh Tree Expert Co. v. Benton Harbor Engineering},\footnote{246} the court discussed what application \textit{Daubert} has, if any, to the testimony of a lay witness.\footnote{247} The opinion discusses the history of lay opinion testimony from the common law through the development of Federal Rule of Evidence 701.\footnote{248} The court divided Rule 701 lay opinion evidence into three kinds of

\begin{itemize}
\item \footnote{241} Id. at 621-22.
\item \footnote{242} Id. at 622.
\item \footnote{243} This leaves aside questions regarding the procedures the agency has followed and whether its acts were outside the scope of its power.
\item \footnote{244} Kenneth Culp Davis & Richard J. Pierce, Jr., \textit{Administrative Law Treatise} § 11.4 (1994).
\item \footnote{245} And then, perhaps, the expert testimony may be heard by the jury as credibility evidence, but not substantive evidence of non-credibility issues.
\item \footnote{246} 57 F.3d 1190 (3d Cir. 1995).
\item \footnote{247} \textit{Asplundh Mfg. Div. of Asplundh Tree Expert Co. v. Benton Harbor Engineering}, 57 F.3d 1190, 1202 (3rd Cir. 1995).
\item \footnote{248} \textit{Asplundh Mfg. Div. of Asplundh Tree Expert Co.}, 57 F.3d at 1194-1203. Rule 701 provides:
\begin{quote}
If the witness is not testifying as an expert, his testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) ration-
\end{quote}
opinions: (1) the lay opinion expressed in the situation where it is otherwise difficult or impossible for the lay witness to present facts, and the opinion is the kind commonly formed by lay persons in general — such as a lay opinion of the speed of a vehicle;\(^\text{249}\) (2) the lay opinion expressed in the situation where it is otherwise difficult or impossible for the lay witness to present facts, and the opinion, though not of the type commonly formed by persons in general, can be formed by this particular lay witness because of some special experience or knowledge possessed by the witness — such as a lay opinion of someone with some particular knowledge of power steering and what happens when power steering fails;\(^\text{250}\) and (3) the lay opinion expressed as to technical matters — such as a lay opinion as to design defect.\(^\text{251}\)

Each category inevitably blends into the next, and the third category inevitably blends into Rule 702 and expert opinions.

Cases in the third category "stretch the doctrinal boundaries of Rule 701 opinion testimony."\(^\text{252}\) It is in the third category where lay opinion most "approach[es] the ambit of Rule 702 expert opinion."\(^\text{253}\)

Though \textit{Daubert} does not apply to these cases:

- its spirit . . . counsels trial judges to carefully exercise a screening function with respect to Rule 701 opinion testimony when the lay opinion offered closely resembles expert testimony.
- Though we acknowledge that important differences between lay opinion evidence and expert testimony exist, justifying a greater level of scrutiny of Rule 702 expert opinion evidence, we do not believe such differences effectively vitiate the need for some judicial gatekeeping on the part of the trial judge in the case of lay opinion testimony of a technical nature.\(^\text{254}\)

\textit{Asplundh} is a case in the third category. This case is very near, on one side or the other of, the line that separates lay opinion from expert opinion.\(^\text{255}\) And the trial judge in \textit{Asplundh} did not engage in

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\(^{\text{249}}\) \textit{Asplundh Mfg. Div. of Asplundh Tree Expert Co.}, 57 F.3d at 1194-98.
\(^{\text{250}}\) \textit{Id.} at 1198-99.
\(^{\text{251}}\) \textit{Id.} at 1199-1201.
\(^{\text{252}}\) \textit{Id.} at 1200.
\(^{\text{253}}\) \textit{Id.} at 1198.
\(^{\text{254}}\) \textit{Id.} at 1202.
\(^{\text{255}}\) Sackerson worked for the City of Portland. \textit{Asplundh Mfg. Div. of Asplundh Tree Expert Co.}, 57 F.3d at 1193. He was killed while operating an aerial lift manufactured by the plaintiff. \textit{Id.} The plaintiff settled with Sackerson's estate and then sought contribution from the defendant, the company that manufactured the component part that allegedly failed and caused the accident that took Sackerson's life. \textit{Id.} The plaintiff offered the deposition of a lay witness, Michael Jones, the fleet maintenance supervi-
the careful screening that is required when the proffered lay witness testimony is in this third category, when it is so near the line separating lay and expert opinions.\textsuperscript{256}

As lay opinions under Rule 701 blend into expert opinions under Rule 702, the trial judge's responsibility moves from simply ruling on an objection to holding a gatekeeper's hearing. At some point, Rule 701 witnesses become Rule 702 witnesses, and, at some point, the evidentiary ruling begins requiring careful screening and then full-blown Daubert consideration.\textsuperscript{257} And it can run in the other direction: one called as an expert witness, but not qualified and therefore not allowed to testify as an expert, may be able to give a lay opinion.\textsuperscript{258}

One reason the decision must sometimes be made regarding whether a witness is a lay witness or an expert witness is that expert witnesses may answer hypothetical questions and, as a general rule, lay witnesses may not. Lay witness opinions must be based on their

\begin{quote}
\textit{...}
\end{quote}

\textsuperscript{256} \textit{Asplundh Mfg. Div. of Asplundh Tree Expert Co., 57 F.3d at 1204-05.}

\textsuperscript{257} \textit{See Reedy v. White Consol. Indus., Inc., 890 F. Supp. 1417, 1448 (D. Iowa 1995) (determining that two witnesses had enough practical experience to be able to testify as experts in claims adjusting procedures); United States v. Johnson, 28 F.3d 1487, 1496 (8th Cir. 1994), cert. denied, 115 S. Ct. 768 (1995) (finding that a gang member was qualified by experience to testify as an expert on the activities of his gang). See also Officer v. Teledyne Republic/Sprague, 870 F. Supp. 408, 410 (D. Mass. 1994) (finding that Daubert's principles have valuable application to admissibility of controversial and novel scientific evidence, but "less use in fields like design engineering where 'general acceptance' is the norm, not the exception").}

\textsuperscript{258} \textit{United States v. Jones, 24 F.3d 1177 (9th Cir. 1994) (allowing a witness to give only lay opinion testimony because he was not qualified as an expert).}
“perception[s],” while expert witness opinions may be based on facts “made known to the expert at . . . the hearing.” Another reason is that when it is accepted in the field for experts to form opinions based on inadmissible evidence, then experts may testify to opinions based on that inadmissible evidence, and, when it is accepted in the field, experts may testify from another’s notes. In fact, this is one of the many important ways around the hearsay rule.

2. Daubert’s Application to Evidence Given by an Expert Solely to Aid the Court with Its Decision as to Whether a Particular Lay Witness is Competent to Testify

With regard to lay and expert witnesses, one issue is whether Daubert has any application to the actual testimony of the lay witness itself. Another issue is whether Daubert has any application to evidence given by an expert solely to aid the court with the decision as to whether a particular lay witness is competent to testify. Asplundh deals with the former. Borawick v. Shay deals with the latter.

In Borawick, the plaintiff was a woman who alleged she had just recovered memory of childhood sexual abuse. When she first recalled abuse, twenty years after it allegedly occurred, she recalled it only under hypnosis. She had no unhypnotized recollection of any abuse, and the hypnotist did not reveal to her the abuse she described.

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260. Fed. R. Evid. 702. See In re Bistrian, 184 B.R. 678 (E.D. Pa. 1995). Over Bistrian’s objection, a bankruptcy court converted her Chapter 13 petition to a Chapter 7 liquidation. Bistrian, 184 B.R. at 679. In the bankruptcy court, Bistrian offered a witness, Mr. Liebersohn, “as an ‘expert . . . Chapter 7 Trustee.’” Id. at 684. The bankruptcy court refused to allow the witness to testify as an expert, but did allow him to testify as a lay witness and to answer hypothetical questions. Id. Bistrian appealed the bankruptcy court’s refusal to allow the witness to testify as an expert. Id. The district court affirmed. Id. The court reiterated that expert witnesses may answer hypothetical questions; however, lay witnesses may not. Id. Lay witness opinions must be based on their “perception[s],” while expert-witness opinions may be based on facts “made known to the expert at . . . the hearing.” Id. (citations omitted). The witness here “was undoubtedly a lay witness, because the court refused to qualify him as an expert. Thus, it was error for the bankruptcy court to allow him to give answers to hypothetical questions.” Id. (citations omitted). The error, however, was not reversible. Id. at 685. The error was “formal” and could not have prejudiced Bistrian. Id.
262. “[The expert] testified that it was accepted in her field to rely upon the notes of lab technicians and [the defendant] offers no evidence to the contrary. It is also firmly established that an expert may testify from another person’s notes.” United States v. Davis, 40 F.3d 1069, 1075 (10th Cir. 1994), cert. denied, 115 S. Ct. 1387 (1995) (citing McCormick on Evidence § 15 (4th ed. 1992); and Fed. R. Evid. 703).
264. 68 F.3d 597 (2nd Cir. 1995). See supra notes 207-10 and accompanying text.
266. Borawick, 68 F.3d at 598-99.
while under hypnosis. 267 (The hypnotist thought that the "revelation would have been 'devastating' and would probably surface in time." 268) Several months after her final hypnotic session, the plaintiff began having non-hypnotic memories of abuse. 269 Eventually, she had non-hypnotic memory of abuse by many people including her aunt and uncle, her father, other family members, friends of her father, and men she believed to be Masons. 270 These memories included a variety of abusive conduct, including various "rituals." 271 The case at hand was her civil action against her aunt and uncle. 272

The defendants moved in limine to exclude the plaintiff's post-hypnotic testimony, and the trial court granted the motion. 273 With that testimony excluded, the trial court also granted the defendants' motion for summary judgment. 274 "The linchpin of the district court's ultimate decision to exclude [the plaintiff's] testimony was its [finding that the hypnotist] was not qualified." 275

On appeal, the plaintiff argued that the trial court must apply the standards of Daubert to the decision of whether her post-hypnotic testimony was admissible. 276 After a detailed discussion of hypnosis and of various judicial approaches to the question of the admissibility of hypnotically-refreshed testimony, the United States Court of Appeals for the Second Circuit disagreed. 277 The Second Circuit stated that Daubert was not directly applicable. 278 Daubert concerns the admissibility of specialized knowledge and expert opinions. 279 The issue here was the admissibility of the testimony of the plaintiff, not the testimony of the hypnotist. The issue here was whether the plaintiff was competent "or whether her lay testimony is admissible." 280 Either way, the question faced by the trial court did "not concern the admissibility of experimental data or expert opinion." 281

Borawick is undoubtedly right: Daubert does not apply to the decision as to whether a lay witness is competent to testify. But what if

267. Id. at 599.
268. Id.
269. Id.
270. Id.
271. Id. These nonhypnotic memories surfaced several months after his last hypnotic session. Id.
272. Borawick, 68 F.3d at 599.
273. Id.
274. Id. at 600.
275. Id. at 601.
276. Id. at 600.
277. Id. at 600-10.
278. Id. at 610.
279. Id.
280. Id. at 610.
281. Id. (citations omitted).
a party offers the judge expert evidence to inform the judge’s decision regarding the lay witness’ competency, expert evidence that is not directed at a question of fact and not offered for the use of the trier of fact but is directed at a question of law and offered for the exclusive use of the trier of law? Must the trier of law run Daubert testing on the evidence before deciding whether or not to take it into account when deciding the admissibility question of law?

*Daubert* only directly applies to the trial judge’s decision whether or not specialized knowledge evidence can be submitted to the trier of fact. It does not directly apply to the trial judge’s decision as to whether or not he or she can consider the specialized knowledge evidence in support of his or her decision on questions of admissibility of lay evidence. Under Rule 104(a), “Preliminary questions concerning the qualification of a person to be a witness . . . shall be determined by the court . . . In making its determination it is not bound by the rules of evidence except those with respect to privileges.”

While *Daubert* does not control, the Second Circuit nonetheless says that *Daubert* does counsel flexibility and the trial judge’s test for admissibility “in this case was insufficiently flexible.” “[I]t would have been more appropriate for the district judge to have conducted an evidentiary hearing prior to issuing his ruling.” “Rather than using rigid safeguards for determining whether testimony should be admitted, [Daubert’s] approach is to permit the trial judge to weigh the various considerations pertinent to the issue in question.” This the trial judge did not do. However, based on the record that did exist in *Borawick*, the Second Circuit affirmed the trial court’s ruling.

*Borawick* does not address this question: What will happen if the judge decides that the witness is competent to testify and opposing counsel wants to put the hypnotist on the stand to impeach the underlying witness? Now we have the testimony of an expert witness, and that witness may well be testifying to specialized knowledge (reliable knowledge or not, it is specialized), but it is not offered to prove substantive issues in the case. Rather, it is being offered just to show the effect the expert had on the underlying witness. When this kind of improper-influence evidence is offered to impeach, it is not offered as “scientific knowledge.” To the extent that the problem is “junk sci-

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283. *Borawick*, 68 F.3d at 609-10.

284. Id. at 609.

285. Id. at 610.

286. Id.

ence" being passed off as "good" science, the problem does not exist here: this science is being offered as junk, the offering attorney is not trying to pass it off as reliable, but to pass it off as unreliable. The "expert" is not being offered as an expert, and the testimony may not be offered in the form of an opinion: opposing counsel is simply showing the jury the influence the impeaching witness has had on the witness to be impeached and not asking for the former's opinion.

Finally, there is the apparent unfairness of allowing one side to hire an expert to influence its witnesses; an expert who cannot pass Daubert and would not have been allowed to be a primary witness on the substantive issues, and, once if the influenced witnesses are allowed to testify, not allowing opposing counsel to bring on the expert to impeach the primary witnesses by showing that "expert's" influence on the primary witnesses. If the expert who cannot pass Daubert testing is allowed to influence lay witnesses and the lay witnesses are allowed to testify, it makes no sense to allow Daubert to be used as a shield against impeachment that is designed to bring out the influence of the so-called expert.288

On the facts of Borawick, at least, this expert would be an adverse witness if called by the attorney for the defendants. Trial advocacy will take care of the problem of junk science. First, the attorney calling the witness will be arguing that it is junk science. Second, the attorney calling the witness must have what he or she believes is a good enough reason for calling the witness, aside from the value of the witness' science (or, circling back to the first point, the lack of value of the witness' science being precisely the point).

To quote United States v. Abel289 (but substituting extraneous influence for bias):

Rule 401 defines as 'relevant evidence' evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence. Rule 402 provides that all relevant evidence is admissible, except as

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288. This is similar to the familiar rule in constitutional law that sufficiently trustworthy statements taken from the defendant in violation of a constitutional right and that are inadmissible in the prosecution's case-in-chief may nonetheless be used by the prosecutor to impeach conflicting testimony by the defendant. See Michigan v. Harvey, 494 U.S. 344 (1990) (finding this to be the case when the right to the assistance of counsel was violated); United States v. Havens, 446 U.S. 620 (1980), reh'g denied, 448 U.S. 911 (1980) (finding this to be the case regarding evidence that was the fruit of an unlawful search and seizure); Oregon v. Hass, 420 U.S. 714 (1975) (finding this to be the case when Miranda rights were violated); Harris v. New York, 401 U.S. 222 (1971) (finding this to be the case when Miranda rights were violated); Walder v. United States, 347 U.S. 62 (1954) (finding this to be the case when rights under the Fourth Amendment Search and Seizure Clause were violated).

otherwise provided by the United States Constitution, by Act of Congress, or by applicable rule. A successful showing [that extraneous influence has been brought to bear on] a witness would have a tendency to make the facts to which he testified less probable in the eyes of the jury than it would be without such testimony.  

In the context of an expert who is being called only to be examined regarding the influence he or she has had on the testimony of a primary witness, then the expert is not being called as an expert witness, and the expert witness rules do not apply. The scheme of the rules is that, if the evidence is relevant and the witness is competent, then the evidence comes in unless its opponent can find a rule that keeps it out. Here, because the evidence is not expert evidence, the expert evidence rules do not keep it out.

E. DISCOVERY

_Daubert_ may have quite an effect on discovery. Discovery may be a bit different in anticipation of a pretrial, Rule 104(a) _Daubert_ hearing. The need for pretrial resolution of _Daubert_ questions may affect the nature and the flexibility of the court's discovery order. For some attorneys, discovery may have to become more complete, more complex, and more costly.

For example, at the pretrial _Daubert_ hearing, the trial judge "must make findings of fact on the reliability of complicated scientific methodologies and this fact-finding can decide the case... [For these reasons,] it is important that each side have an opportunity to depose the other side’s experts in order to develop strong critiques and defenses of their expert’s methodologies."  

_Stover v. Eagle Products, Inc._ is an example of a practice that may become more common under _Daubert_. In _Stover_, the plaintiff's expert was deposed and then prepared an affidavit. The defendant moved to strike the affidavit and moved for summary judgment. The trial judge denied both motions without prejudice and, though the time for discovery had long closed, offered the defendant the opportunity to take a second, post-affidavit deposition of the plaintiff's expert. At the same time, the judge suggested that the defendant

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291. _Paoli R.R. Yard PCB Litigation_, 53 F.3d at 739.
293. _Stover v. Eagle Prods., Inc._, 896 F. Supp. at 1087.
294. _Stover_, 896 F. Supp. at 1086.
295. _Id._ at 1092.
might want to refile for summary judgment after that second deposition.\footnote{296} The judge recognized that this would take extra time and require additional resources.\footnote{297} The judge recognized that none of the parties had requested this particular relief.\footnote{298} Nonetheless, the judge believed that this procedure would benefit the parties and the court, affording each party the opportunity to reevaluate its positions in light of the deposition taken in response to the affidavit and, even if summary judgment was not eventually granted, speeding the court’s analysis of the admissibility of the plaintiff’s evidence at trial.\footnote{299}

Regarding discovery, and privileged material, and expert witnesses, a party is entitled to access to as much of the opponent’s privileged material as the opponent’s experts “could reasonably rely on to address the relevant issues in the case.”\footnote{300} A party is also entitled to access to as much of the opponent’s privileged material as is relevant to its own experts’ need to have a basis from which they can form their own opinions. At the discovery hearing, the judge may need expert assistance with the decision regarding the moving side’s need for the evidence and the likelihood that the other side’s experts will reasonably rely on the material in their own testimony. When this is the case, \textit{Daubert} will apply in two ways. First, the experts testifying at the discovery hearing must survive \textit{Daubert} testing. Second, when deciding how much of the privileged information is necessary to the requesting party’s evaluation and prosecution of its case, the judge must keep in mind that the expert testimony at trial will be subject to \textit{Daubert} testing.

\footnote{296} \textit{Id.}
\footnote{297} \textit{Id.}
\footnote{298} \textit{Id.}
\footnote{299} \textit{Id.} (citations omitted).
\footnote{300} \textit{Bottomly v. Leucadia Nat’l}, 163 F.R.D. 617 (D. Utah 1995). \textit{Bottomly} involves a Title VII sexual harassment and hostile work environment action. \textit{Bottomly}, 163 F.R.D. at 619. Expert testimony is admissible on causation and damages. So it could prepare to meet the plaintiff’s expert evidence, the defendant sought discovery of privileged records from the plaintiff’s psychologist. \textit{Id.} at 619. Some of the defendant’s requests were based upon the experts' testimony that the information “might” turn up something. \textit{Id.} The standard requires more than that. \textit{Id.} at 621-22. As to those materials regarding which the defendant made a sufficient case, the appellate court ordered the materials turned over to the district court, unredacted, for in camera inspection. \textit{Id.} at 621.
F. HOW AND WHEN THE DAUBERT ISSUE IS RAISED

The Daubert issue has been raised in motions in limine, motions to strike, and motions for summary judgment. The issue has been raised by a request for a pretrial Rule 104(a) hearing. It has been raised by objection during trial. If the jury is to be kept from hearing the expert’s testimony, the objecting party’s last chance is an objection during trial, perhaps coupled with a request to interrupt the direct examination and conduct a voir dire examination of the witness to establish that the witness is unqualified or that either the theory or methodology is unreliable or irrelevant.

Of course, as everywhere else in the law of evidence, there must at least be a timely and specific objection. The trial court is not “required to exercise its gatekeeping authority over expert testimony without an objection...” The requirement for a timely and specific objection applies to Daubert testing. The appellate court will not address the lack of Daubert testing below, unless the issue was raised below with “an objection and a proper request for relief” or unless...
the trial court committed plain error. Without a timely objection, "the issue is not properly before [the appellate] court."\footnote{307}

In \textit{Christopher v. Cutter Laboratories},\footnote{308} a great amount of apparently or even obviously bad science was received into evidence.\footnote{309} "What is very clear," said the court of appeals, "is that [the defendant] made no objections at any time. [The defendant] filed no motion \textit{in limine} challenging [this witness'] proposal testimony, nor did it raise any contemporaneous objections. In order to preserve this issue on appeal, [the defendant] must have objected to the challenged testimony."\footnote{310} In fact, this is a classic case proving the need for timely objection — the witness in question may have been able to explain the apparent inconsistencies and inaccuracies in his testimony.\footnote{311} The plaintiff received a verdict in excess of two million dollars.\footnote{312} Though the judgment was reversed and remanded on other grounds,\footnote{313} still the two million dollar plus verdict was almost affirmed because of the lack of an objection. Someone seems to have dropped the ball in a major way.

During a bench trial, it may not matter whether the \textit{Daubert} hearing occurs pretrial or during trial. Sometimes, in this situation, there is little difference between a trial and a hearing. For example, \textit{Case v. Unified School District No. 233}\footnote{314} was an action for violation of constitutional rights arising out of a school district's removal of a particular book from school libraries.\footnote{315} At a pretrial hearing, the court declined to rule on the admissibility of expert evidence.\footnote{316} The court found it would be better able to rule on this question at the trial.\footnote{317} Because the case was tried to the court, the court could evaluate the evidence during trial, without the presence of a jury, and the plaintiffs were not prejudiced by postponing the ruling. There would be little, if any, judicial economy from a pretrial ruling;\footnote{318} even if the evidence was excluded, the court would allow the plaintiffs to make an offer of proof at either a hearing or the trial;\footnote{319} one way or the other, it will take the same amount of time and effort.

\footnotesize{307. \textit{Id.} at 1407-08.}
\footnotesize{308. 53 F.3d 1184 (11th Cir. 1995), \textit{rehg denied}, 65 F.3d 185 (1995).}
\footnotesize{309. Christopher v. Cutter Lab., 53 F.3d 1184, 1191 (11th Cir. 1995), \textit{rehg denied}, 65 F.3d 185 (1995).}
\footnotesize{310. \textit{Christopher}, 53 F.3d at 1192.}
\footnotesize{311. \textit{Id.}}
\footnotesize{312. \textit{Id.} at 1186.}
\footnotesize{313. \textit{Id.} at 1195.}
\footnotesize{314. 895 F. Supp. 1463 (D. Kan. 1995).}
\footnotesize{316. \textit{Case}, 895 F. Supp. at 1472.}
\footnotesize{317. \textit{Id.}}
\footnotesize{318. \textit{Id.}}
\footnotesize{319. \textit{Id.}}
In other cases tried to the court, however, there may be considerable judicial economy from a pretrial ruling. If, for example, the focus of the hearing is on a key piece of evidence that is ruled to be inadmissible, and, as a result of that evidentiary ruling, summary judgment is granted, there may be great economies in trial preparation, in trial time, and the like.

If the issue is not complicated to start with, then Daubert need not make it so. Perhaps the two most common situations in which the issue remains uncomplicated are at the two extremes of the worst of science and the best of science. The science may be so bad that the court never needs to get past Rule 403, never needs to get to Daubert's searching inquiry into whether the science is good science. The unilateral polygraph examination in Conti v. Commissioner of Internal Revenue\textsuperscript{320} is an example. The polygraph is suspect enough in theory, let alone when the methodology involves a unilateral examination.

At the other extreme is the case involving an area of expertise that is so well known and has been so well considered that it need not be considered again. The expert may be a doctor who is giving the kind of expert opinion doctors were giving in the courts of this country years before Jason Daubert was born. If that is so, then showing that the doctor is qualified, that the theory behind her testimony is good science, that her methodology is reliable, and that the whole thing is relevant to the case at hand — showing that her testimony passes Daubert's test — can be done in the traditional way, in front of the jury.

The testimony of the cardiologist in Carroll v. Morgan,\textsuperscript{321} who had thirty years of practice as a board certified cardiologist, is an example. In United States v. Quinn,\textsuperscript{322} the expert witness' testimony did not involve any scientific technique that was questionable or novel. Therefore, when the trial court did not give the defendant a full

\textsuperscript{321} 17 F.3d 787 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994). The expert in question was a medical doctor, a cardiologist. Carroll v. Morgan, 17 F.3d 787, 789 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994). The expert was qualified, under Daubert, to give an expert opinion on the standard of medical care owed to the patient. Carroll, 17 F.3d at 790. His expertise and the connection between his expertise and the facts of this case were based on his testimony regarding: thirty years of experience as a practicing, board-certified cardiologist; review of the relevant medical records and the coroner's records; and study of a wide spectrum of published materials. Id. at 790. All of this foundation was laid, not at a Rule 104 Daubert hearing, but in front of the jury as the defense counsel qualified the witness at trial. In some cases, the foundation for expert opinion will be laid in the traditional manner, and that is sufficient. Foundational evidence presented on the stand in front of the jury satisfies Daubert. It makes enough of a record of the reliability and relevance of both the theory and the methodology. When the evidence is not novel, its foundation need not be novel either.
\textsuperscript{322} 18 F.3d 1461 (9th Cir. 1994), cert. denied, 114 S. Ct. 2755 (1994).
evidentiary hearing on the witness' methodology, the trial court did not abuse its discretion to "choose the best manner in which to determine whether scientific evidence will assist a jury."\(^{323}\)

*Benedi v. McNeil-P.P.C., Inc.*\(^{324}\) is another example. The expert here used a methodology that is accepted in the everyday practice of diagnostic medicine; that is at least a prima facie case that the methodology is sound as a diagnostic tool. Other examples of expertise that is so well known and has been so well considered that it need not be considered again are found in cases where courts have taken judicial notice of general reliability and relevance.\(^{325}\)

In *United States v. Quinn*, two surveillance photographs taken during a robbery were used to estimate the height of the robber.\(^{326}\) The process used to estimate height was "photogrammetry," whereby one can estimate the height of persons from photographs by measuring the change in the dimensions of the person in question as that person moves away from the camera, and testing those measurements against objects of known dimensions in the photos.\(^{327}\) Counsel for the government proffered the expert photogrammetry testimony.\(^{328}\) During this proffer, counsel explained how the process works.\(^{329}\) The defendant argued on appeal "that he was entitled to a full evidentiary hearing on the reliability of the process..."\(^{330}\) The trial court "concluded that the process... was nothing more than a series of computer-assisted calculations that did not involve any novel or questionable scientific technique."\(^{331}\) The appellate court stated:

We cannot conclude that the court abused the discretion trial courts must exercise in choosing the best manner in which to determine whether scientific evidence will assist a jury. [The defendant] points to nothing in the record calling the reliability of the photogrammetry process into question. Moreover, he was permitted to cross-examine the government's expert... [and was given] the opportunity to call his own photogrammetry expert, which he did not do.... The district court did not err in admitting this evidence.\(^{332}\)

\(^{323}\) United States v. Quinn, 18 F.3d 1461, 1465 (9th Cir. 1994), cert. denied, 114 S. Ct. 2755 (1994). See infra notes 326-37 and accompanying text.

\(^{324}\) 66 F.3d 1378 (4th Cir. 1995). See infra notes 547-56 and accompanying text.

\(^{325}\) See Paoli R.R. Yard PCB Litigation, 35 F.3d at 717 (finding that some techniques are so well established that inquiry into reliability of theory and methods can be resolved by judicial notice).

\(^{326}\) Quinn, 18 F.3d at 1464.

\(^{327}\) Id.

\(^{328}\) Id.

\(^{329}\) Id. at 1465.

\(^{330}\) Id.

\(^{331}\) Id.

\(^{332}\) Id. (citations omitted).
It is only when the expert's theory or methodology is questionable — whether because the subject is novel science or "soft" social science, or because the particular area of expertise is changing so rapidly that it may have passed by old opinions of its reliability, or for whatever reason — that the court must hold a Daubert hearing.

Where the expertise is either so bad or so good that Daubert is not much of an issue, expert testimony issues can be resolved during the trial, as some of them always have been such as judicial notice; in-court direct, cross, or perhaps voir-dire examination of the putative expert; those sort of things. In the case where the expert's expertise is questionable, the opponent of the evidence is well advised to bring the matter up before the trial. The United States Court of Appeals for the Eighth Circuit has recently stated, "Challenges to the scientific reliability of expert testimony should ordinarily be addressed prior to trial. . . . An early evidentiary challenge allows the trial judge to exercise properly the 'gatekeeping role' regarding expert testimony envisioned under Daubert." The United States Court of Appeals for the Tenth Circuit has stated, "[W]e suggest that as 'gatekeeper' the district court [should] carefully and meticulously make an early pretrial evaluation of issues of admissibility, particularly of scientific expert opinions in films or animations illustrative of such opinions.

G. FACTORS TO BE CONSIDERED AT THE DAUBERT HEARING, IN MAKING THE DAUBERT DECISION

The factors the federal courts are to consider in making Daubert decisions are listed in this Article's Case Digest, under the headings "Factors to be Considered in Making the Daubert Decision" and "Qualifications (or Lack Thereof) of the Witness." These factors are mentioned in Part I's discussion of Daubert itself and in Part III(A)'s discussion of the two generally most important lower federal court in-

334. Cases involving evolving techniques of DNA profiling and matching might be examples. Consider, for instance, United States v. Johnson, 56 F.3d 947 (8th Cir. 1995), wherein the court affirmed judicial notice of the reliability of the general theory and methodology of RFLP DNA profiling, but noted that, when new DNA techniques are used, the trial court will have to hold a Daubert hearing to determine their reliability. Johnson, 56 F.3d at 952-53.
335. See infra notes 579-602 and accompanying text. See supra notes 235-44, 302-34 and accompanying text.
interpretations to date, Bonds and Paoli. In addition, I want to single out for mention the following factors.

1. **Scientific Research Conducted for the Purpose of Litigation**

   In *Daubert II*, the remand of *Daubert* itself, the Ninth Circuit stated in the context of scientific expertise that the first question is whether the witness is an expert. The second question is whether the expert’s findings are based on sound science. The third question is whether the expert’s “testimony ‘is relevant to the task at hand.’”

   Regarding the second question, the trial court must make an independent decision as to whether the work product is “‘good science.’” To aid in answering the “good science” question, the Ninth Circuit stated that the United States Supreme Court identified various factors for trial courts to consider. Regarding the factors the Supreme Court identified as checks on expert testimony, the Ninth Circuit stated, “We read these factors as illustrative rather than exhaustive; similarly, we do not deem each of them to be equally applicable (or applicable at all) in every case.”

   According to *Daubert II*, one of the most important factors is whether the expert is testifying about matters growing out of research that has been conducted independent of litigation (as opposed to research done expressly for the purpose of litigation, which is often less reliable). “That the testimony proffered by an expert is based directly on legitimate, preexisting research unrelated to the litigation provides the most persuasive basis for concluding that the opinions he expresses were ‘derived by the scientific method.’” Similarly, and

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338. See supra notes 95-184 and accompanying text.
341. *Daubert II*, 43 F.3d at 1315.
342. *Id.*
343. *Id.* at 1316 (citations omitted). In *Daubert II*, each proffered expert assured the court that he was relying on data reasonably relied on by other experts in the same field. *Id.* An expert’s bald assurance is not enough. *Id.* The court must make an independent decision as to whether the work product is “good science.” *Id.*
344. *Daubert II*, 43 F.3d at 1316-17.
345. *Id.* at 1318-17.
346. *Id.* at 1317. Research done for the purpose of litigation is often less reliable because it tends to be biased. The problems range from intentional dishonesty to the kind of unintentional dishonesty that flows from the natural human tendency to find what we are looking for.
347. *Daubert II*, 43 F.3d at 1317. Pre-litigation research is less likely to be biased by the promise of payment. *Id.* In addition, when the research is prepared before the expert is hired as witness, the expert cannot tailor the research to benefit those paying the fee. *Id.* Finally, “independent research carries its own indicia of reliability.” *Id.*
coming at it from the other side, the United States District Court for the Middle District of Pennsylvania in In re TMI Litigation Cases Consolidated II stated that "the methodology followed [by this expert] appears to have been derived solely in connection with this litigation. This factor will weigh against the admission of [the expert's] testimony."349

If the research was not pre-litigation research, then the proponent must "come forward with other objective, verifiable evidence that the testimony is based on 'scientifically valid principles.'" One way of doing so is to show that the research and analysis supporting the expert's testimony "have been subjected to normal scientific scrutiny through peer review and publication."351

If the research was neither pre-litigation nor subject to sufficient peer review and publication, then the proponent may, and in fact must, resort to other evidence that the science is "good science." (This is where the factors listed in Daubert, Bonds, Paoli, and many of the other cases discussed herein come into play.)

Likewise, in Diaz v. Johnson Matthey, Inc.,353 the witness did not use standard diagnostic techniques. "[H]e did little if anything to 'rule out alternative causes'" of the plaintiff's illness.354 In addition, the witness had never used this "diagnostic method other than for purposes of litigation."355

On the other hand, in A Woman's Choice — East Side Women's Clinic v. Newman,356 the plaintiffs challenged a state statute regulating abortions. The plaintiffs' burden was to show that the statute imposed an undue burden on the right to an abortion. As part of their evidence, they offered a study done on the effects of a similar law in another states. The court held that the fact that the study was done with the realization that it might be used in litigation did not disqualify it, particularly in a field such as abortion, where litigation is constant.360

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351. Id. at 1318.
352. Id. at 1318-19.
359. Id. at 1455-61.
360. Id. at 1460. This expert's opinion on this matter was "sufficiently supported to be admissible." Id. First, the expert's opinion about the burdensomeness of the Missis-
Likewise, this aspect of the science is of little relevance where the kind of occurrence being litigated is so rare that, prior to the litigation, there has been little or no call for this kind of science. Rare or not, some disciplines "have the courtroom as a principal theatre of operations." In a twist on science done for litigation, one court found forensic examination of hair to be inadmissible in part because there was no general acceptance in a relevant scientific community: "any general acceptance seems to be among hair experts who are generally technicians testifying for the prosecution, not scientists who can objectively evaluate such evidence."

2. The Expert Who has No Community: Scientific Research that is too New or too Specialized to have been Subjected to Peer Review or Even Publication, Let Alone General Acceptance

While Daubert includes peer review, publication, and general acceptance among the factors that should be considered at a Daubert hearing, the ultimate question for the trial judge is whether the theory and methodology are relevant and reliable. If the expertise proffered is too new, too particular, or of too limited interest, there will not be much peer review, publication, or general acceptance. Either general acceptance or publication and positive peer review may weigh very heavily in favor of admissibility; either general unacceptance or publication rejection and/or negative peer review may weigh very heavily against admissibility; if, however, the expertise is cutting-edge
and is in a narrow field of somewhat limited interest, the absence of publication, peer review, or general acceptance or unacceptance is not likely to weigh heavily in any direction.\textsuperscript{365}

It is also true that, under \textit{Daubert}, there need not be a recognized scientific community into which the proffered expert can be fit. Whether there is or not, the trial court has to make its own decision on the reliability of the science.

In 1982, Andrew Wilson shot and killed two Chicago police-men. He was convicted of first-degree murder and sentenced to death. [His conviction was reversed] on the ground that his confession, which had been part of the evidence against him at trial, had been coerced. Wilson had ‘testified that he was punched, kicked, smothered with a plastic bag, electrically shocked, and forced against a hot radiator throughout the day [of his arrest], until he gave his confession,’ and his testimony had been corroborated by extensive contemporaneous medical and photographic evidence.\textsuperscript{366}

Wilson was tried again and convicted again, and that conviction had been appealed.\textsuperscript{367} In the meantime, he also brought a section 1983 action.\textsuperscript{368} The first trial of the 1983 action resulted in a hung jury.\textsuperscript{369} The second trial found that Wilson’s constitutional rights had been violated, but exonerated all of the defendants.\textsuperscript{370} The incarnation of the case under consideration here is Wilson’s appeal from that unsuccessful effort.

The expert proffered by the plaintiff was a doctor, “a pathologist, who studies torture on the side.”\textsuperscript{371} If allowed, the expert would have testified “that Wilson’s description of the physical pain and emotional distress induced by the alleged electroshock treatment was consistent with the scientific understanding of the effects of electroshock and hence unlikely to have been fabricated.”\textsuperscript{372} The trial court refused to allow this doctor to testify.\textsuperscript{373} The trial judge was not satisfied that the doctor was an expert in the physiology of torture.\textsuperscript{374}

\textsuperscript{366} See \textit{A Woman’s Choice — East Side Women’s Clinic}, 904 F. Supp. at 1439 (admitting evidence that was not yet subject to formal peer review, but was published by a respected institution).
\textsuperscript{367} Wilson v. City of Chicago, 6 F.3d 1233, 1236 (7th Cir. 1993), cert. denied, 114 S. Ct. 1844 (1994) (citations omitted).
\textsuperscript{368} \textit{Id.}
\textsuperscript{369} \textit{Id.}
\textsuperscript{370} \textit{Id.}
\textsuperscript{371} \textit{Id.} at 1238.
\textsuperscript{372} \textit{Id.}
\textsuperscript{373} \textit{Id.}
\textsuperscript{374} \textit{Id.}
The court of appeals held:
The Federal Rules of Evidence have . . . liberalized the standards for qualifying expert witnesses. No longer need they belong to some recognized professional community. It is enough, to be qualified as an expert and thus entitled to give opinion testimony, that one has specialized knowledge that would assist the trier of fact. But the consequence of this liberalization is not, or at least should not be, a free-for-all. The elimination of formal barriers to expert testimony has merely shifted to the trial judge the responsibility for keeping 'junk science' out of the courtroom.375

The court stated that this witness may have been an expert pathologist but he was called to the stand as an expert on the effects of electrical-shock torture, his avocation, and in that field, he was not an expert.376

The responsibility for keeping junk science out of the courtroom used to be placed on the experts themselves, to this extent: all the judge had to decide was whether the science was generally accepted in the relevant scientific community; the standard was how the relevant community of scientists received the science. Now, there need not be a relevant scientific community and whether there is or not the trial court has to make its own decision on the reliability of the science. While general acceptance is still part of the consideration, it is clear that lack of general acceptance is no longer enough to invalidate scientific evidence.377

3. The General Reliability of the Theory and Methodology

In Cavallo v. Star Enterprise,378 regarding the proffered testimony of one expert, Dr. Monroe, the court found his opinion relevant to the issue of causation and, if scientifically valid, admissible.379 The court stated that, whether it was scientifically valid depended on "the validity of his chosen methodology."380 In answer to that question, the court noted: (1) Dr. Monroe was "not explicit regarding the methodology he followed in this case;"381 (2) Dr. Monroe knew some but not

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375. Id. at 1238 (citations omitted).
376. Id. at 1239.
381. Id.
all of the components of the spilled jet fuel in question;\textsuperscript{382} (3) Dr. Monroe admitted that there would be a threshold of exposure below which injury would not occur and he did not know the threshold for the chemicals involved here;\textsuperscript{383} (4) Dr. Monroe relied on published studies of the effects of exposure on compounds other than the one involved here, but he could not show how the results of those studies transferred to the case at hand, and could not show the "fit" between these studies and the case.\textsuperscript{384} The court stated:

While Rule 702 does not necessarily mandate that the expert find a study linking the exact chemicals at the exact exposure levels with the exact illnesses at issue, it does require that the expert demonstrate a scientifically valid basis for projecting the findings of a study identifying a different chemical-illness relationship to the proffered causal theory.\textsuperscript{385}

(5) There was no evidence that the expert's conclusion was supported by the scientific community;\textsuperscript{386} in fact, the evidence in this case was that the scientific community disagreed with his conclusion.\textsuperscript{387} "Dr. Monroe's opinion was not 'scientific knowledge' and therefore had to be excluded."\textsuperscript{388}

In Rosado v. C.J. Deters,\textsuperscript{389} Alberto Rosado-Santos was riding his motorcycle.\textsuperscript{390} A Louisiana state trooper, observing Rosado-Santos violate various traffic laws, activated his siren and lights in an attempt to pull him over.\textsuperscript{391} When Rosado-Santos sped away, the trooper gave chase.\textsuperscript{392} Local police set up a roadblock, and the chase continued towards the roadblock at speeds ranging from 80 to 100 miles per hour.\textsuperscript{393} At the roadblock, Rosado-Santos hit the rear of the police car that was the roadblock.\textsuperscript{394} Rosado-Santos' injuries were fatal.\textsuperscript{395} His parents filed a section 1983 action against the trooper, the police officer whose car was the roadblock, and the city for which the latter worked.\textsuperscript{396} The plaintiffs alleged that the high speed chase and the roadblock constituted an excessive use of force and gross negligence.
and that the local police officer had intentionally backed his car into the deceased.\(^{397}\)

At trial, the plaintiffs called “an expert on police procedures and training, to give his opinion regarding whether [the local police officer] backed his car into the decedent.”\(^{396}\) The trial court found that the “expert” was not qualified as an accident reconstructionist and refused to admit his opinion.\(^{399}\) The appellate court affirmed: the witness could not provide the necessary physical and mathematical bases for his opinion and was last qualified as an accident reconstruction expert twenty-five years before and had not taken any refresher courses in the meantime;\(^{400}\) the witness lacked “scientific, technical or other specialized knowledge in the area of accident reconstruction . . . ;”\(^{401}\) refusing to allow him to offer his expert opinion was not an abuse of discretion.\(^{402}\)

In *Summers v. Missouri Pacific R.R. System*,\(^{403}\) railroad employees alleged inhalation injuries as a result of a specific, short-term exposure to diesel exhaust fumes.\(^{404}\) The defendant moved to exclude the testimony of two witnesses plaintiffs proffered as experts, and the trial court granted the motion.\(^{405}\) The plaintiffs claimed that their experts diagnosed their condition as “chemical sensitivity,” a recognized medical diagnosis.\(^{406}\) The defendant claimed that the plaintiffs’ experts actually diagnosed the plaintiffs’ condition as “‘multiple chemical sensitivity’ (‘MCS’), a diagnosis which is not supported by sound scientific reasoning or methodology, and should be excluded pursuant to *Daubert*.”\(^{407}\) The court agreed with the defendant.\(^{408}\)

First, the court described one of the experts:

Dr. Johnson practices clinical ecology, and is an advocate of the diagnosis of MCS. ‘Clinical ecologists claim that various kinds of environmental insults may depress a person’s immune system so that the exposed person develops a “multiple chemical sensitivity,” that is, becomes hypersensitive to other chemicals and naturally occurring substances.’ . . .\(^{409}\)

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397. *Id.*
398. *Id.*
399. *Id.*
400. *Id.* at 124.
401. *Id.*
402. *Id.*
406. *Id.* at 535 (citations omitted).
407. *Id.* (citations omitted).
408. *Id.* at 542.
409. *Id.* at 535 (citations omitted).
Second, the court engaged in an extensive review of "clinical ecology." The court stated that "clinical ecology" has not "been recognized by traditional professional organizations within the medical community." Some professional organizations have "rejected clinical ecology 'as an unproven methodology lacking any scientific basis in either fact or theory.'" The court reviewed the evidence that showed that "MCS is not a diagnosis that is accepted within the medical community." One professional organization concluded that MCS is "an unproven hypothesis and current treatment methods represent an experimental methodology." The evidence was "that no scientific evidence support[ed] the contention that MCS is a significant cause of disease or that the diagnostic tests or treatments used have any therapeutic value." Based on a search of peer-reviewed scientific studies, there were no reliable studies showing otherwise. The American College of Physicians' "[r]eview of the clinical ecology literature provid[ed] inadequate support for the beliefs and practices of clinical ecology." The American Academy of Allergy and Immunology found that "clinical ecology" was based on "unproven and experimental methodology." Subsequent to Daubert, this same expert witness’ testimony on this same subject was excluded by the United States Court of Appeals for the Seventh Circuit. Prior to Daubert, his testimony had been excluded by the Fifth Circuit. MCS is not "'knowledge capable of assisting a fact-finder, jury or judge.'"

Third, having decided that MCS was not good science, the court addressed the plaintiffs' argument that this witness was not diagnosing MCS, but was diagnosing something else entirely, which they labeled "chemical sensitivity, a recognized medical diagnosis." The court reviewed the witness' professional affiliations, his current employment, the articles he had written, the definitions that were generally accepted within the relevant scientific communities, the plaintiffs' symptoms, the diagnostic techniques used and not used by the expert,
and the depositions of the defendant's experts.\textsuperscript{423} The court concluded that Dr. Johnson was diagnosing MCS and excluded his testimony.\textsuperscript{424}

In \textit{United States v. Jones},\textsuperscript{425} the defendant was recorded offering to sell and then selling cocaine to an informant who was wearing a wire.\textsuperscript{426} The defendant called a witness as an expert in voice identification.\textsuperscript{427} The witness was not qualified and therefore was not allowed to testify as an expert.\textsuperscript{428} (He was, however, allowed to give lay opinion testimony.) The court found that the technique this witness used was "novel," there was no evidence it had a scientific basis, the witness had no specialized training in the area, he had not written any articles on the subject, he had only read one article on the subject three years previously, he was unaware of any professional organizations for certification of voice examiners, the technique he employed was one he developed himself, he had done no research to verify the validity of his technique, he had not subjected it to peer review, he conceded that no published reports or scientific studies supported his theory, and he did not know of any other experts who used this technique.\textsuperscript{429} The defendant failed to show the reliability of the technique used by his proffered expert.\textsuperscript{430} "The district court did not abuse its discretion in allowing [the defendant's] witness to give only lay opinion testimony and not expert testimony."\textsuperscript{431}

In \textit{Pestel v. Vermeer Manufacturing Co.},\textsuperscript{432} the plaintiff "crossed in front of a Vermeer Model 186 stump cutter to check whether the operator of the machine was cutting into the stump at a point too low or too deep."\textsuperscript{433} He slipped, his right foot went into the cutter wheel, and he was injured.\textsuperscript{434} In his suit against the manufacturer, the plaintiff claimed that the cutter should have had a guard that would have prevented his injuries.\textsuperscript{435} In support of this claim, he hired Keith Vidal as his expert witness.\textsuperscript{436} Beginning with a guard defend-
ant was using on another model of cutter it manufactured, Mr. Vidal came up with a design concept.\textsuperscript{437} "While Mr. Vidal was working on his design, he did not look at any other manufacturers's stump cutters, and he did not make a patent search to determine whether there were patents on guards for stump cutters. Mr. Vidal had never used a stump cutter, and he did not consult with any stump-cutter operators to determine how his design would work in the field. Mr. Vidal did not test his fabricated guard."\textsuperscript{438} The defendant did test Mr. Vidal's guard and prepared a video of its tests.\textsuperscript{439} Mr. Vidal viewed the tape, afterwards admitting that "his guard needed further refinements" and detailing what those refinements would be.\textsuperscript{440}

The trial court excluded evidence of the guard Mr. Vidal had produced, including evidence of the video the defendant had taken of its tests of Mr. Vidal's guard.\textsuperscript{441} The trial court disallowed the evidence for two reasons: (1) because Mr. Vidal "admitted that he would not use his guard in its present state," would not use it without refinements, the guard he had fabricated was irrelevant;\textsuperscript{442} and (2) the evidence did not survive \textit{Daubert} testing.\textsuperscript{443} The United States Court of Appeals for the Eighth Circuit ran the list of considerations from the trial court's \textit{Daubert} testing, found no abuse of discretion, and affirmed.\textsuperscript{444} Here are the factors considered by the trial court and affirmed by the Eighth Circuit:

1. Testing: Mr. Vidal did not test his guard.\textsuperscript{445} Mr. Vidal did not develop, participate in, or supervise the testing done by the defendant and therefore could not use that testing to support his expert testimony.\textsuperscript{446} Further, "this kind of testing by the manufacturer is not legally sufficient and can not be said to be the fair scientific testing \textit{Daubert} requires."\textsuperscript{447}

2. Peer review: Mr. Vidal "had not contacted others in the industry to see if they had attempted to create a similar type of guard. He had not subjected his concept to any manufacturers, academicians, or engineering professors, for scrutiny."\textsuperscript{448}

\begin{itemize}
\item \textsuperscript{437} Id.
\item \textsuperscript{438} Id. at 383.
\item \textsuperscript{439} Id.
\item \textsuperscript{440} Id. at 383-84.
\item \textsuperscript{441} Id. at 384.
\item \textsuperscript{442} Id.
\item \textsuperscript{443} Id.
\item \textsuperscript{444} Id. at 384-85.
\item \textsuperscript{445} Id. at 384.
\item \textsuperscript{446} Id.
\item \textsuperscript{447} Id.
\item \textsuperscript{448} Id.
\end{itemize}
3. Publication: The court did not address publication other than in its discussion of peer review.\textsuperscript{449}

4. General acceptance: “Mr. Vidal had not performed a patent search to determine whether other guards existed or whether guards for stump cutters were feasible. He had not talked to any operators who worked with this type of machinery.”\textsuperscript{450} On the record developed in this case, the trial court concluded there was no general acceptance.\textsuperscript{451}

5. Relevance of the science to the case at hand: Because Mr. Vidal admitted he would not use his guard in its present state and would not use it without refinements, the guard he had fabricated was irrelevant.\textsuperscript{452}

This all seems just a bit strict:

1. Regarding testing, this case presents the first hint I have seen of the proposition that one party's expert may not take advantage of the other party's testing. \textit{Daubert} says nothing about who must test a theory. Further, focusing exclusively on whether there has been testing ignores the other part of the \textit{Daubert} analysis: Can the conclusion be tested? To some extent, the “Can it be tested?” part of the \textit{Daubert} analysis crosses party lines: this guard could be tested, and it could have been tested by the plaintiff or the defendant.

Additionally, to say that this testing was not scientific testing seems to miss the point of \textit{Daubert}'s testing requirement. The tests conducted here involved placing the plaintiff’s proposed guard on the cutter-model in question, taking it out and putting it through its paces in six stump-cutting situations, and seeing if it worked. What kind of “science” was missing?

2. Regarding peer review, if Mr. Vidal had created a guard that prevented injury and still allowed the machine to perform its function, is it really a problem if he had “not contacted others in the industry to see if they had attempted to create a similar type of guard [and had] not subjected his concept to any manufacturers, academicians, or engineering professors, for scrutiny[?]”\textsuperscript{453} And if it is a problem, isn’t it more of a weight-of-the-evidence problem than an admissibility problem?

3. Regarding publication, though one could write articles about this idea for a cutter-guard design and put those articles out into the

\textsuperscript{449} Id. He had not submitted his design to anyone else. Id.
\textsuperscript{450} Pestel, 64 F.3d at 384.
\textsuperscript{451} Id.
\textsuperscript{452} Id. The expert expected that the necessary refinements would be only minor changes. Id.
\textsuperscript{453} Pestel, 64 F.3d at 384.
world for reaction, not doing so hardly seems to warrant the death penalty for this kind of evidence.

4. Regarding general acceptance, someone has to have the first guard. In fact, this is the point of Daubert: someone has to have the first guard, and the fact that it is not yet generally accepted does not render it inadmissible. Perhaps the court is suggesting that there should have been some evidence that it is not generally unaccepted? Even that is not the Daubert test. Columbus would have testified the world was round; that specialized knowledge was generally unaccepted. The point of Daubert is that Columbus can be allowed to testify, if the earth's roundness is of consequence to the action and the judge is convinced that Columbus' methodology was sound. Columbus got in a boat and sailed to the edge of the world and did not fall off. Similarly, Mr. Vidal designed a guard, the defendant put it on a stump cutter, and cut some stumps. Mr. Vidal would have testified that, with a few modifications — rounding off some edges, decreasing the weight, reworking some mesh that was part of the guard — the guard would offer protection without interfering with the use of the machine.454

5. Regarding the relevance of the science to the case at hand, to say that, because the witness admits his model is not perfect and needs certain specific modifications, it is irrelevant, is much too strict. It is much too strict whether one is using Rule 401's general requirement of general relevance or Rule 702's requirement that the evidence assist the trier of fact.

Mr. Vidal designed and built a model, and the defendant tested it. Based on those tests, Mr. Vidal modified his design. He had a design but not a new model. He could be examined on his design, and he could be cross-examined on what he did not do in the process of creating the design. In addition, the defendant's own experts could give their opinions of Mr. Vidal's design and of his methods.

What the court really seems to be saying here is that there was so much more the plaintiff's expert could have done. That is not the test. Though Daubert testing can drive up the cost of the trial, it does not require driving up the cost of the trial. If there was a lot more Mr. Vidal could have done, there was nothing preventing the other side from engaging Mr. Vidal in a thorough cross-examination regarding what he did not do. Similarly, the defendant could hire another expert — one who did more and therefore was more credible — to explain to the jury the weaknesses in Mr. Vidal's methodology. The proponent's burden is only to provide mechanics that are relevant and reliable,

454. Id. at 283.
which seems to have been done here. Once that is done, it is up to the opponent to cast doubt on it. This can be done through a cross-examination that runs through the list of the many things the proponent's expert did or did not do or by hiring his or her own expert or by having a counter-expert do a better, more thorough job and present more convincing testimony.

Reading this case, it is clear that there were many things Mr. Vidal could have done in connection with the design of his guard, which he did not do. In the case of a guard for a piece of machinery, however, does it really matter how the designer came to create the guard? It could be the product of years of testing and research at the finest university in the country, with publication and counter-publication in the most prestigious journals in the world, or the product of one moment's flash of inspiration. The question is, when the machine is operated with the guard attached, does the guard prevent any injury and does the machine still do what it is supposed to do? The expert can be challenged all day long on his methodology, but if the guard works, why will anyone care about methodology? And why should they care? And was not this expert prepared to testify, "I have a design that works" and then to submit himself to cross-examination?

*Daubert* itself said, "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."455

In its best light, perhaps this is another of those close cases that provide the lesson for why the standard of review of these decisions is abuse of discretion. In a close case, the decision is given over to the judge who really was in the best position to assess competing claims, the trial judge, and the appellant loses.

In *Williamson v. Reynolds*,456 a state court convicted the petitioner of murder and sentenced him to death.457 This was a habeas corpus action.458 At the petitioner's trial, a hair identification expert testified regarding possible matches between the petitioner's hair and hair found at the crime scene.459 The expert testified to his qualifications and to the procedures he used and that hairs found at the scene were consistent with the petitioner's hair.460 On cross-examination, the expert testified that he could not tell for certain that the hairs were from the same person; the best he could do is state that a hair

455. *Daubert*, 113 S. Ct. at 2798.
459. Id. at 1552-53.
460. Id. at 1553-34.
"'might' have come from a certain individual."461 This court notes the distance between forensic examination of hair in the early days, beginning around 1861, when a hair expert visually compared hair samples to see if they seemed to come from a common source, and today's examinations under modern microscopes.462 Still, says the court, there is a long way left to go.463

There is a "scarcity of scientific studies regarding the reliability of hair comparison."464 The few studies that do exist point to unreliability, a high percentage of error.465 Because evaluation of hair evidence is subjective and the weight the examiner gives to various factors depends on the examiner's subjective opinion, there are too many subjective value judgments.466 There also seems to be a great deal of unintentional bias at play in forensic hair examination.467 There is no general acceptance in a relevant scientific community:468 "any general acceptance seems to be among hair experts who are generally technicians testifying for the prosecution, not scientists who can objectively evaluate such evidence."469

This court found that it could not "locate any indication that expert hair comparison testimony meets any of the requirements of Daubert."470 The testimony was too speculative. Further, it was "'extremely unfair' and could 'prejudice the defendant without any real probative value.'"471

In O'Conner v. Commonwealth Edison Co.472 the court stated that Daubert requires a two-step inquiry.473 First, does the expert's testimony pertain to scientific knowledge, i.e., has it been subjected to the scientific method?474 The court must rule out subjective belief or unsupported speculation.475 Second, will the testimony assist the trier of fact in understanding the evidence or in determining a fact in issue, i.e., does the proposed scientific testimony "fit" the issue to which the expert is testifying?476

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461. *Id.* at 1554.
462. *Id.* at 1555.
463. *Id.* at 1555-56.
464. *Id.* at 1556.
465. *Id.* The court discussed current studies showing a high rate of error. *Id.*
466. Williamson, 904 F. Supp. at 1556.
467. *Id.* at 1557.
468. *Id.* at 1558.
469. *Id.*
470. *Id.*
471. *Id.*
472. 13 F.3d 1090 (7th Cir. 1994), cert. denied, 114 S. Ct. 2711 (1994).
474. *O'Conner*, 13 F.3d at
475. *Id.*
476. *Id.*
In the case in question, the plaintiff was a pipefitter who performed work at a nuclear facility.\textsuperscript{477} He alleged that he was overexposed to radiation and that this caused his cataracts.\textsuperscript{478} His treating physician was Dr. Scheribel.\textsuperscript{479} "It is Dr. Scheribel’s opinion that the cataracts were caused by radiation because radiation-induced cataracts are so unique that they can be identified merely by observation. However, all experts agree that the minimum dose necessary to cause cataracts is 200 rems, well above the .045 rem dose [the plaintiff] received."\textsuperscript{480} The district court ruled Dr. Scheribel’s testimony inadmissible.\textsuperscript{481} The plaintiff challenged this on appeal.\textsuperscript{482}

The United States Court of Appeals for the Seventh Circuit found that Dr. Scheribel’s testimony did not meet at least the first of the above two requirements.\textsuperscript{483} The doctor testified, “I know what cataracts look like when they’ve been induced by radiation,” whatever the dosage, but none of the sources he cited supported the theory that radiation cataracts can be identified by mere observation.\textsuperscript{484} In fact, the articles cited by the doctor established that his methodology had no basis in scientific fact.\textsuperscript{485}

Of all of the post-Daubert opinions, Porter v. Whitehall Laboratories Inc.\textsuperscript{486} may be the weakest attempt to establish reliable theory and methodology. In Porter, the plaintiff’s deceased died of kidney failure, allegedly caused by ibuprophen.\textsuperscript{487} The plaintiff called four doctors on the element of causation.\textsuperscript{488} One of those doctors testified, “What I am giving you now is a kind of a curb side opinion. If...you were asking me to give you an analytical, scientific opinion, then, I would have to research it, and I have neither the time nor the inclination to do that.”\textsuperscript{489} This doctor admitted that she had no scientific

\begin{footnotesize}
\begin{enumerate}
\item Id. at 1093.
\item Id.
\item Id.
\item Id.
\item Id. at 1094.
\item Id.
\item Id. at 1106.
\item Id.
\item Id. at 1106-07. Even a treating physician’s testimony in a personal injury action can be subject to Daubert testing and can fail. See also Textron Inc. ex rel. Homelite Div. v. Barber-Colman Co., 903 F. Supp. 1546, 1557-58 (W.D.N.C. 1995) (stating that an “expert’s opinion should be excluded when it is based on assumptions which are speculative and are not supported by the record”).
\item 9 F.3d 607 (7th Cir. 1993).
\item Porter v. Whitehall Lab., Inc., 9 F.3d 607, 609 (7th Cir. 1993). See infra note 699 and accompanying text.
\item Porter, 9 F.3d at 610.
\item Id. at 614.
\end{enumerate}
\end{footnotesize}
support for her conclusion regarding causation. Needless to say, this evidence did not survive Daubert testing.

4. The Fit Between the Theory and Methodology and the Facts of the Case

In addition to addressing the question of whether the theory and methodology relied upon by the expert are generally reliable, the Daubert hearing must also address the question of whether the theory and methodology apply to the particular case at hand. This requires a certain fit between the expert evidence and the facts of the case at bar. A good example of this is Pomella v. Regency Coach Lines, Ltd. In Pomella, Interstate I-94 was wet, possibly snowy and/or icy, and slick. The car in which the plaintiff was a passenger went out of control, slid from the left lane of I-94 into the right lane, and was struck by a bus. The plaintiff filed a personal injury action against both the driver and the owner of the bus. She alleged that but for negligent driving on the part of the bus driver, the latter would have been able to avoid striking the car in which she was passenger.

The question to be answered at this pretrial Daubert hearing was not the negligence of this bus driver, but whether there was sufficient evidence that a non-negligent bus driver could have stopped. Without that evidence, this bus driver's negligence, if any, would not be a proximate cause of the accident. Whether a non-negligent bus driver would have been able to stop or to change direction safely in time to avoid the collision depends in part on the coefficient of friction, which depends in part on the condition of the surface of the road at the time and place of the accident — such as whether it was rutted, and the presence of water, snow, or ice.

490. Id.
491. Id.
492. See generally the cases and authorities in the Case Digest, infra, digested under the heading "Relevance — Expert Testimony Must be Tied to Case at Hand."
493. See Porter, 9 F.3d at 616 (finding that the expert's testimony did not fit the case at hand).
494. In re TMI Litig. Cases Consol. II, 911 F. Supp. 775 (M.D. Pa. 1996) (finding that the models "proffered to demonstrate what may have happened" bore no meaningful relationship to actual data regarding the accident at bar).
497. Pomella, 899 F. Supp. at 337.
498. Id.
499. Id.
500. Id. at 337-41.
Regarding whether the bus could have avoided the car, the plaintiff's case contained expert opinion evidence that was based on valid scientific theory and methodology. What was missing was the "fit" between the expert opinion and the specific case at hand. The data on which the plaintiff relied was based on friction on snow-covered even-surfaced pavement; the facts of this case involved uneven and potentially icy pavement. The expert testimony did not fit the case at hand. The expert testimony, though reliable, was not relevant.

No matter how valid their opinions in the abstract, none of the plaintiff's experts had concrete enough evidence as to the condition of the surface of the road at the time of the accident so as to make their opinions fit the case at hand. Taken most favorably for the plaintiff, the party against whom summary judgment was sought, the testimony of these experts established a possibility that the bus driver could have stopped the bus in time. That was not enough. The witnesses were not allowed to testify; without their testimony, there was no evidence of the causal link the plaintiff must show. The motion for summary judgment was granted.

In Vadala v. Teledyne Industries, Inc., the executrix of the estate of a pilot killed in an airplane crash brought a negligence and a breach of warranty action against the manufacturer of the airplane's engine. The plaintiffs alleged that "right-engine damper polymerization occurred during the flight." The defendant alleged that it occurred after the crash, in the ground fire. The defendant moved for summary judgment, the trial court granted the motion, and the appellate court affirmed. The affidavits and depositions of the plaintiff's expert led to the conclusion that the expert had very little idea of what actually happened during the incident in question.

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503. Id. at 442-43.
504. Id.
505. Id.
506. Id. at 343.
507. Id.
508. Id. at 342-43.
509. Id.
510. See supra notes 503-07 and accompanying text.
511. Another way to have handled this would have been to have said that these experts' opinions were based on assumptions that were not supported by the record. See Textron Inc. ex rel. Homelite Div., 903 F. Supp. at 1556-57 (W.D.N.C. 1995) (stating that expert opinion should be excluded when based on opinions not supported by the record).
512. 44 F.3d 36 (1st Cir. 1995).
513. Vadala v. Teledyne Indus., Inc., 44 F.3d 36, 37 (1st Cir. 1995).
514. Vadala, 44 F.3d at 38.
515. Id.
516. Id. at 38-40.
517. Id. at 38.
knew the science and he knew the condition of the plane after the crash, but the expert could not connect the science to the crash.\textsuperscript{518} There was not enough evidence to permit a reasonable factfinder to conclude that the damper more probably than not failed in flight, as opposed to on impact with the ground.\textsuperscript{519} This expert's opinion was not enough to get past the motion for summary judgment not because of any flawed scientific principle, for heat admittedly can cause inflight polymerization, but because there was no substantial basis for concluding that it had done so here.\textsuperscript{520}

In one of the strictest possible applications of the requirement of fit, the United States Court of Appeals for the Eighth Circuit affirmed a trial court finding that an expert's model was irrelevant because he admitted it was not perfect and needed certain specific modifications.\textsuperscript{521} As discussed above, this seems far too strict an interpretation of \textit{Daubert}.\textsuperscript{522}

One of the weakest imaginable attempts to use multiple experts is found in \textit{Porter v. Whitehall Laboratories, Inc.}\textsuperscript{523} The plaintiff's deceased died of kidney failure, allegedly caused by ibuprofen.\textsuperscript{524} The four doctors the plaintiff called as expert witnesses on the element of causation testified as follows. Doctor 1 testified, "'What I am giving you now is kind of a curb side opinion. If... you were asking me to give you an analytical, scientific opinion, then, I would have to research it, and I have neither the time nor the inclination to do that.'"\textsuperscript{525} She admitted that she had no scientific support for her conclusion regarding causation.\textsuperscript{526} Doctor 2 testified that he could not state his opinion on causation "to a reasonable degree of medical certainty."\textsuperscript{527} Doctors 1 and 2 could not point to studies, records, or data on which they based their opinions.\textsuperscript{528} Doctor 3 testified that he could not rule out other causes of the deceased's condition, because he did not know what the other causes were.\textsuperscript{529} Doctor 4 gave an opinion as to causation, but, as to key factual elements in the particular case of this deceased, he said that "'one has to speculate.'"\textsuperscript{530}

\begin{itemize}
\item \textsuperscript{518} \textit{Id.} at 39.
\item \textsuperscript{519} \textit{Id.}
\item \textsuperscript{520} \textit{Id.} Regarding the quantity of opposing evidence needed to defeat a motion for summary judgment, see infra notes 657-73 and accompanying text.
\item \textsuperscript{521} \textit{Pestel}, 64 F.3d at 384. See supra notes 432-54 and accompanying text.
\item \textsuperscript{522} See supra notes 492-521 and accompanying text.
\item \textsuperscript{523} Porter v. Whitehall Lab., Inc., 9 F.3d 607 (7th Cir. 1993).
\item \textsuperscript{524} Porter, 9 F.3d at 614.
\item \textsuperscript{525} \textit{Id.}
\item \textsuperscript{527} \textit{Id.}
\item \textsuperscript{528} \textit{Id.}
\item \textsuperscript{529} \textit{Id.} at 615.
\item \textsuperscript{530} \textit{Id.} at 516.
\end{itemize}
It hardly seems necessary to give a reason for keeping this testimony out of evidence. Judges, however, do not have that luxury. Regarding Doctors 1 and 2, the court said that their testimony did not lend itself to verification by the scientific method.\(^{531}\) In fact, their opinions were unsupported by any method. Regarding Doctors 3 and 4, the court said that, because they were missing key information, their testimony would not assist the trier of fact; ultimately, what was missing was the connection between their general knowledge and the specific facts of the case at hand.\(^{532}\)

The question of the relevance of the expert’s testimony to the case at hand has to do with whether the expertise in question is closely enough connected with the facts at hand. The requirement that the witness have specialized knowledge does not mean that the witness’ expertise must be in the particular subspecialty that relates most directly to the issue at bar. In United States v. Alzanki,\(^{533}\) for example, the defendants were convicted of holding another in involuntary servitude.\(^{534}\) They argued that the victim had opportunities to flee and did not do so, and, therefore, her relationship with defendants was not involuntary.\(^{535}\) The government called a “victimologist,” as an expert witness, who testified to the behavioral reactions of abuse victims, vis-à-vis their abusers.\(^{536}\) The defendants objected that this expert’s “qualifications related only to sexual abuse victimology, not the behavioral responses of domestic workers subjected to involuntary servitude.”\(^{537}\)

“The central fallacy in appellant’s claim,” said United States Court of Appeals for the First Circuit:

is its implicit assumption that no one other than an ‘involuntary servitude’ victimologist could have qualified as an expert [in this case]. This thesis obviously focuses only on the ‘specialized knowledge’ requirement under Rule 702, to the total exclusion of the ultimate standard for admission — whether the ‘specialized knowledge’ possessed by the witness ‘will assist the trier of fact to understand the evidence or to determine a fact in issue. . . .’ Rule 702.\(^{538}\)

Though “a witness steeped in the behavioral reactions of Sri Lankan domestic servants abused by Kuwaiti nationals in the United States”

\(^{531}\) Id. at 614.

\(^{532}\) Id. at 616.

\(^{533}\) 54 F.3d 994 (1st Cir. 1995), cert. denied, 116 S. Ct. 909 (1996).


\(^{535}\) Alzanki, 54 F.3d at 1004-05.

\(^{536}\) Id. at 1005.

\(^{537}\) Id.

\(^{538}\) Id. at 1006 (citations omitted).
might be helpful, it is quite another thing to suggest "that a somewhat
less specialized victimologist might 'assist' a generalist factfinder in
assessing evidence of the exceedingly uncommon phenomenon of do-
mestic servant abuse in the present-day United States." The trial
court carefully evaluated the witness' qualifications. The witness
was qualified in that she possessed specialized knowledge that was
reasonably likely to assist the factfinder.

As a sort of a side issue on this question of the fit between the
theory and methodology, on the one hand, and the facts of the case on
the other, sometimes the fit may not be there, not because what the
expert has to say is too far removed from the case at hand but because
there is no need for expert testimony on the issue at hand — there is
no need for specialized knowledge. The jury can make the necessary
decision without the aid of an expert. Take a forensic anthropologist,
for example, put on a witness list to testify that he has analyzed sur-
veillance photographs, applied his expertise, and determined that the
defendant was not the individual pictured. One court held this testi-
mony inadmissible and did so in part because there was no indication
that the comparison of the photograph and the defendant could not
have been done by the jury alone, without the expert. Of course,
this is just another way of saying that the expert's testimony will not
"assist the trier of fact" and therefore the court really never needs to
get to Daubert testing but can keep the evidence out for failure to sat-
isfy Rule 702. The question is whether the expert's testimony is
"superfluous," whether the subject of the expert's testimony is "some-
thing about which the average juror is unlikely to have sufficient
knowledge or experience."

And, finally, consider this:

[N]ot every opinion offered by an expert is an expert opin-
ion. . . . Put another way, an expert's opinion 'must be an
"expert" opinion (that is, an opinion informed by the witness'
expertise) rather than simply an opinion broached by [an ex-
pert]. . . . [In this case,] it is apparent that the experts of

539. Id.
540. Id.
541. Id.
542. United States v. Dorsey, 45 F.3d 809 (4th Cir. 1995), cert. denied, 115 S. Ct. 2631 (1995) (finding also the methodology untested, a lack of peer review, a potentially very high rate of error, and a lack of general acceptance in relevant scientific community).
543. Rule 702 provides: "[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." FED. R. EVID. 702.
1995).
both parties are woefully overextended. . . . In fact, the amount of testimony as to which the expertise of the parties' experts is truly relevant is remarkably slim — almost non-existent. 545

5. The Factors Experts in the Field Consider Reliable Enough to Form the Basis of Their Day-In, Day-Out Practice of the Specialty Are Reliable Enough to Form the Basis of Their Testimony in Court

What factors should the court consider at its Daubert hearing? The answer will sometimes be found by asking what factors do the specialists consider in their day-to-day practice of the specialty in question? 546 In Benedi v. McNeil-P.P.C., Inc., 547 the plaintiff alleged that his liver failure was a result of a combination of alcohol (three or four glasses of wine a night during the week, sometimes more on weekends) and therapeutic doses of acetaminophen (for the five days preceding the liver failure, normal, over-the-counter doses of Extra-Strength Tylenol). 548 The plaintiff sued Tylenol's manufacturer for breach of an implied warranty and failure to warn. 549 The plaintiff's experts testified 'yes' as to causation, and the defendant's experts testified 'no.' 550

On appeal, the defendant challenged the district court's admission of the plaintiff's experts' testimony. 551 The defendant argued that their testimony was unreliable because they did not use epidemiological data in forming their opinions. 552 Instead, they relied on the plaintiff's history, personal examination of the plaintiff, the results of the plaintiff's lab and pathology data, and peer-reviewed literature. 553 In short, they relied upon the kind of data the medical community uses day-in and day-out in diagnosing patients. The appellate court affirmed. 554 Further, the court stated that no particular methodology was required, so long as the methodology used was "sound." Daubert does not restrict expert testimony on causation "to opinions that are

546. See, e.g., Becker v. Nat'l Health Prods., Inc., 896 F. Supp. 100 (N.D.N.Y. 1995) (admitting one expert's opinion based, in part, on over 30 years experience as a physician, and a second expert's opinion based, in part, on "clinical experience with 10,000 patients solely in gastroenterology").
547. 66 F.3d 1378 (4th Cir. 1995).
549. Benedi, 66 F.3d at 1382.
550. Id. at 1384.
551. Id. at 1383.
552. Id. at 1384.
553. Id.
554. Id. at 1389.
based solely upon epidemiological data.\textsuperscript{555} Under the \textit{Daubert} standard, epidemiological studies are not necessarily required to prove causation, as long as the methodology employed by the expert in reaching his or her decision is sound.\textsuperscript{556} The lesson seems to be this: after \textit{Daubert}, if a methodology is good enough for the day-in and day-out practice of the diagnosing physician, then it is still good enough for the courts, still good enough to satisfy the keeper of the expert-evidence gate.

But the touchstone is whether it is considered good enough by experts in the field, rather than just by the expert who is the treating physician. The fact that a party relied on an expert for diagnosis or treatment or both, that alone is not enough to overcome an objection to the reliability of that expert’s theory or methodology.\textsuperscript{557}

6. \textit{The Factors to be Considered can be Many, or They can be Few}

\textit{Daubert} inquiries come in all sizes and shapes. The cases run all the way from \textit{Daubert}, \textit{Bonds}, \textit{Paoli},\textsuperscript{558} and the like, which pile up factors the trial judge must consider, to \textit{Auvil v. CBS 60 Minutes},\textsuperscript{559} which states only one factor.\textsuperscript{560} Apple growers sued CBS for defamation and product disparagement in a broadcast stating that, because of a chemical sprayed thereon, apples posed a risk of cancer.\textsuperscript{561} The EPA listed the chemical in question, daminozide, as a probable human carcinogen.\textsuperscript{562} The plaintiffs moved to strike the opinions of CBS’s experts, claiming they were inadmissible under \textit{Daubert}.\textsuperscript{563} The plaintiffs claimed that the underlying data is “fundamentally flawed.”\textsuperscript{564} However, this court found that, at least to the extent CBS’s experts relied on the data and conclusions provided by the EPA, their conclu-

\textsuperscript{555} Id. at 1384. \textit{See also} Cantrell v. GAF Corp., 999 F.2d 1007, 1014 (6th Cir. 1993) (“Nothing . . . prohibits an expert witness from testifying to confirmatory data, gained through his own clinical experience, on the origin of a disease or the consequences of exposure to certain condition”).

\textsuperscript{556} \textit{Benedi}, 66 F.3d at 1384. Further, the court stated that “\textit{Daubert} clearly vests the district courts with discretion to determine the \textit{admissibility} of expert testimony.” \textit{Id}. The decision here was clearly within the district court’s discretion.

\textsuperscript{557} \textit{O’Connor}, 13 F.3d at 1105. The court stated, “[W]e do not distinguish the treating physician from other experts when the treating physician is offering expert testimony regarding causation.” \textit{Id}. at 1105 n.14.

\textsuperscript{558} \textit{See supra} notes 4-184 and accompanying text.

\textsuperscript{559} \textit{Auvil v. CBS 60 Minutes}, 836 F. Supp. 740 (E.D. Wash. 1993), \textit{aff’d}, 67 F.3d 816 (9th Cir. 1995).

\textsuperscript{560} 836 F. Supp. 740, 742-43 (E.D. Wash. 1993).

\textsuperscript{561} \textit{Auvil}, 836 F. Supp. at 742.

\textsuperscript{562} \textit{Id}. at 742.

\textsuperscript{563} \textit{Id}. at 741.

\textsuperscript{564} \textit{Id}. 
sions were clearly sufficiently reliable for this inquiry.” Daubert was satisfied.

This court stated that reliance on federal government studies renders expert evidence sufficiently reliable to satisfy Daubert. I would amend that to say that reliance on government studies is enough absent enough evidence from the other side showing unreliability. In other words, perhaps reliance on government studies satisfies the admissibility equivalent of the burden of production. If there is no contrary evidence, then it satisfies the admissibility equivalent of the burden of proof.

Somewhere in the middle is a case like Gier v. Educational Service Unit No. 16, which does not involve an extraordinary number of factors, but involves them in a potentially confusing number of combinations. This case centered on the alleged sexual abuse of seven mentally retarded individuals. The plaintiffs intended to offer at trial the testimony of one psychiatrist and two psychologists who had examined the seven mentally retarded individuals and had determined they had been sexually, physically, and emotionally abused. The plaintiffs intended to offer these witnesses as experts in detecting such abuse. The defendant filed a motion in limine to exclude the testimony. The magistrate judge held a Daubert hearing and excluded the testimony.

The focus of the hearing was on whether the proffered testimony was both relevant and reliable. The court had to determine whether the general scientific theory and the methodology were reliable and whether that theory and methodology could be properly applied to the facts in issue. It was not the number of individual factors to be considered that made this decision difficult, but the fact that the magistrate had to deal with three discrete experts, seven different children, and three distinct types of abuse. The judge engaged in an extensive and well-considered review of the evaluations each witness had prepared for this case, the general questions of admissibility involved with regard to this type of expert testimony, the

565. Id. See also Christopher B. Mueller and Laird C. Kirkpatrick, Evidence § 7.8, at 747 (1995) [hereinafter Mueller & Kirkpatrick].
569. Id. at 1344.
570. Id. at 1343.
571. Id. at 1343.
572. Id. at 1344.
573. Id.
574. Id. at 1345.
reliability of these experts' methodologies, and the reliability of each expert's testimony, and concluded that the plaintiffs had "failed to demonstrate by a preponderance of the evidence that the witnesses' opinions about the plaintiffs' purported abuse is [sic] reliable."575 The techniques used were essentially untestable, the plaintiffs did not show that the error rate using this methodology was low, and the plaintiffs did not show that the methodologies used in this particular case were reliable for the purposes for which the plaintiffs sought to use them.576

Whatever the cases say, the point is that the factors include anything that is relevant to the decision of whether the methodology employed by the expert and the theories underlying the expert's testimony are "good." The relevant question, phrased variously is: Are the theory and the methodology reliable, are they sound, are they respectable, can they be demonstrated to have sufficient value? Whether ultimately true or not, are the expert's statements "knowledge" or are they "hypothetical?"577 "[C]onjecture, hypothesis, 'subjective belief, or unsupported speculation' are impermissible bases for expert opinion and must be discarded. In short, Daubert commands that in court, science must do the speaking, not merely the scientist."578 The judge's inquiry ends where the factors cease being relevant to answering this question, however it is phrased.

7. Judicial Notice, Presumptions, Prima Facie Statutory Recognition, and the Like as Evidence of Reliability

In some cases, there will not be any need for evidence of the reliability of a theory or a methodology. In these cases, Daubert will make no change in the procedures that are followed. The decision can be made now, after Daubert, in just the same way it was made before

575. Id. at 1345-51. The proper standard on consideration of a motion for summary judgment varies. On questions of law —is the evidence admissible — it is the preponderance of the evidence standard. On questions of fact — is there enough evidence to send the case to the jury — it is whether there is enough evidence that a reasonable juror could find the point made, a standard that stands somewhere between a scintilla of the evidence and a preponderance of the evidence. See infra notes 657-73 and accompanying text.

576. Gier, 845 F. Supp. at 1351-53. With regard to process, this is a perfect example of what any judge has to do in a Daubert-controlled situation. On appeal, the United States Court of Appeals for the Eighth Circuit agreed. The Eighth Circuit stated, "The analysis conducted by the District Court is precisely the type of analysis the decision in Daubert would appear to contemplate." Gier v. Educational Services Unit No. 16, 66 F.3d 940, 944 (8th Cir. 1995).

577. See Bradley v. Brown, 42 F.3d 434 (7th Cir. 1994) (finding that the "science" of Multiple Chemical Sensitivity disorder was hypothetical and not scientific knowledge).

Daubert. Perhaps now, as then, the trial court will take judicial notice that testimony on cardiology, which is based on the witness's thirty years of experience as a practicing, board-certified cardiologist, his review of the relevant medical and the corner's records, and his study of a broad spectrum of published materials, is reliable in theory and methodology and in its application by this witness to the cardiological facts of the case at hand. Here, the foundational evidence presented on the stand, in front of the jury, satisfies Daubert. It makes enough of a record of reliability and relevance. When the evidence is not novel, its foundation need not be novel either.

It is possible that all or part of this requirement can be satisfied using judicial notice. Indeed, it seems that judicial notice is likely to come to be relied upon more and more in the area of scientific expert testimony because of the difficulties that can be associated with the alternative, the Daubert test. Once a procedure has been through the courts enough, once enough courts have held it up to the Daubert test and passed it, then courts may be able to take judicial notice of the reliability of the general theory and of the particular methodology. In United States v. Martinez, the United States Court of Appeals for the Eighth Circuit took judicial notice of the reliability of the general

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579. See Carroll v. Morgan, 17 F.3d 787, 790 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994) (qualifying a doctor as an expert based on his experience and review of the medical records).

580. See United States v. Johnson, 28 F.3d 1487 (8th Cir. 1994), cert. denied, 115 S. Ct. 768 (1995) (qualifying a gang member in front of jury to testify as an expert on activities of his gang and qualifying him on the basis of his experience).

In Cavallo v. Star Enterprise, 892 F. Supp. 756 (E.D. Va. 1995), the court indicated that the circumstances of each case are unique, and the absence of validation through published studies and tested hypotheses may not always be fatal to the expert's opinion. Cavallo, 892 F. Supp. at 773-74. The court noted that there may be instances where the temporal connection between exposure to a given chemical and subsequent injury is so compelling it will dispense with need for reliance on standard methods of toxicology. Id. at 774. If a person doused with chemical X developed symptom Y immediately thereafter, the need for published literature showing a correlation between the two would be lessened. Id. Statistical evidence can be similarly persuasive. Id. For instance, if a known chemical was accidentally introduced into a company's ventilation system and the exposed workers immediately developed the same adverse reaction, then the episode itself might be sufficiently indicative of causation. Id. (A much more difficult question in this hypothetical is when all the exposed workers suffer different kinds of adverse reactions, i.e. different types of cancers as opposed to the same form of cancer. The reason this is a more difficult question is because we are not as sure that alternate causes have sufficiently been eliminated. When the harm is identical to all potential plaintiffs, it is easier to examine characteristics that all potential plaintiffs share to identify what may have caused their shared harm. When all suffer harm but that harm is not identical in all of the potential plaintiffs, it is neither intuitively apparent nor as easily found scientifically to be apparent that the same mechanism caused the harm).


582. 3 F.3d 1191 (8th Cir. 1993), cert. denied, 114 S. Ct. 734 (1994).
theory and methodology of one kind of DNA testing. At least one subsequent Eighth Circuit case has followed Martinez and judicially noticed a variation of the same test. If the evidence is not novel, the trial judge may be able to take judicial notice of the scientific theory, the methodology, and their application to the facts of the case.

Judicial notice can be used as an aid in establishing, or as an aid in destroying, a piece of the Daubert test. The latter was done in In re TMI Litigation Cases Consolidated II. The court stated that "[i]n the long run [the expert] may be proven to be correct." It may be that the tests he did not perform, because he believed them to be highly ineffective, will "eventually prove to be highly ineffective." This court, however, "takes judicial notice of the fact that the relevant scientific communities regularly use [these tests] and find them to be [valid.] . . . [His] refusal to consider such information calls into question the reliability and scientific validity of his conclusions."

An example of judicial notice being requested in satisfaction of part of the Daubert test and refused is United States v. Brien. In Brien, the court refused to take judicial notice of the weakness of eyewitness testimony. The defendant had argued that the literature on the subject was so well established that the trial judge should take judicial notice of the doubt cast on eyewitness testimony. The trial court refused, and the appellate court affirmed: such "expertise" has neither the precision nor the long-standing acceptance of, for example, radar as a measure of speed.

Cases seem to be piling up saying that "expert testimony of valuation of 'hedonic' damages is unreliable and invalid under the teaching

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584. United States v. Johnson, 56 F.3d 947, 952-53 (8th Cir. 1995) (noting that the Eighth Circuit has taken judicial notice of reliability of the general theory and methodology of RFLP DNA profiling and that the experts in this case testified that any differences between the judicially noticed protocol and the protocol used would produce no meaningful difference in result, the court here held that the trial court did not abuse its discretion when it decided that the minor variations here did not negate the methodology's reliability).
588. Id.
592. Id. at 277-79.
593. Id. at 277.
of *Daubert*.

*Daubert* seems to have removed polygraphy from the class of science that is "negatively judicially noticed." Though not all cases say that *Daubert* demands a rethinking of the admissibility of polygraph evidence, most do. The first few sentences of *United States v. Posado* sum up what has happened:

This appeal concerns the admissibility of polygraph evidence in a pretrial hearing to suppress forty-four kilograms of cocaine recovered after an airport interdiction and search of the defendants' luggage. The district court refused to consider polygraph evidence offered by the defendants to corroborate their version of events preceding the arrest. Our precedent, with few variations, has unequivocally held that

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In *Hein*, the court did not examine the facts of the incident, but rather directly addressed the issue of "hedonic damages." *Hein*, 868 F. Supp. at 231-35. The speed with which the court got to the issue and the fact that, at various places in the opinion, the court included the words "hedonic damages" and "expert" in quotation marks, are clues to the outcome and support for the suggestion that judicial notice may be on the horizon.

595. *United States v. Black*, 831 F. Supp. 120 (E.D.N.Y. 1993) (stating that polygraph exams were not admissible under the *Frye* test because they were not sufficiently reliable and that nothing in *Daubert* changes this).


At least one court has found polygraph evidence admissible. In *Ulmer v. State Farm Fire & Casualty Co.*, 897 F. Supp. 299 (D. La. 1995), the court first addressed Rule 702. *Ulmer*, 897 F. Supp. at 303. "This court notes that polygraph theory and technique have been tested, have been subject to peer review and extensive publication, and have been shown to have a not unreasonable potential rate of error...[and] the examinations at issue here were administered and interpreted by a polygraphist certified to perform these functions by the State of Louisiana through its Polygraphist Act." *Id.* at 303 (citations omitted). Second, the court dealt with Rule 403. *Id.* There were two factors pushing towards admissibility: the examiner was not an independent examiner privately commissioned by the party offering evidence, but was an employee of the State Office of Public Safety working at the request of the State Fire Marshall; and there was a special need for the evidence in this case. *Id.* at 304. There is one factor weighing against admissibility: the evidence was to go to a jury in an actual trial, rather than just to a judge in pretrial hearing. *Id.* at 303. The court found the evidence admissible. *Id.* at 304.

597. 57 F.3d 428 (5th Cir. 1995).
polygraph evidence is inadmissible in a federal court for any purpose. However, we now conclude that the rationale underlying this circuit's per se rule against admitting polygraph evidence did not survive [Daubert]. Therefore, it will be necessary to reverse and remand to the district court for determination of the admissibility of the proffered evidence in light of the principles embodied in the Federal Rules of Evidence and the Supreme Court's decision in Daubert.598

In some cases, there may be prima facie statutory recognition of the reliability of certain scientific technology and methodology, something like a statutory presumption, or there may even be a burden-shifting presumption.599 Sometimes an expert's expertise is so common and well understood that the necessary foundation can be laid while qualifying the witness as an expert during the trial on the stand in front of the jury. There may be no need for a separate hearing.600

So, sometimes, techniques of proof like judicial notice and presumptions and the like may get a court through Daubert testing. And sometimes a court can sidestep Daubert testing altogether; this re-

598. United States v. Posado, 57 F.3d 428, 429 (5th Cir. 1995) (citations omitted). "[T]he district court applied a per se rule against admitting polygraph evidence. Even the government concedes that that rule is no longer viable after Daubert. Therefore, the case must be remanded." Posado, 57 F.3d at 432. Polygraph evidence did not survive Frye. Id. Without a fully developed record, the court could not say whether it does survive Daubert. Id. at 433. The court noted:

To iterate, we do not now hold that polygraph examinations are scientifically valid or that they will always assist the trier of fact, in this or any other individual case. We merely remove the obstacle of the per se rule against admissibility, which was based on antiquated concepts about the technical ability of the polygraph and legal precepts that have been expressly overruled by the Supreme Court.

Id. at 434.

599. See Clayton Chem. and Packaging Co. v. United States, 383 U.S. 821 (1966) (allowing evidence because of a statutory presumption in favor of the original appraisal of imported items); Wagner v. Case Corp., 33 F.3d 1253, 1256 (10th Cir. 1994) (involving a statutory presumption that a product was not defective; that is, that it conformed to a state of art prior to the sale by manufacturer); Morgan v. Shirley, 958 F.2d 662, 663 (6th Cir. 1992) (involving a statutory presumption that a driver with blood alcohol concentration of 0.10% or more at the time of testing was under the influence of intoxicating beverages).

600. See supra notes 235-44 and accompanying text. Further, if the scientific evidence is not novel, there are cases that say that Daubert might not apply at all. There are cases that say this. In general, see Case Digest, infra, under the heading "Limits on Coverage of Daubert." These cases do not persuade me. It seems to me that, even if the science is not novel, Daubert applies. There is nothing about familiarity that excuses the evidence from rules like 702 and 403. The truth is, rather, that if the science is sufficiently familiar, very little may be required to satisfy these rules. For example, the judge may be able to take judicial notice of the reliability of the theory and methodology applied by the expert, or the foundation may be able to be laid right in front of the jury (or no one will raise the issue). See supra notes 597-98 and accompanying text; see infra notes 601-02 and accompanying text.
lated topic is discussed below.\textsuperscript{601} Also discussed below is the care the judge must take at the \textit{Daubert} hearing not to mistake weight-of-the-evidence questions for admissibility questions.\textsuperscript{602}

H. \textit{Daubert} and Rule 403\textsuperscript{603}

Rule 403 is a workhorse of the federal rules. It cuts across all categories of evidence, expert evidence included.\textsuperscript{604} It is clear, for example, that expert evidence that passes Rule 702 (the witness is qualified and the evidence would assist the trier of fact) can still fail Rule 403 (not enough assistance when Rule 403's counterweights are considered).\textsuperscript{605} In fact, \textit{Daubert} "stated that because expert evidence can be both powerful and quite misleading . . . , Rule 403 gives [a judge] more control over experts than over lay witnesses."\textsuperscript{606}

One common argument that expert evidence is misleading is that it has an aura of infallibility.\textsuperscript{607} Another related argument sometimes made is that particular expert evidence is evidence embracing the ultimate issue in the case.\textsuperscript{608} While Rule 704 does away with the per se...
rule of ultimate-issue-evidence invalidity, still it is not helpful to the
trier of fact to be told what result to reach (a Rule 702 argument), or
the evidence is confusing, misleading, or unfairly prejudicial (a Rule
403 argument). 609

Another way expert evidence can be particularly misleading, one
of Rule 403's special applications to the subject of expert witnesses,
comes when the expert witness is also a fact witness. This most com-
monly arises when the investigating police officer testifies both as a
witness to the specific facts uncovered during his or her investigation
and as an expert witness on specific kinds of criminal activity. In this
situation, courts should use caution because of the significant risk the
jury will be confused by the witness' dual role. 610

In Conti v. Commissioner of Internal Revenue, 611 the United
States Court of Appeals for the Sixth Circuit held that the results of a
unilateral polygraph test were inadmissible under Rule 403. 612 The
Sixth Circuit stated that their "prejudicial effect . . . outweighs their
probative value." 613 Given the fact that these taxpayers unilaterally
and voluntarily set up the polygraph tests and that it is likely nega-
tive results would not have been reported, the prejudicial effect of such
polygraph test results outweighed their probative value under 403. 614

This is a valuable opinion because this may be a valuable ap-
proach. This may be a way for the court to avoid the guts of Daubert
testing. It is a mildly troubling opinion because of the way the court
stated the test. The court said that the prejudicial effects of a unilat-
eral test outweighed its probative value. 615 This is not the test. Rule
403's test is whether the danger of unfair prejudice substantially
outweighs probative value. 616 It is not a straight balance, asking
whether prejudice outweighs probative value. Leaving out "unfair"
and "substantially" changes the test and changes it, . . . well, substan-
tially. 617

609. Fed. R. Evid. 704, advisory committee note. See generally, e.g., Mueller and
610. United States v. Thomas, 74 F.3d 676 (6th Cir. 1996).
612. Conti v. Commissioner of Internal Revenue, 39 F.3d 658, 662-63 (6th Cir.
613. Conti, 39 F.3d at 663.
614. Id. Likewise, in Kwong and Lech, two cases involving the question of the ad-
missibility of the results of a polygraph analysis, the court assumed its way past Rule
702, went right to Rule 403, and found the evidence inadmissible. Kwong, 69 F.3d at
668; Lech, 895 F. Supp. at 585. In Sherlin, yet another polygraph case, the court fol-
lowed Conti. Sherlin, 67 F.3d at 1216. Regarding polygraph evidence generally, see the
Case Digest, infra, under the heading "Kinds of Evidence," subheading "polygraph."
615. Conti, 39 F.3d at 663.
617. Marcel v. Placid Oil Co., 11 F.3d 563 (5th Cir. 1994), did the same thing: it
found that the evidence therein did not survive Rule 403 and, in the process, said that
And it matters: (1) We are lawyers. Our job is to speak and write precisely. We should do so just because it is the right way to do our job. Precise expression is the foundation of what we do as lawyers. (2) In addition, it has long seemed to me that the bane of judges must be lawyers, (and legislators and regulation writers) who do not write clearly and precisely. Judges cannot expect lawyers to meet standards higher than their own. (3) Finally, and most importantly, we all know that language used casually, and perhaps not quite correctly, in one opinion, often comes to be the rule in a later opinion.

As a general rule, however, most of Rule 403’s work is done during trial, not pretrial. As Judge Becker has said, in the context of a Daubert decision, it is rare that Rule 403 is an appropriate basis for the pretrial exclusion of expert evidence because the trial judge cannot ascertain potential relevance without a virtual surrogate for a trial record. Rule 403 so often needs the context provided by the trial record and not provided by the pretrial record.

The Case Digest includes a case stating a “strong federal policy favoring admissibility of, and reliance on, all helpful information,” a case warning that, though science has enough scientific basis to support funding and careers and to pass Rule 702, it may nonetheless be so close to speculation that it should not be used to influence a verdict and does not pass Rule 403; and a case warning the reader to be careful to make the specific objection; that is, if Rule 702 is not the real problem, but Rule 403 is, then a Rule 702 objection may not preserve the issue for appeal.

the evidence’s “probative value . . . did not outweigh the prejudice to the plaintiffs.” Id. at 568. Probative value does not have to outweigh prejudice. The danger of unfair prejudice must substantially outweigh probative value.

The court in United States v. Johnson, 28 F.2d 1487 (8th Cir. 1994), got it right. The court correctly recognized that the prejudice must be unfair, discussed what that means, and then found that “the evidence was not substantially more prejudicial than probative.” Johnson, 28 F.3d at 1497.


620. See the Case Digest, infra, under the heading “Rule 403” for more cases relating to Rule 403.

621. See Williamson v. Reynolds, 904 F. Supp. 1529 (E.D. Okla. 1995) (stating that forensic hair examination and comparison was “‘extremely unfair’ and could ‘prejudice the defendant without any real probative value’”), digested, infra, under the heading “Rule 403.”

I. STANDARD FOR ADMISSIBILITY

The passing grade on a Daubert test is a preponderance of the evidence. The proponent of the expert evidence must satisfy the trial judge by a preponderance of the evidence that the conditions of Daubert testing have been satisfied. This same standard applies even in a case where the burden of proof is greater, as in a criminal case, or where it is less, as in a FELA case.

As is true throughout the law of evidence, expert evidence need not "prove" anything in order to be admissible. Evidence rarely "proves" anything; evidence does not have to "prove" anything. It only needs make something that is of consequence to the action somewhat more or less likely; it only needs to be part of a chain of evidence from which an inference can be drawn. This is Rule 401. Daubert no more requires certainty than does Rule 401. Daubert only requires that if evidence purports to be scientific, then it must indeed be scientific: it must rest on a reliable foundation both in its general theory and methodology; and it must be relevant in its application to the facts of the case at hand.

This is not to say that proponents of expert evidence must "demonstrate to the [trial] judge by a preponderance of the evidence that the assessments of their experts are correct, [but only that they must] demonstrate by a preponderance of the evidence that their expert evidence is reliable."

This is a "liberal policy of admissibility," and it extends not only to decisions on the reliability and relevance of the witness' theory

623. See generally the Case Digest, infra, under the heading "Evidence — Standard for Admissibility."

It is, of course, true that the standard for admissibility never comes into question without a timely and specific objection. See supra note 6 and accompanying text.

The standard for getting past a motion for summary judgment is enough evidence that a jury could reasonably find for the non-movant. See infra notes 657-73 and accompanying text.

624. Daubert, 113 S. Ct. at 2796 n.10 (citing Bourjaily v. United States, 483 U.S. 171 (1987)). This is a different standard than the one that applies to the judge's decision as to whether there is enough admissible evidence to get the case past a motion for summary judgment. See infra notes 657-73 and accompanying text.


627. Cantrell, 999 F.2d at 1007.

628. Paoli R.R. Yard PCB Litig., 35 F.3d at 744. See, e.g., Bourjaily, 483 U.S. at 175 (stating that "the inquiry made by a court concerned with these matters is not whether the proponent of the evidence wins or loses his case on the merits, but whether the evidentiary Rules have been satisfied").

and methodology, but also to decisions on the witness' qualifications as an expert.630

The trial court must answer these admissibility questions based on current knowledge and not on some argued future state of knowledge.631 The appellate court must also answer these admissibility questions based on the state of knowledge at the time of the trial court's admissibility determination, not on a more advanced state of knowledge in existence by the time of the appeal.632

J. Judges Securing Their Own Experts

Rule 706, of course, allows the court to appoint its own expert, either on its own motion or on the motion of a party.633 In United States v. Shonubi (Shonubi II),634 the court was faced with evaluating complicated statistical evidence.635 "To help the court evaluate [this] evidence proffered by the parties' experts, the court appointed a panel of experts. Federal Rule of Evidence 706 provides that 'the court may appoint expert witnesses of its own selection.' Judges are encouraged to avail themselves of this procedure."636

The expert may be asked "to assist the trier of fact to understand the evidence."637 The expert may also be appointed to help the trier of law — to help the court understand the facts on which it must premise a ruling on a question of law. The easiest example of the latter is a court-appointed expert used to enhance the court's ability to deal with complex scientific and technological issues raised at a Daubert hearing.

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632. United States v. Bonds, 12 F.3d 540, 553 (6th Cir. 1993). This is a general rule of the law of evidence, not a general rule of constitutional law: Where the question on appeal is whether the trial judge committed evidentiary error, the trial judge's decision will be judged against the state of knowledge at the time the trial judge made the decision. A different rule might apply, however, where the question on appeal is whether post-trial developments in that state of knowledge raise due process problems, rendering current enforcement of the earlier decision unconstitutional. See Milone v. Camp, 22 F.3d 693, 702 (7th Cir. 1994), cert. denied, 115 S. Ct. 720 (1995) (stating that Daubert is an evidentiary test, not a constitutional test). See supra notes 224-34 and accompanying text.
633. See supra notes 28-41 and accompanying text. See infra notes 634-40 and accompanying text. See Case Digest, infra, under the heading "Judges Securing Their Own Experts."
636. Shonubi II, 896 F. Supp. at 468 (citations omitted).
The Daubert hearing is not, however, the only place for pretrial use of a court-appointed expert. At a discovery hearing, for example, if one party is arguing that its experts need to see privileged information both in order to be able to prepare their own testimony and form their opinions and in order to be able respond to the other side's expert testimony, a court-appointed expert might help the court understand the factual premises that are the basis for the challenge to the privilege.638 The court-appointed expert at such a discovery hearing can help the trial court with two Daubert decisions. First, does the testimony of the parties' experts, at the discovery hearing, pass Daubert testing? Second, given that the expert testimony at the trial will be subject to Daubert testing, how much of the privileged information is necessary to the other side's evaluation and prosecution of its case?

And it is not just court-appointed experts, but also special masters that may assist the federal courts.639 As I suggested above, "Courts should hold Daubert hearings, early and often, with serious consideration of the motion in limine (not a sort of rote postponement of the decision until the evidence has come in at trial). In the most difficult cases, courts should consider the assistance of a court-appointed expert or a special master."640

In a related vein, one post-Daubert case has found that when forensic evidence and expert testimony are critical parts of the criminal prosecution of an indigent, due process requires that the state provide the defendant an expert who is not beholden to the prosecution.641

K. Weight Versus Admissibility642

As always, the trial judge must be careful not to mistake weight-of-the-evidence questions for admissibility questions. It is not uncommon for parties to present what should be a weight-of-the-evidence argument as an admissibility argument. For example, and an ex-

638. See Bottomly v. Leucadia Nat'l, 163 F.R.D. 617, 619 (D. Utah 1995) (concerning a hearing on the defendant's request for access to certain of the plaintiff's privileged material, which the defendant's expert allegedly needed to prepare his testimony). See supra note 300 and accompanying text.
639. FED. R. CIV. PRo. 53. See supra note 51 and accompanying text. See the Case Digest, infra, under the heading "Judges Securing Their Own Experts."
640. See supra 93-95 and accompanying text.
642. See Case Digest, infra, under the heading "Weight Versus Admissibility." Trial judges must exercise sound discretion as gatekeepers of expert testimony under Daubert. [The defendant,] however, would elevate them to the role of St. Peter at the gates of heaven, performing a searching inquiry into the depth of an expert witness's soul — separating the saved from the damned. Such an inquiry would inexorably lead to evaluating witness credibility and weight of the evidence, the ageless role of the jury." McCullock v. H.B. Fuller Co., 61 F.3d 1038, 1045 (2d Cir. 1995).
treme example at that, consider *Carroll v. Morgan*. In *Carroll*, the
plaintiff argued that the defendant's cardiologist should not have been
allowed to testify to the relationship between heart problems and the
cause of death, because he was a cardiologist and cause of death falls
within the exclusive confines of pathology. (Where do they get
some of these arguments?) The plaintiff also argued that, because he
had three testifying pathologists who disagreed with the defendant's
cardiologist and because they were more precisely qualified to give the
opinion called for, the cardiologist should not have been allowed to
testify. (Where do they get some of these arguments? And do they
really expect judges to fall for them?) The plaintiff further contended
that, because the cardiologist preferred to recognize an array of mater-
ials as authoritative in toto and refused to cite any one particular
source as the exclusive authority, his testimony was not based on well
founded methodology or generally accepted principles within the med-
ical profession. (Where do they get some of these arguments? Do
they really expect judges to fall for them? And how do judges have the
patience to listen to some of them . . . and to do so over and over and
. . . ?)

Rule 702's requirement that the witness be an expert is a liberal
one; if the witness meets these liberal minimum qualifications, then
the level of the witness' expertise goes to credibility and weight, not
admissibility. There may be a more highly qualified witness or a
witness with more precise qualifications; other qualified experts
may disagree with the proffered expert witness; there may be bet-

643. 17 F.3d 787 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994).
644. Carroll v. Morgan, 17 F.3d 787, 790 (5th Cir. 1994), reh'g denied, 26 F.3d 1117
(5th Cir. 1994).
645. Carroll, 17 F.3d at 790.
646. Id.
648. There is no rule that says that every testifying expert must be the last possible
expert. In the *Carroll* case, the plaintiff had three testifying pathologists who disagreed
with the defendant's cardiologist. The plaintiff argued that his witnesses were more
precisely and better qualified than the defendant's witness to give an expert opinion on
the cause of death and, therefore, that the defendant's witness should not have been
allowed to testify. The court of appeals held that this is a weight-of-the-evidence ques-
tion for the jury, not an admissibility question for the judge. *Carroll*, 17 F.3d at 787.
Similarly, in United States v. Alzanki, 54 F.3d 994 (1st Cir. 1995), cert. denied, 116 S.
Ct. 909 (1996), the defendants were charged with holding a woman in involuntary serv-
tude. The prosecution called an expert witness to testify as a "victimologist." The de-
fendants objected that the witness' credentials related only to sexual abuse victims, "not
the behavioral reactions of domestic workers subjected to involuntary servitude." *Al-
zanki*, 54 F.3d at 1005. In rejecting this objection, the court recognized that the rele-
vant question is not How narrowly focused is the witness' specialized knowledge? but
rather Will what specialized knowledge the witness does have assist the trier of fact?
expert evidence even though other experts disagreed).
ter tests than those performed by a particular expert;\textsuperscript{650} there may be other experts who testify with more certainty.\textsuperscript{651} These, however, are questions of weight of the evidence for the trier of fact, not questions of admissibility of the evidence for the trier of law.

\textit{Daubert} is not a question of which opinion has the best foundation, but rather a question of whether each opinion has enough foundation. The gatekeeper decides whether there is a reliable basis for each opinion and whether the opinion is relevant; the trier of fact decides which bases are most reliable and which opinions are the most probative, \textit{i.e.}, which should be credited.\textsuperscript{652}

Much science these days is very focused and narrow. An expert may be asked to testify to something science puts into a particular concentration within a particular branch of a certain subspecialty of a science. If the background offered to qualify the expert in question, or the scientific investigation on which the expert's opinion is based (or both) is not within precisely the same concentration in the same branch of the subspecialty, this may well go to the weight of the evidence, not its admissibility.\textsuperscript{653}

As can be seen in the Case Digest, post-\textit{Daubert} cases are full of expositions of the distinction between the question of the admissibility of expert evidence and its weight. Faulty methodology or theory

\textsuperscript{650} United States v. Bonds, 12 F.3d 540 (6th Cir. 1993) (rejecting the defendants' argument that their convictions must be reversed because they were based in part on the results of the government's DNA testing and the DNA tests performed were neither as reliable as the government had claimed nor as reliable as other procedures; disputes over accuracy go to weight, not admissibility).

\textsuperscript{651} So long as each expert expresses opinions with "enough" certainty, admissibility does not depend on which experts express their opinions with the most certainty. In \textit{Sorenson ex rel. Dunbar} v. Shaklee Corp., 31 F.3d 638 (8th Cir. 1994), the United States Court of Appeals for the Eighth Circuit found numerous flaws in the plaintiffs' evidence, including: 1) no published scientific literature supported the plaintiffs' proposition and none of the plaintiffs' experts had submitted their findings to peer review prior to trial; 2) there was no evidence of a statistically significant link between the injury at issue and the alleged cause; and 3) the plaintiffs' most supportive expert could not testify with the same degree of certainty at his deposition as he had in prior affidavits. \textit{Sorenson ex rel. Dunbar}, 31 F.3d at 648-51. The defendants presented four expert witnesses who concluded "to a reasonable degree of scientific certainty" that the injury was not a result of the alleged cause. \textit{Id.} at 644. The Eighth Circuit applied \textit{Daubert} and concluded that the plaintiffs had not presented sufficient evidence to get their expert's testimony to the jury. \textit{Id.} at 645-51. Query: What is the significance of the court having noted that the defendants, by contrast, presented four expert witnesses who concluded "to a reasonable degree of scientific certainty" that the parent's ingestion of the tablets could not have caused the birth defects? The question at the \textit{Daubert} hearing is not which side has the best expert testimony, but whether the side being challenged has qualified experts, testifying to scientifically valid evidence that is reliably applied to the facts of the case at hand. What the other side is presenting in the way of expert testimony should be totally irrelevant to answering these questions.

\textsuperscript{652} Benedi, 66 F.3d at 1383.

\textsuperscript{653} McCullock v. H.B. Fuller Co., 61 F.3d 1038, 1043 (2d Cir. 1995).
raises admissibility questions for the judge. Imperfect execution of laboratory techniques whose theoretical foundation passes muster under Daubert raises weight of the evidence questions for the jury; that is to say, the impact of methodologically sound but imperfectly conducted laboratory procedures might more properly go to weight than to admissibility.654 As a more general statement of the distinction, the cases say this: admissibility decisions focus on the expert's methods and reasoning; credibility decisions focus on the expert's underlying conclusions; questions regarding the validity of factual assumptions underlying an expert's opinion are questions of fact (credibility and weight), not questions of law (admissibility).655

Most of what has been said in the few paragraphs immediately above might seem to push the judge toward allowing the evidence in and letting the jury decide its weight. It might seem to suggest that the judge answer the admissibility-versus-weight question in favor of the weight of the evidence. The trial judge must not forget, however, that

654. In United States v. Chischilly, 30 F.3d 1144 (9th Cir. 1994), cert. denied, 115 S. Ct. 946 (1995), the court examined DNA profiling, matching semen from the victim's clothing with blood sample from the defendant. Chischilly, 30 F.3d at 1447. The defendant challenged the FBI's methods in these DNA tests. Id. at 1148. The court discussed the difference between, on the one hand, "faulty methodology or theory," and, on the other hand, "imperfect execution of laboratory techniques whose theoretical foundation is sufficiently accepted in the scientific community to pass muster under Daubert." Id. at 1154. The court stated that "an alleged error in the application of a reliable methodology should provide the basis for exclusion of the opinion only if that error negates the basis for the reliability of the principle itself." Id. (citations omitted). "The impact of imperfectly conducted laboratory procedures might therefore be approached more properly as an issue going not to the admissibility, but to the weight of the DNA profiling evidence." Id.

655. See Paoli R.R. Yard PCB Litig., 35 F.3d at 746 (recognizing the distinction between the focus of the admissibility decision, which is on an expert's methodology, and the focus of the credibility decision, which is on the expert's conclusions, and finding that, because a judge's disagreement with an expert's conclusion is usually based on problems with the expert's methodology, it is a distinction with "only limited practical import"); Norton v. Caremark, Inc., 20 F.3d 330, 340 (8th Cir. 1994) (citations omitted) ("[A]s a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the factual basis for the opinion in cross-examination."); Claar v. Burlington Northern R.R. Co., 29 F.3d 499, 501 (9th Cir. 1994) (determining that a trial court's examination of expert testimony is proper when it focuses on methodology but not when it focuses on conclusions); Zuchowicz v. United States, 870 F. Supp. 15, 18 (D. Conn. 1994) (a trial judge's inquiry into the scientific validity and relevance of an expert's testimony "is a flexible one, focusing on principles and methodology, not on the conclusion generated"); still, "[i]t is true that, whenever a court rejects expert testimony because it is based on faulty methodology or reasoning, it follows implicitly that the expert's conclusions are not to be credited."); Zuchowicz, 870 F. Supp. at 18. Cavallo v. Star Enter., 892 F. Supp. 756, 762 (E.D. Va. 1995). "Although courts must not exclude expert testimony based on a valid methodology simply because they disagree with the ultimate conclusion reached, they have an obligation to ensure that the conclusion is reliable, that is, that there is a scientifically valid link between the sources or studies consulted and the conclusion reached." Cavallo, 892 F. Supp. at 762.
Daubert anoints her the gatekeeper and expects her to take that role seriously. The trial judge must exercise the gatekeeper role to the end that "[s]cientific controversies [are] settled by the methods of science rather than the methods of litigation."656

And, of course, admissibility factors argued to the judge can be recycled as weight of the evidence factors and argued afresh to the jury.657

L. Summary Judgment658

Daubert itself, and a long list of other cases digested below, make it clear that the trial judge should not be afraid of summary judgment as a way to control junk science.659 "[I]n the event the trial court concludes that the scintilla of evidence presented supporting a position is insufficient to allow a reasonable juror to conclude that the position more likely than not is true, the court remains free to direct a judgment and likewise to grant summary judgment."660 When the trial judge determines that essential scientific evidence is not based on "good science," summary judgment is appropriate.661 When the essential expert evidence does not "fit" the case at hand — it is reliable, but not relevant — summary judgment is appropriate.662 When an expert whose testimony is essential to a case can do no more than express a possibility (rather than a probability), summary judgment is appropriate.663 When experts' opinions are essential, for example to support the issue of causation and the court orders a party to submit affidavits from its experts, describing these essential opinions, and the affidavits returned are insufficient, then summary judgment is appropriate.664 When, for whatever reason, a motion in limine or a motion to strike successfully keeps out expert testimony that is essential to one side's presentation of its case, summary judgment is appropriate.665

656. Summers, 897 F. Supp. at 542 (citations omitted).
657. See United States v. Velasquez, 611 F.3d 844, 848 (3d Cir. 1995) (holding that the decision to admit expert testimony does not preclude evidence attacking the reliability of the testimony); Reedy v. White Consol. Indus., Inc., 890 F. Supp. 1417, 1446 (N.D. Iowa 1995) (stating that, once an expert is allowed to testify, attacks on the expert's knowledge go to the weight of the evidence).
658. See also the Case Digest, infra, under the heading "Summary Judgment".
659. See the Case Digest, infra, under the heading "Summary Judgment."
660. Daubert, 113 S. Ct. at 2798 (citations omitted).
661. Deimer v. Cincinnati Sub-Zero Prods., Inc., 58 F.3d 341 (7th Cir. 1995).
663. Textron Inc. ex rel., Homelite Div. v. Barber-Colman Co., 903 F. Supp. 1546 (W.D.N.C. 1995). This "guard[s] against raw speculation by the fact finder." Id. at 1552 (citation omitted).
664. Claar, 29 F.3d at 499.
665. See many of the cases cited in the Case Digest, infra, under the heading "Summary Judgment."
Whether expert testimony is admissible under *Daubert* and whether it is enough to submit the case to the jury are two separate questions. The standard to be applied by the court is different. When deciding whether evidence is admissible, the judge applies the preponderance of the evidence standard.\(^6\) When deciding whether there is enough admissible evidence to withstand a motion for summary judgment, the judge asks whether there is enough evidence that a reasonable juror could find the point made, a standard that lies somewhere between a scintilla of the evidence and a preponderance of the evidence.\(^7\) Even when expert testimony is admissible, it can still be insufficient to allow a reasonable juror to conclude that the position taken by the expert is more likely true than not; if so, summary judgment is appropriate.\(^8\)

If, at the *Daubert* hearing, the parties indicate, “This is all of our evidence,” and the court concludes, “This is not enough,” then the court can rule that even if the evidence is admitted the burden of production is not met and can grant summary judgment. To write such an opinion, the trial judge still has to hear the evidence, but the judge may not have to go through the steps of *Daubert* testing. Saying “If this is it, it is not enough” may be easier than saying “Here is how this evidence stacks up against the requirements of the *Daubert* test.”\(^9\)

To defeat a motion for summary judgment, there must be admissible evidence on which the jury could reasonably find for the non-movant. In federal court, a “scintilla of evidence” is not enough to require submission to the jury. This is true even in federal cases where state law supplies the rule of decision and state law holds that if there is a scintilla of evidence, then the trial court is required to submit the issue to the jury.\(^0\) This is one of the important ways in which the motion for summary judgment retains bite in federal court.

\(^{666}\) *Bourjaily*, 483 U.S. at 175. See *supra* notes 624-25 and accompanying text.

\(^{667}\) See *supra* notes 623-32 and accompanying text.

\(^{668}\) *Conde v. Velsicol Chem. Corp.*, 24 F.3d 809 (6th Cir. 1994).

\(^{669}\) See *infra* notes 705-09 and accompanying text.

\(^{670}\) *Fed. R. Civ. Proc.* 56; see *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986) (stating that “summary judgment will not lie . . . if the evidence is such that a reasonable jury could return a verdict for the nonmoving party”); *Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 586 (1986) (stating that the opponent must do more than show that there is some “metaphysical doubt”).

Even in a diversity action, where state law supplies the rule of decision, and state law would permit a mere scintilla of evidence to reach the jury, the federal requirement of more than a scintilla of evidence applies. See, e.g., *Stine v. Marathon Oil Co.*, 976 F.2d 254, 259 (6th Cir. 1993) (“[A] scintilla of evidence is insufficient to present a question for the jury”); *Reuter v. Eastern Air Lines*, 226 F.2d 443, 445 (5th Cir. 1955) (stating that *Fed. R. Civ. Pro.* 38 and 39 provide for the kind of jury trial that the Seventh Amendment guarantees and that the Erie Doctrine is subservient to that constitutional provision).
On a motion for summary judgment, "facts and opinions stated in an expert's affidavit may be considered only if they would be admissible under the Federal Rules of Evidence." The evidence in support of summary judgment will have to show the reliability of the expert's theory and methodology and the reliability of the application of that theory and methodology to the facts of the case at bar. It may be difficult to accomplish all of that with affidavits. The court may need depositions in addition to just affidavits. Or, it may be that there will have to be a hearing at which the experts actually testify and can be cross-examined, so the evidence can be adequately tested. Or a combination of the two may be required. It may save time and money to have the depositions be part of the Daubert hearing — depositions in the courtroom with the judge present. Though Daubert does express a faith in the power of summary judgment as a check on junk science, Daubert testing can make it considerably more difficult to resolve these issues on motion for summary judgment.

M. STANDARD OF REVIEW ON APPEAL

Should it come to this, the standard of review of Daubert testing on appeal is pretty clear. Though the words vary, the meaning is the same: almost all of the cases say the standard is broad or deferential, it is a clearly erroneous standard, it looks for a manifest or clear abuse of discretion. Though stated in the context of the admissibility of

672. See supra notes 4-8, 23-51 and accompanying text.
673. See supra notes 235-44, 291-300 and accompanying text.
674. See Paoli R.R. Yard PCB Litig., 35 F.3d at 717 (finding that Rule 403 is rarely appropriate for pretrial exclusion because the judge cannot ascertain potential relevance without a virtual surrogate for the trial record).
675. See also the Cases Digest, infra, under the heading "Standard of Review on Appeal."
676. See United States v. Sinclair, 74 F.3d 753 (7th Cir. 1996) (stating that rulings on admissibility of expert testimony are entitled to the same deference as evidentiary rulings generally); Deimer v. Cincinnati Sub-Zero Prods., Inc., 58 F.3d 341, 344 (7th Cir. 1995) (finding the standard to be "a deferential standard" in which the trial court has "broad discretion" and is to be affirmed "unless manifestly erroneous"); Government of the Virgin Islands v. Sanes, 67 F.3d 338, 341 (3d Cir. 1995) (finding the standard to be abuse of discretion); McCullock v. H.B. Fuller Co., 61 F.3d 1038, 1042 (2d Cir. 1995) (determining the standard to be a "broad discretion" that will be "overturned only when manifestly erroneous"); United States v. Alzanki, 54 F.3d 994, 1005 (1st Cir. 1995), cert. denied, 116 S. Ct. 409 (1996) (determining the standard to be "manifest abuse of discretion"); Bradley v. Brown, 42 F.3d 434, 436-37 (7th Cir. 1994) (holding that the appellate court must conduct a de novo review of whether the district court properly followed the framework set forth in Daubert and, if it did the appellate court will not disturb the trial court's findings unless manifestly erroneous); McKnight ex rel. Ludwig v. Johnson Controls, Inc., 36 F.3d 1396, 1401 (8th Cir. 1994) (stating that "[t]here is an abuse of discretion only when no reasonable person could agree with the court's ruling").
the results of a polygraph examination, which raises its own special historical problems, and though stating only the Rule 403 considerations, it is true to one degree or another across the board that the “trial court deciding whether to admit [expert] evidence ‘must engage in a delicate balancing of many factors including probative value, prejudicial effect, confusion of the issues, misleading the jury, and undue delay.’”677 The cases expressing this standard of review are legion678 and are collected below in the Case Digest under the heading “Standard of Review on Appeal.”

Trial judges “possess considerable discretion in dealing with expert testimony.”679 They do not, however, have the discretion to do away with Daubert testing. No matter how well qualified an expert, the trial judge must still assess the reliability of the theory and methodology both in general and as applied to the facts of the case at bar.680

The United States Court of Appeals for the Sixth Circuit has stated a standard of review that is different at least in part. The Sixth Circuit has stated one standard for review of the trial court’s determination of whether the opinion is properly the subject of “scientific, technical, or other specialized knowledge” and another for review of whether the opinion “will assist the trier of fact” or violates Rule 403 on the other. The former is de novo, and the latter is abuse of discretion.681

677. United States v. Pulido, 69 F.3d 192, 205 (7th Cir. 1995) (citations omitted).
678. See the Case Digest, infra, under the heading “Standard of Review on Appeal.”
680. Frymire-Brinati, 2 F.3d at 186-87.
681. “Appellate review of trial court rulings on the admissibility of expert opinion testimony under [Rule] 702, depending on the assignment of error, may involve as many as three separate standards of review.” First, we review the trial court's preliminary factfinding under [Rule] 104(a) for clear error. Second, the trial court's determination whether the opinion the expert will offer is properly the subject of “scientific, technical, or other specialized knowledge” is a question of law, which we review de novo. Third, the trial court's determination whether the proffered expert opinion “will assist the trier of fact to understand the evidence or to determine a fact in issue” is a determination of relevance, which this court reviews for abuse of discretion. In addition, the balancing of probative value against the potential for unfair prejudice under [Rule] 403 is also reviewed only for abuse of discretion.
United States v. Thomas, 74 F.3d 676 (6th Cir. 1996) (citations omitted). In Bradley v. Brown, 42 F.3d 434, 436-37 (7th Cir. 1994) the court also stated a de novo standard, but “qualified its decision by stating that it would not overturn the lower court's findings unless they were 'manifestly erroneous.'” Confronting the New Challenges of Scientific Evidence, 108 HARV. L. REV. 1509, 1527 n.303 (1995).
The one important case that states an altogether different standard is *In re Paoli Railroad Yard PCB Litigation.* The standard of appellate review stated there is "heightened abuse of discretion"; "a hard look at (more stringent review of) the district court's exercise of discretion." This can be the standard, says Paoli, because this kind of review generally does not involve assessing the truthfulness of the witness and, thus, is no more difficult on a cold record than at trial. This should be the standard because, as "the reliability standard of Rules 702 and 703 is somewhat amorphous, there is a significant risk that district judges will set the threshold too high and will in fact force plaintiffs to prove their case twice." Paoli stands almost alone — alone but for later cases in its circuit that pick up its language in expressing the standard of review as anything but the most lenient kind of review for abuse of discretion. The non-Paoli cases seem to be correct. For one thing, it does not seem to be so certain that review of a dispute among experts, often including experts whose expertise was brought to bear only after preparation for the lawsuit had begun, will not involve assessing the truthfulness of the witnesses. For another, we should have some finality to these cases and not retry them all on appeal.

N. Judges and Science

The prospect of all of this led one court to sum up its task as follows:

As we read the Supreme Court's teaching in *Daubert,* . . . though we are largely untrained in science and certainly no match for any of the witnesses whose testimony we are reviewing, it is our responsibility to determine whether those experts' proposed testimony amounts to "scientific knowledge," constitutes "good science," and was "derived by the scientific method."

The task before us is more daunting still when the dispute concerns matters at the very cutting edge of scientific

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685. *Id.* at 750.
686. *See* United States v. Velasquez, 611 F.3d 844, 848 (citing Paoli, 35 F.3d at 749).
687. *See* for example, *Hose v. Chicago Northwestern Transp. Co.*, 70 F.3d 968 (8th Cir. 1995), where the defendant failed to make objections, was disappointed that the trial court saw its expert witness arguments as going to the weight of the evidence rather than its admissibility, and just generally seemed to be looking for a chance to be able to retry its case on appeal. *Hose,* 70 F.3d at 968-79.
688. *See also* the Case Digest, *infra,* under the heading "Judges and Science."
research, where fact meets theory and certainty dissolves into probability.

. . . Mindful of our position in the hierarchy of the federal judiciary, we take a deep breath and proceed with this heady task. 689

Other cases have made the same point, perhaps less sarcastically, saying that judges should keep in mind their own limited scientific knowledge, 690 their lack of special competence in these areas, 691 and that they may bring their own biases and errors to these admissibility decisions. 692

Many of us went to law school to avoid science or, for that matter, anything else that uses numbers other than to reference volumes and page numbers. Many of us suffer from arithmophobia. Here we are now, in these cases, thrown right into the middle of the thing we were trying to escape.

It is not just a matter of training or inclination, it is also a matter of time and resources: these can be very complex cases, featuring a heterogeneous mass of evidence, with parts so numerous and so intertwined that the mind does not readily distinguish them out and then get them back together. 693 The time pressures on the best of our judges means that they may not “have the time to spend at trial or beforehand to make fully considered independent decisions on validity.” 694

O. THE POSSIBLE HIGH COST OF DAUBERT TESTING 695

Daubert testing can be more costly. (It is not necessarily more costly: if the demands of Daubert can be satisfied through judicial notice or some sort of presumption, or if the expertise is not novel and Daubert testing can be done on the stand in front of the jury, there will be no extra cost.) 696 In Stanczyk v. Black & Decker, Inc., 697 it seemed

689. Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert II), 43 F.3d 1311, 1316 (9th Cir. 1995), cert. denied, 116 S. Ct. 189 (1995). This was the court from which Daubert had come and this is its opinion on remand.


691. Zuchowicz v. United States, 870 F. Supp. 15, 19 (D. Conn. 1994) (stating that “judges may not always have the 'special competence' to resolve complex issues which stand 'at the frontier of current medical and epidemiological inquiry' ”).


694. MUELLER AND KIRKPATRICK, supra note 565, § 7.8, at 743 (1995). This maybe, by the way, the perfect occasion for a court-appointed expert or special master. See supra notes 48-51 and accompanying text.

695. See also the Case Digest, infra, under the heading “Cost of Daubert Testing.”

696. See supra notes 579-602 and accompanying text.
that Daubert testing increased the cost of the litigation. In any event, the plaintiff argued that the cost of Daubert testing put the case beyond his financial ability to pursue. This court's answer was that the proof required by the federal rules of evidence, as interpreted in Daubert, can be expensive; and, expensive or not, it is required: the cost of Daubert testing does not excuse a party from the need to put on proof that his or her science is good science.

697. 836 F. Supp. 565 (N.D. Ill. 1993). The plaintiff, cut while using a miter saw, sued the manufacturer, claiming the saw guard exposed too much blade and did not provide enough protection. Stanczyk v. Black & Decker, Inc., 836 F. Supp. 565, 566 (N.D. Ill. 1993). All agreed that there must be some blade exposure, but the issue was how much? Stanczyk, 836 F. Supp. at 566. The expert witnesses for the manufacturer testified that the existing design was optimal and produced charts purporting to show why the design suggested by the plaintiff's expert would not work. Id. at 567. The plaintiff's expert testified that he had come up with a better design, one that he had "not fully defined, fully proven and fully documented." Id. at 566-67. On cross-examination, the plaintiff's expert said he could say "with a reasonable degree of engineering certainty" that his design would work, but admitted he had not done an engineering analysis of the design and had just spent time thinking about it. Id. at 567. The plaintiff argued that to do more, to subject this alternative design to testing and whatever else Daubert requires, would cost between $20,000 and $40,000 and would put the claim beyond his financial ability to pursue. Id. at 568. The court stated that "it is the very nature of Rule 702 and Daubert that requires these expenditures. Proof of any kind is often expensive to gather. Scientific reliability and validity in our times is seldom cheap. . . ." Id.


699. Id. Similarly in Porter v. Whitehall Lab., Inc., 9 F.3d 607, 609 (7th Cir. 1993), the plaintiff's deceased died of kidney failure, allegedly caused by ibuprofen. Porter, 9 F.3d at 609. One doctor who the plaintiff called as an expert testified that what he was giving was a "curb side opinion." Id. at 614. "If . . . you were asking me to give you an analytical, scientific opinion, then, I would have to research it, and I have neither the time nor the inclination to do that." Id. Time and inclination can be purchased. This sounds like a problem with the cost of Daubert testing.

Daubert can have a high cost in another way. In Summers v. Missouri Pacific R.R. Sys., 897 F. Supp. 533, 542 (E.D. Okla. 1995), the court stated that "[Daubert] recognized and accepted that this gate-keeping function on occasion will prevent the jury from learning of authentic insights and innovations." Nonetheless, the court must answer the question before it based on current knowledge. Summers, 897 F. Supp. at 542 (citations omitted). And in Cavallo v. Star Enter., 892 F. Supp. 756 (E.D. Va. 1995), the court stated:

In the final analysis, the opinions of Drs. Monroe and Bellanti are based largely on hypothesis and speculation. This is not to say [they] are insincere in their opinions, or that their opinions may not some day be validated through scientific research and experiment. It may well be that the AvJet spill forever "sensitized" Ms. Cavallo to petroleum vapors and various other household chemicals. But the published scientific literature and test results simply do not support that conclusion at this time. And the price paid for this seemingly stringent standard of reliability is that, unavoidably, some legitimate injuries will be left unredressed.

Cavallo, 892 F. Supp. at 773. This cost will be imposed less often under Daubert, however, than it was under the pre-existing Frye rule.
P. AVOIDANCE OF DAUBERT TESTING

In Conde v. Velsicol Chemical Corp., a products liability action alleging that the defendant's commercial termiticide was a defective product that caused health problems and a loss of property value after it was applied to the basement of the plaintiffs' home, the trial court found that most of the expert testimony offered by the plaintiffs with respect to the issue of medical causation was inadmissible and further found that, even if it were admissible, the testimony was insufficient to allow a jury to conclude by a preponderance of the evidence that the plaintiffs suffered personal injuries as a result of their exposure to the product. The trial court granted summary judgment, and the appellate court agreed and affirmed.

The argument on appeal was that this expert testimony was wrongly excluded. On appeal, rather than go through all of the steps of Daubert review, for all of this testimony, the court assumed that the evidence had been wrongly excluded and nonetheless affirmed. Assuming all the evidence was admissible, it was not enough evidence for a reasonable juror to conclude that the defendant's product was the cause of the plaintiffs' alleged damage. This saved the appellate court from having to work through the Daubert test. It may also sometimes save a magistrate judge or district court judge from having to work through the Daubert test.

Again, if, at the Daubert hearing, the parties say, "This is all of our evidence," and the court concludes, "This is not enough," then the court can rule that, even if the evidence is admitted, the burden of production is not met and grant summary judgment. To write such an opinion, the trial judge still has to hear the evidence, but the judge may not have to go through the steps of Daubert testing. Saying, "If this is it, it is not enough" may be easier than saying, "Here is how this evidence stacks up against the requirements of the Daubert test."

Another similar way a court can sometimes avoid having to decide whether the theory behind the specialized knowledge involved and the

700. 24 F.3d 809 (6th Cir. 1994).
701. Conde v. Velsicol Chem. Corp., 24 F.3d 809, 810-14 (6th Cir. 1994). The plaintiff's experts were unable to exclude other potential causes for the plaintiff's symptoms; they were unable to explain the relationship between certain evidence in the case and their theories of causation. Conde, 24 F.3d at 813. The experts' theories were inconsistent with both the results of the tests performed on the plaintiffs and the information found in "the vast majority of the relevant, peer-reviewed scientific literature." Id. at 814.
703. Id. at 812.
704. Id. at 812-14.
705. Id. at 814.
706. See supra notes 668-74 and accompanying text.
methodology employed by the specialist who is testifying are both reliable and relevant is to find the evidence so valueless that Daubert never becomes a consideration: Rule 403 is enough. Regarding a unilateral polygraph examination, the Sixth Circuit has held that, when its probative value and its prejudicial effect are considered, it is inadmissible under Rule 403. The court never had to go any further into Daubert testing.\textsuperscript{707} The court can find the evidence so misleading, confusing, or unfairly prejudicial that the court can assume Rule 702 admissibility and go right to and keep the evidence out under Rule 403.\textsuperscript{708}

If the science or the qualifications or any part of what a party is trying to do with novel scientific evidence is sufficiently weak, the judge may be able to avoid whatever complications inhere in a Daubert hearing. On the other hand, Daubert testing may not be avoided by simply finding that the proffered expert is extraordinarily well qualified. No matter how well qualified an expert, the trial judge must still assess the reliability of the theory and methodology both in general and as applied to the facts of the case at bar.\textsuperscript{709}

\textsuperscript{707} See Conti v. Commissioner of Internal Revenue, 39 F.3d 658 (6th Cir. 1994), \textit{cert. denied}, 115 S. Ct. 1793 (1995) (appealing a finding that they had substantially overstated their income, a husband and wife challenged IRS penalties imposed for fraud and understatement of their income tax liability; to corroborate their version of events, the taxpayers unilaterally set up and took a polygraph exam; "[opposing parties] were unaware of the test, and the results of the test presumably would not have been disclosed if they had been unfavorable"; at trial, they offered the results into evidence). Regarding polygraph evidence generally, see \textit{supra} notes — and accompanying text. See the Case Digest, \textit{infra}, under the heading “Kinds of Evidence,” subheading “polygraph.”

\textsuperscript{708} See \textit{supra} notes 603-22 and accompanying text.

\textsuperscript{709} \textit{Frymire-Brinati}, 2 F.3d at 186-87.
APPENDIX: CASE DIGEST\textsuperscript{710}

Abuse of Discretion:

\textit{See} Standard of Review on Appeal, this digest.

Administrative Agencies:

\begin{itemize}
\item \textit{Sierra Club v. Marita}, 46 F.3d 606, 621 (7th Cir. 1995) \textit{(Daubert is inapplicable at the administrative level; the agency may “use its own methodology, unless it is irrational”).}
\item \textit{See Auvil v. CBS 60 Minutes}, 836 F. Supp. 740, 741 (E.D. Wash. 1993), aff'd, 67 F.3d 816 (9th Cir. 1995) (to the extent experts relied on “data and conclusions provided by EPA, their conclusions are clearly sufficiently reliable for this inquiry”).
\item \textit{See Bammerlin v. Navistar International Transportation Corp.}, 30 F.3d 898, 901 (7th Cir. 1994) (the meaning of federal regulations are not questions of fact to be resolved by the jury after a battle of experts, but are questions of law to be resolved by court).
\end{itemize}

Admissibility — Standard for Admissibility of Evidence:

\textit{See} Evidence — Standard for Admissibility, this digest.

Admissibility Versus Credibility:

\textit{See} Weight Versus Admissibility, this digest.

Affidavits:

\textit{See} Summary Judgment, this digest.

Application of Daubert:

\textit{See} Kinds of Evidence; Jury — Questions for Jury Versus Questions for Judge; Limits on Coverage of Daubert; Weight Versus Admissibility, this digest.

Assist the Triers of Fact:

\textit{See} Helpfulness — Is the Expert Evidence Helpful to the Trier of Fact?, this digest.

Avoidance of Daubert Testing:

\textit{See} also Judicial Notice, this digest.

\begin{itemize}
\item \textit{Conde v. Velsicol Chemical Corp.}, 24 F.3d 809, 814 (6th Cir. 1994) (even assuming the scientific evidence offered here is admissible, it is not enough evidence for a reasonable juror to find for the plaintiff).
\item \textit{Conti v. Commissioner of Internal Revenue}, 39 F.3d 658, 663 (6th Cir. 1994), cert. denied, 115 S. Ct. 1793 (1995) (some science is so bad, the court never needs to get past FED. R. EVID. 403).
\end{itemize}

\textsuperscript{710} Of the cases digested, \textit{Daubert} is synthesized in Part II, see supra notes 4-84 and accompanying text; \textit{United States v. Bonds}, 12 F.3d 540 (6th Cir. 1993), and \textit{In re Paoli R.R. Railroad Yard PCB Litig.}, 895 F. Supp. 460 (E.D.N.Y. 1995), is synthesized in Part III(A), supra notes 95-184 and accompanying text; and some, but not all, of the rest of the cases are cited at various places throughout this Article.
CREIGHTON LAW REVIEW

• Frymire-Brinati v. KPMG Peat Marwick, 2 F.3d 183, 186-87 (7th Cir. 1993) (although trial judges have a great deal of discretion over expert testimony, trial judges do not have the discretion to ignore Daubert; even if a witness is a qualified expert, it does not mean that the witness' expert testimony is necessarily admissible).

• United States v. Kwong, 69 F.3d 663, 668 (2d Cir. 1995) (assuming this evidence passes Fed. R. Evid. 702, it is inadmissible under Fed. R. Evid. 403).


• United States v. Sherlin, 67 F.3d 1208, 1216-17 (6th Cir. 1995), cert. denied, 116 S. Ct. 795 (1996) (a privately commissioned polygraph examination was found to be inadmissible under Fed. R. Evid. 403, without considering admissibility under Fed. R. Evid. 702).

• See Cavallo v. Star Enterprise, 892 F. Supp. 756, 773 (E.D. Va. 1995) ("[T]he price paid for this seemingly stringent standard of reliability is that, unavoidably, some legitimate injuries will be left unredressed").

BASIS FOR EXPERT OPINION, INADMISSIBLE EVIDENCE:

See Evidence — Inadmissible Evidence as the Basis for an Expert Opinion, this digest.

BURDENS, EVIDENTIARY:

• At trial: See Evidence — Standard for Admissibility, this digest.

• On appeal: See Standard of Review on Appeal, this digest.

CASE MANAGEMENT:

See also Jury — Daubert "Hearing" Held in Front of Jury; Timing of Daubert Hearing, this digest.

In addition to the following cases, see William W. Schwarzer, Federal Judicial Center, Reference Manual on Scientific Evidence, Management of Expert Evidence 7-37 (1994).

• Case v. Unified School District No. 233, 895 F. Supp. 1463, 1472 (D. Kan. 1995) ("Little if any judicial economy would result from the exclusion of the expert evidence. Even if the testimony were excluded, defendants would be allowed to make an offer of proof at a hearing or at trial. [B]ecause this is a trial to the court, the court will be able to evaluate the admissibility at the time of trial without the presence of a jury").

• Claar v. Burlington Northern Railroad Co., 29 F.3d 499 (9th Cir. 1994) (the court consolidated twenty-seven cases and required submission of affidavits from the plaintiffs describing their exposure to alleged agent of injury and from doctors describing each plaintiff's injuries, doctor's opinion as to causation, and basis for that
opinion; first round of doctor's affidavits were not sufficient, so the court ordered second round; they were not sufficient either, and the court granted summary judgment to the defendant).

- **Dana Corp. v. American Standard, Inc.**, 866 F. Supp. 1481, 1498 (N.D. Ind. 1994) (combining the *Daubert* hearing with depositions taken in the courtroom with the judge present may save time and money).

- **Diaz v. Johnson Matthey, Inc.**, 893 F. Supp. 358, 361 (D.N.J. 1995) (first, the defendant applied for a Rule 104 *Daubert* hearing, which application was granted; second, the defendant moved to strike the plaintiff's expert testimony, which motion was granted; third, the defendant moved for summary judgment, arguing that with the expert's testimony excluded, the plaintiff could not prove causation, which motion was also granted).


- **Hose v. Chicago Northwestern Transportation Co.**, 70 F.3d 968, 973, n.3 (8th Cir. 1995) ("Challenges to the scientific reliability of expert testimony should ordinarily be addressed prior to trial. . . . An early evidentiary challenge allows the trial judge to exercise properly the 'gatekeeping role' regarding expert testimony envisioned under *Daubert* ").

- **Joint Eastern and Southern Districts Asbestos Litigation, In re**, 151 F.R.D. 540, 543-45 (E.D. N.Y. 1993) (suggesting the possibility of a *Daubert* hearing replacing depositions of experts, resulting in education of the court and parties with respect to scientific issues without extensive deposition practice).

- **Robinson v. Missouri Pacific Railroad Co.**, 16 F.3d 1083, 1089 (10th Cir. 1994) (careful, meticulous, and early pretrial evaluations of admissibility of expert testimony).

- **Stover v. Eagle Products, Inc.**, 896 F. Supp. 1085 (D. Kan. 1995) (the plaintiff's expert was deposed and then prepared on affidavit; the defendant moved to strike the affidavit and for summary judgment; in so far as is relevant here, the motions were denied without prejudice; the defendant offered opportunity to take a second, post-affidavit deposition of the plaintiff's expert and refile for summary judgment; the court recognizes this will require additional time and resources and that none of the parties requested this alternative relief; the court believes this procedure will benefit both the court and the parties, affording each party the opportunity to re-evaluate their positions in light of the deposition concerning the affidavit, and, even if summary judgment is not granted, speeding
the court's assessment of the admissibility of the plaintiff's evidence at trial).

* **United States v. Brien**, 59 F.3d 274, 277 (1st Cir. 1995), cert. denied, 116 S. Ct. 401 (1995) (evidence of the weakness of eyewitness identification rejected; the defendant's motion in limine seeking to have this expert evidence ruled admissible was supported by a one paragraph description of evidence; the trial judge asked for more and got a three page statement signed by defense counsel; the trial judge again asked for more and got an eight page affidavit from the witness; still not enough, motion denied, evidence excluded, affirmed on appeal because the "defense offered practically nothing, despite repeated opportunities to do [otherwise]").

**COMMUNITY:**

See Scientific Community, this digest.

**CONFUSION — JURY CONFUSION:**

See Rule 403, this digest.

**CONSTITUTIONAL LAW:**

* **Case v. Unified School District No. 233**, 895 F. Supp. 1463, 1472 (D. Kan. 1995) ("Little if any judicial economy would result from the exclusion of the expert evidence. Even if the testimony were excluded, defendants would be allowed to make an offer of proof at a hearing or at trial. [B]ecause this is a trial to the court, the court will be able to evaluate the admissibility at the time of trial without the presence of a jury").

* **Milone v. Camp**, 22 F.3d 693, 702 (7th Cir. 1994), cert. denied, 115 S. Ct. 720 (1995) (the *Daubert* test is an evidentiary test, not a constitutional test; the standard for showing that the admission of evidence violated a specific constitutional guarantee is not whether the testimony satisfied the *Daubert* test, but "whether the probative value of the state's evidence was so greatly outweighed by its prejudice to [the defendant] that its admission denied [the defendant] a fundamentally fair trial").

* **United States v. Skodnek**, 896 F. Supp. 60, 62 (D. Mass. 1995) (there is no general rule that psychiatric testimony on mens rea is inadmissible; such a rule "would be improper and[,] indeed, unconstitutional").

* **See Williamson v. Reynolds**, 904 F. Supp. 1529, 1562 (E.D. Okla. 1995) ("[W]hen forensic evidence and expert testimony are critical parts of the criminal prosecution of an indigent, due process requires the State to provide an expert who is not beholden to the prosecution").

statute creates an "undue burden" on the right to an abortion, the
court allowed evidence of experience in other states with similar
laws, including expert evidence regarding statistical data on abor-
tions in Mississippi).

Cost of Daubert Testing:

dard of reliability is that, unavoidably, some legitimate injuries
will be left unredressed").

- *Stanczyk v. Black & Decker, Inc.*, 836 F. Supp. 565, 568 (N.D. Ill. 1993) (the plaintiff argued that the cost of Daubert testing put the
case beyond the plaintiff's financial ability to pursue; the cost of
Daubert testing does not excuse a party from proving that the
party's science is good science).

- See *Stover v. Eagle Products, Inc.*, 896 F. Supp. 1085 (D. Kan. 1995) (the plaintiff's expert was deposed and then prepared an affi-
davit; the defendant moved to strike the affidavit and for summary
judgment; these motions were denied without prejudice; the de-
fendant was offered an opportunity to take a second, post-affidavit
deposition of the plaintiff's expert and refile for summary judg-
ment; the court recognizes this will require additional time and
resources and that none of the parties requested this alternative
relief; the court believes this procedure will benefit both the court
and the parties, affording each party the opportunity to re-evalu-
ate its positions in light of the deposition concerning the affidavit
and, even if summary judgment is not granted, speeding the
court's assessment of the plaintiff's evidence at trial).

Court-Appointed Experts:

See also Judges Securing Their Own Experts, this digest.

parts of the criminal prosecution of an indigent, due process re-
quires the State to provide an expert who is not beholden to
prosecution").

Coverage of Daubert:

See Limits on Coverage of Daubert, this digest.

Credibility Versus Admissibility:

See Weight Versus Admissibility, this digest.

Demonstrations:

See Kinds of Evidence, Demonstrations, this digest.

Directed Verdict:

See Summary Judgment, this digest.
DISCOVERY:

- *Bottomly v. Leucadia National*, 163 F.R.D. 617, 619 (D. Utah 1995) (expert testimony regarding which of the privileged material the plaintiff's trial expert might reasonably rely on for his trial testimony and which of the privileged material the defendant's experts needed to form their own opinions).

- *Stover v. Eagle Products, Inc.*, 896 F. Supp. 1085 (D. Kan. 1995) (the defendant was offered an opportunity to take a second, post-affidavit deposition of the plaintiff's expert and recognizing that, even if this requires additional time and resources, the procedure will benefit both the court and the parties by affording each party an opportunity to re-evaluate their positions in light of the deposition and by speeding the court's assessment of admissibility of the plaintiffs' evidence at trial).

DISCRETION:

See Standard of Review on Appeal, this digest.

EVIDENCE — INADMISSIBLE EVIDENCE AS THE BASIS FOR AN EXPERT OPINION:

In addition to the cases under this heading, see Margaret A. Berger, *Federal Judicial Center, Reference Manual on Scientific Evidence, Evidentiary Framework* 105-12 (1994).

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2797-98 (1993) (even if expert opinion is based on otherwise inadmissible evidence, the opinion is admissible if that type of inadmissible evidence is reasonably relied on by experts in the field).

- *Coleman v. Wilson*, 912 F. Supp. 1282 (E.D. Cal. 1995) (“FED. R. EVID. 703 provides experts with 'wide latitude to offer opinions, including those that are not based on first hand knowledge or observation'”) (citations omitted).

- *United States v. Davis*, 40 F.3d 1069, 1075 (10th Cir. 1994), cert. denied, 115 S. Ct. 1387 (1995) (an expert may testify from another person's notes if this practice is accepted in the field).

- *United States v. Skodnek*, 896 F. Supp. 60 (D. Mass. 1995) (an expert may rely on inadmissible statements of a type reasonably relied upon by experts in same field in forming opinions or inferences upon the same subject; regarding whether the inadmissible statements on which an expert bases an opinion will be admissible as "basis" evidence and as "weight-of-the-opinion" evidence, unless the court abdicates its role as gatekeeper, the court must make an independent determination of the reliability of the statements and whether the statements are unduly prejudicial).

underlying the expert’s opinion was not the kind reasonably relied on by experts in field).

- See TMI Litigation Cases Consolidated II, In re, 911 F. Supp. 775 (M.D. Pa. 1996) (experts prohibited from testifying to the substance of reports of non-testifying experts because the testifying experts were not experts in the fields that were the subject of the non-testifying experts’ reports; therefore, they could not speak intelligently as to the methodology and scientific underpinnings of the non-testifying experts’ reports and could not be effectively cross-examined regarding the non-testifying experts’ reports).

**EVIDENCE — STANDARD FOR ADMISSIBILITY:**

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 113 S. Ct. 2786, 2796 n.10 (1993) (the proponent must convince the judge by a preponderance of the evidence that the Daubert test is satisfied).

- *Aluminum Phosphide Antitrust Litigation, In re,* 893 F. Supp. 1497, 1507 (D. Kan. 1995) (excluding evidence because the plaintiff failed to prove the methodology was reliable by a preponderance of the evidence).

- *Asplundh Manufacturing Division a Division of Asplundh Tree Expert Co. v. Benton Harbor Engineering,* 57 F.3d 1190 (3d Cir. 1995) (the court refused “to hold . . . that all lay witnesses offering opinions that require special knowledge or experience must qualify under Rule 702 [the expert witness rule]”).

- *Bourjaily v. United States,* 483 U.S. 171, 175 (1987) (citations omitted) (“regarding admissibility determinations that hinge on preliminary factual questions[, w]e have traditionally required that these matters be established by a preponderance of proof. . . . [T]he evidentiary standard is unrelated to the burden of proof on the substantive issues, be it a criminal case or a civil case”).

- *Cantrell v. GAF Corp.,* 999 F.2d 1007, 1014 (6th Cir. 1993) (expert evidence need not “prove” anything to be relevant).

- *Claar v. Burlington Northern Railroad Co.,* 29 F.3d 499, 503 (9th Cir. 1994) (FELA case; the standard for admissibility of evidence remains the same even where the quality of evidence required to satisfy the burdens of production and proof on the substantive issues is different).

- *Diaz v. Johnson Matthey, Inc.,* 893 F. Supp. 358, 372 (D.N.J. 1995) (the proponent must “establish by a preponderance of the evidence that an expert is qualified and that the expert’s testimony is admissible”).

- *Gier v. Educational Serv. Unit No. 16,* 845 F. Supp. 1342, 1351 (D. Neb. 1994), aff’d, 66 F.3d 940 (8th Cir. 1995) (the plaintiffs “failed to demonstrate by a preponderance of the evidence that the witnessed’ opinions” were reliable).
• "In re TMI Litigation Cases Consolidated II, 911 F. Supp. 775 (M.D. Pa. 1996) (requiring proof by a preponderance of the evidence regarding eleven Daubert-testing factors applied to ten experts).
• United States v. Shonubi, 998 F.2d 84, 86 (2d Cir. 1993) ("preponderance of the evidence").
• See Summers v. Missouri Pacific RR., 897 F. Supp. 533 (E.D. Okla. 1995) (finding that the court must answer the question before it based on current knowledge and not on some argued future state of knowledge).
• See United States v. Bonds, 12 F.3d 540, 553 (6th Cir. 1993) (stating that "the key is whether the testimony met the requirements of Federal Rule of Evidence 702 at the time of the district court's admissibility determination, not whether subsequent events provide evidence that contradicts or calls into question the district court's view at the time of its admissibility ruling").

EXPERIENCE:

See Qualifications (or Lack Thereof) of the Witness; Specialized Knowledge, this digest.
• Asplundh Manufacturing Division a Division of Asplundh Tree Expert Co. v. Benton Harbor Engineering, 57 F.3d 1190, 1193 (3d Cir. 1995) (sometimes the particular experience or specialized knowledge of a lay witness satisfies the rational basis or helpfulness requirement, or both, of Rule 701).
• Becker v. National Health Products, Inc., 896 F. Supp. 100, 103 (N.D.N.Y. 1995) (thirty years of experience as a physician played a role in one expert's conclusions; relevant clinical experience over a six-year period involving 10,000 patients played a role in another expert's conclusions).
• Cantrell v. GAF Corp., 999 F.2d 1007, 1007-14 (6th Cir. 1993) (expert testimony based on clinical experience of a medical doctor).
• Carroll v. Morgan, 17 F.3d 787, 789 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994) (an expert opinion on the standard of medical care for a cardiologist was properly based on the witness' thirty years of practice as a board-certified cardiologist, his review of medical and coroner records regarding the deceased subject of the lawsuit, and a broad spectrum of published materials).
• Delaney v. Merchants River Transportation, 829 F. Supp. 186, 189-90 (W.D. La. 1993), aff’d, 16 F.3d 1214 (5th Cir. 1992) (having designed one barge does not make one a barge-design expert).
• Martincic v. Urban Redevelopment Authority of Pittsburgh, 844 F. Supp. 1073, 1075 (W.D. Penn. 1994) (a certified personnel consultant was not qualified to give expert statistical testimony because he lacked education or experience in the social science of statistics; the evidence was inadmissible in any event because it was not correlated in any mathematically meaningful way).
• McCullock v. H.B. Fuller Co., 61 F.3d 1038, 1042-43 (2d Cir. 1995) (the trial court’s focus on the first witness’ academic training ignored his extensive practical experience, which in fact qualified him as expert; twenty-five years of practice in the specialty of ear, nose, and throat and certification by American Board of Otolaryngology qualified a second witness to testify to causes of throat polyps).
• Thomas v. Newton International Enterprises, 42 F.3d 1266 (9th Cir. 1994) (a witness was proffered as an expert on the hazardousness of an unguarded hatch opening on a cargo vessel; the trial court excluded the expert on grounds that the plaintiff had not qualified him as expert and denied the plaintiff’s request for an in limine hearing to elaborate on the expert’s qualifications; the appellate court reversed, noting that the witness had twenty-nine years experience as a longshore worker, had worked in every job category in the industry, and had worked for every stevedoring company).
• United States v. Thomas, 74 F.3d 676 (6th Cir. 1996) (a police officer qualified as an expert on criminal activity).

Experiments:
• McKnight ex rel. Ludwig v. Johnson Controls, Inc., 36 F.3d 1396 (8th Cir. 1994) (experimental test results are admissible if the tests were conducted under conditions substantially similar to actual conditions under litigation; perfect identity is not required).

Experts Secured by Trial Court:
See Judges Securing Their Own Experts, this digest.

Factors to be Considered at a Daubert Hearing:
See also Qualifications (or Lack Thereof) of the Witness; Scientific (or Other Relevant) Community, this digest.
MAJOR CASES:

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786 (1993) (1) Is the testimony grounded in the methods and procedures of science? (2) Does it rise above subjective belief or unsupported speculation? (3) Does the evidence have a valid scientific connection to the case at bar? (4) If the opinion is based on inadmissible evidence, do experts in the field reasonably rely on this kind of evidence in forming their opinions? (5) Has the trial court secured its own expert and, if so, what does that expert say? (6) Is the probative value substantially outweighed by the danger of unfair prejudice, confusion of issues, or misleading the jury? Considerations bearing on (1), (2), and (3) include: whether the knowledge can be tested; whether the knowledge has been tested; whether the theory and methodology have been subject to peer review, including through publication; the known or potential rate of error; maintenance of standards controlling the methodology; and general acceptance of the theory and methodology in the scientific community.

- *Benedi v. McNeil-P.P.C., Inc.*, 66 F.3d 1378, 1384 (4th Cir. 1995) (a methodology good enough for the day-in, day-out practice of the diagnosing physician is good enough for federal courts).

- *Berry v. City of Detroit*, 25 F.3d 1342 (6th Cir. 1994), cert. denied, 115 S. Ct. 902 (1995) (testing of the witness' theories; peer review; evidence that the expert's theories are accepted by someone other than the expert himself, a field of experts in which the expert can be put and with which the expert's theories and methods can be compared; and whether the witness' own methodology is suspect).

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995) (*Daubert* on remand) (factors stated by United States Supreme Court illustrative, not exhaustive, and not all equally applicable or applicable at all in every case; the most persuasive factor is if the expert is testifying about matters growing out of research conducted independent of and unrelated to litigation as opposed to matters growing out of research done expressly for litigation; a second persuasive factor is if the expert’s supporting research and analysis have been subjected to peer review and publication; if the research was neither pre-litigation nor subject to sufficient peer review and publication, then the proponent must produce other evidence that the science is “good science”).

- *Deimer v. Cincinnati Sub-Zero Products, Inc.*, 58 F.3d 341, 344 (7th Cir. 1994) (adopting a two-step *Daubert* methodology that includes: (1) Does the expert's testimony pertain to scientific knowledge? Has it been subjected to the scientific method? The gate is closed to subjective belief and unsupported speculation. (2) Will
the evidence assist the trier of fact? What is the “fit” between evidence and issues?

- *Gier v. Educational Serv. Unit No. 16*, 845 F. Supp. 1342 (D. Neb. 1994), *aff’d*, 66 F.3d 940 (8th Cir. 1995) (the focus of the *Daubert* hearing: whether the proffered testimony is both relevant and reliable; the court must determine whether the general scientific theory and the methodology are reliable and whether that theory and methodology properly can be applied to facts in issue in the case at hand. Here: (1) the techniques used are essentially untestable; (2) the party did not show that the error rate is low using this methodology; (3) the party did not show that the methodologies used are reliable for the purposes for which the party tried to use them).

- *Paoli Railroad Yard PCB Litigation, In re*, 35 F.3d 717 (3d Cir. 1994), *cert. denied*, 115 S. Ct. 1253 (1995) ((1) The witness must be an expert. (2) General scientific theory and methodology must be reliable; factors to consider in this regard include: a) the testability of the expert’s hypothesis, b) whether the methodology has been subjected to peer review and publication, c) whether the methodology is generally accepted in the scientific community, d) the rate of error of the methodology, e) the existence and maintenance of standards controlling techniques, f) the degree to which the expert is qualified, g) how it all compares to “‘more established modes of scientific analysis’,” h) “the ‘non-judicial uses to which the scientific technique are put,’” i) any other factors that are relevant. (3) Theory and methodology must be reliable not just in general or in the abstract, but also as applied to a case such as the one at bar; that is, there must be a certain “fit” between the science and the case. (4) Does jury confusion or unfair prejudice substantially outweigh probative value? (5) The trial court must make its own independent evaluation of the reliability of the data; the standards here are same as those listed under part (2), supra.)

- *Sorenson v. Shaklee Corp.*, 3 F.3d 638, 648-50 (8th Cir. 1994) (no published scientific literature supported the plaintiffs’ proposition; the plaintiffs’ experts’ findings were not submitted to peer review; there was no evidence of a statistically significant link between the birth defect and the alleged cause; the plaintiffs’ most supportive expert witness was unable to testify with same degree of certainty at his depositions as he had in prior affidavits; the defendants, in contrast, presented four experts who concluded “to a reasonable degree of scientific certainty” that the alleged cause could not have caused the birth defects at issue).

other members of the relevant community; peer-reviewed studies; proof of (scientific evidence of) the hypothesis; the experimental nature of the methodology; and acceptance or rejection by other federal courts).

- **TMI Litigation Cases Consolidated II, In re**, 911 F. Supp. 775 (M.D. Pa. 1996) ("(1) whether the 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, (9) falsifiability, . . . that is, the logical form of a hypothesis must make it amenable to empirical testing . . . ; (10) logical consistency, that is, a valid hypothesis cannot be self contradictory. . . . ; (11) consistency with accepted theories, that is, scientific knowledge tends to be cumulative and progressive, and a hypothesis that is not consistent with accepted theories should be regarded with great caution, whether or not the hypothesis ultimately proves true." (citations omitted).

- **United States v. Bonds**, 12 F.3d 540, 555-56 (6th Cir. 1993) (providing a “non-exclusive list of factors” to determine scientific validity, such as: (1) Is the evidence relevant? Will it assist the trier of fact? (2) Can the theory and the methodology be tested? (3) Have the theory and the methodology been tested? (4) Has there been peer review? (5) What is the rate of error for the particular theory and methodology? (6) Is the theory generally accepted in the relevant scientific community? (7) Is the methodology generally accepted in the relevant scientific community? (8) Were the data and facts relied on by the experts of the kind reasonably relied on by experts in the relevant field of expertise? (9) Was there input from a court-appointed expert? (10) Is the probative value of scientific testimony substantially outweighed by the danger of unfair prejudice, confusion of the issues, or waste of time?).

- **United States v. Bynum**, 3 F.3d 769, 773 (4th Cir. 1993), cert. denied, 114 S. Ct. 1105 (1994) (the party offering the evidence “explained the hypothesis underlying the technique, listed the numerous publications through which the technique had been subjected to peer review, and concluded with a citation to authority that gas chromatography enjoys general acceptance in the field of forensic chemistry” testimony allowed).

bank surveillance photos with recent photos of the bank-robbery defendant was properly excluded because the methodology was not tested, was not subjected to peer review, was not generally accepted in the relevant scientific community, and the known rate of error was high).

- United States v. Jones, 24 F.3d 1177, 1180 (9th Cir. 1994) (voice examination technique was “novel”; there was no evidence that it had a scientific basis; the witness had no specialized training in the area, had not written any articles on the subject, had only read one article on the subject three years previously; the witness was unaware of any professional organizations for certification of voice examiners; the technique he employed was one he developed himself; he had done no research to verify the validity of his technique; he had not subjected it to peer review; he conceded that no scientific studies or published reports supported his theory; he did not know of any other experts who used this technique).

- Wheat v. Pfizer, Inc., 31 F.3d 340, 343 (5th Cir. 1994) (peer review, publication, and whether the hypothesis can be and has been tested).

- Zuchowicz v. United States, 870 F. Supp. 15, 19 (D. Conn. 1994) ((1) the witness must be qualified as an expert; (2) the testimony’s underlying reasoning or methodology must be scientifically valid; (3) the testimony’s underlying reasoning or methodology must be capable of being properly applied to facts of case at hand; (4) the court will consider the reasonableness of the expert’s assumptions; (5) Rule 403. Considerations bearing on (2) and (3) include possible testing; actual testing; peer review and publication; error rate; existence and maintenance of standards controlling operation; and acceptance in the relevant scientific community; expert opinion in the case at bar was based on epidemiological, clinical, and animal studies; plaintiff’s medical records and medical history; and medical studies that have been subjected to peer review and publication).

Miscellaneous:

- Becker v. National Health Products, Inc., 896 F. Supp. 100, 103 (N.D.N.Y. 1995) (“the fact that the expert’s theories were not subject to peer review and publication or general acceptance goes to the weight of their testimony rather than its admissibility”).


- Frymire-Brinati v. KPMG Peat Marwick, 2 F.3d 183, 186 (7th Cir. 1993) (just finding that a witness qualified as an expert is not
enough; *Daubert* testing is required and involves more than just that).

- *Livingston v. Isuzu Motors, Ltd.*, 910 F. Supp. 1473 (D. Mont. 1995) (regarding computer-generated accident simulation: can or has it been tested; peer review; known or potential rate of error; general acceptance in the relevant scientific community; and vigorous cross-examination and careful jury instruction).

- *McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1043 (2d Cir. 1995) (it is a mistake to focus on academic training to exclusion of experience; disputes as to strength of credentials, faults in the use of differential etiology as a methodology, or lack of textual authority for this opinion go to the “testimony’s weight and credibility — not admissibility”).

- *United States v. Black*, 831 F. Supp. 120, 122-23 (E.D.N.Y. 1993) (if the science did not pass the *Frye* test, it cannot pass the *Daubert* test).

- *Zuchowicz v. United States*, 870 F. Supp. 15, 18 (D. Conn. 1994) (the focus is on “principles and methodology, not on the conclusion generated”).

**Federal Regulations, Expert Testimony Regarding Meaning Of:**

See Jury — Questions for Jury Versus Questions for Judge, this digest.

**Federal Studies As Basis For Opinion:**

- *Auvil v. CBS 60 Minutes*, 836 F. Supp. 740, 741 (E.D. Wash. 1993), *aff’d*, 67 F.3d 816 (9th Cir. 1995) (to the extent experts relied on “data and conclusions provided by EPA, their conclusions are clearly sufficiently reliable for this inquiry”).

**Fit Between the Theory and Methodology and the Facts of the Case:**

See Relevance — Expert Testimony Must be Tied to Case at Hand, this digest.

**Gatekeeper — Trial Judge Versus St. Peter:**

- *McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1045 (2d Cir. 1995) (“trial judges must exercise sound discretion as gatekeepers of expert testimony under *Daubert*. [The defendant,] however, would elevate them to the role of St. Peter at the gates of heaven, performing a searching inquiry into the depth of an expert witness’s soul — separating the saved from the damned. Such an inquiry would inexorably lead to evaluating witness credibility and weight of the evidence, the ageless role of the jury”).

**Gatekeeper — When the Gatekeeper Discovers the Expert is a Dud After the Expert is Already Through the Gate:**

See Qualifications (of Lack Thereof) of the Witness, this digest.
**General Acceptance:**

See Factors to be Considered at a Daubert Hearing; Pre- and Post-Daubert Distinguished; Scientific (or Other Relevant) Community, this digest.

**Habeas Corpus:**

See Limits on Coverage of Daubert, this digest.

**Hearings — Rule 104 Daubert Hearings:**

See also Avoidance of Daubert Testing; Case Management; Jury — Daubert “Hearing” Held in Front of the Jury; Motion in Limine; Sentencing Hearing; Summary Judgment; Timing of Daubert Hearing, this digest.

- *United States v. Johnson,* 56 F.3d 947, 952-53 (8th Cir. 1995) (allowing judicial notice of the reliability of the general theory and methodology of RFLP DNA profiling; if a new DNA technique is used, the trial court must hold a Daubert hearing to determine its reliability).

- *United States v. Posado,* 57 F.3d 428, 436 (5th Cir. 1995) (polygraph evidence did not survive Frye; without a fully developed record, the court cannot say whether it survived Daubert).

- See Asplundh Manufacturing Division v. Benton Harbor Engineering, 57 F.3d 1190 (3d Cir. 1995) (a hearing may be required to decide the admissibility of lay opinion testimony).

- See Case v. Unified School District No. 233, 895 F. Supp. 1463 (D. Kan. 1995) ("[L]ittle if any judicial economy would result from exclusion of the evidence. Even if the testimony were excluded, defendants would be allowed to make an offer of proof at a hearing or at trial. [B]ecause this is a trial to the court, the court will be able to evaluate the admissibility at the time of trial without the presence of a jury").

- See Hose v. Chicago Northwestern Transportation Co., 70 F.3d 968, 973 n.3 (8th Cir. 1995) ("Challenges to the scientific reliability of expert testimony should ordinarily be addressed prior to trial").

**Hearsay:**

See Evidence — Inadmissible Evidence as the Basis for an Expert Opinion, this digest.

**Helpfulness — Is the Expert Evidence Helpful to the Trier of Fact?:**

See also Relevance; Rule 403; Speculation, this digest.

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2796 (1993) (will the evidence assist the trier of fact, *i.e.*, does it have "a valid scientific connection to the pertinent inquiry").

• *Cavallo v. Star Enterprise*, 892 F. Supp. 756, 761-62 (E.D. Va. 1995) (the expert opinion must be “scientifically valid” and must “advance the trier of fact’s understanding of material issue in case”; though courts must not exclude expert testimony based on valid methodology simply because they disagree with ultimate conclusion, they must ensure that the conclusion is reliable; that is, courts must analyze the reliability of the expert’s application of tested principles to the facts at issue).

• *Delaney v. Merchants River Transportation*, 829 F. Supp. 186, 189 (W.D. La. 1993), aff’d, 16 F.3d 1214 (5th Cir. 1994) (the proffered expert witness was so poorly qualified that his opinions would not help the jury understand the evidence or make a decision about the issues).

• *Porter v. Whitehall Laboratories, Inc.*, 9 F.3d 607, 614-16 (7th Cir. 1993) (when one expert could not rule out other causes and another expert had to speculate about key factual elements, the testimony did not assist the trier of fact).

• *Reedy v. White Consolidated Industries, Inc.*, 890 F. Supp. 1417, 1448 (N.D. Iowa 1995) (a claims adjuster had sufficient practical experience to offer an opinion that would assist the trier of fact with questions regarding claims procedures).

• *Summers v. Missouri Pacific RR. System*, 897 F. Supp. 533, 538 (E.D. Okla. 1995) (the diagnosis of MCS is hypothetical; it is not “knowledge capable of assisting a fact-finder”)

• *Textron Inc. ex rel. Homelite Division v. Barber-Colman Co.*, 903 F. Supp. 1546, 1557-58 (W.D.N.C. 1995) (the expert’s opinion was not helpful to the trier of fact because it was not sufficiently related to the facts of the case).

• *United States v. Dorsey*, 45 F.3d 809, 815 (4th Cir. 1995), *cert. denied*, 115 S. Ct. 2631 (1995) (comparing bank surveillance photos with recent photos of the bank-robbery defendant can be done by jurors, without an expert, because such a comparison only required common knowledge).

• *United States v. Posado*, 57 F.3d 428, 432 (5th Cir. 1995) (“Whether evidence assists the trier of fact is essentially a relevance inquiry”).

• *United States v. Powers*, 59 F.3d 1460, 1472-73 (4th Cir. 1995), *cert. denied*, 116 S. Ct. 784 (1996) (to the issue of whether the defendant committed incest, it was within the trial court’s discretion to decide that evidence that 40% of the time incest abusers exhibit characteristics of fixated pedophiles (coupled with evidence that the defendant does not show those characteristics), does not assist the trier of fact and its probative value was substantially outweighed by FED. R. EVID. 403 considerations).
- United States v. Rincon, 28 F.3d 921, 926 (9th Cir. 1994), cert. denied, 115 S. Ct. 605 (1994) (the trial court found that the testimony would not assist the jury; the appellate court reviewed for abuse of discretion and thought the excluded evidence might have been informative, but affirmed because there was no abuse of discretion).
- United States v. Shay, 57 F.3d 126, 132 (1st Cir. 1995) (the question is whether an untrained layperson is "qualified to determine intelligently and to the best degree, the particular issue without enlightenment from those having a specialized knowledge of the subject matter involved").
- United States v. Shonubi, 895 F. Supp. 460, 492 (E.D.N.Y. 1995) (there is a "strong federal policy favoring admissibility of, and reliance on, all helpful information").
- Wheat v. Pfizer, Inc., 31 F.3d 340 (5th Cir. 1994) (the proffered testimony was not scientific and would not assist the trier of fact).
- See Asplundh Manufacturing Division a Division of Asplundh Tree Expert Co. v. Benton Harbor Engineering, 57 F.3d 1190, 1201-02 (3rd Cir. 1995) (discussing the helpfulness of lay witness opinions on technical matters).

**Inadmissible Evidence as the Basis for an Expert Opinion:**

See Evidence — Inadmissible Evidence as the Basis for an Expert Opinion, this digest.

**Judge — Questions for Judge Versus Questions for Jury:**

See Jury — Questions for Jury Versus Questions for Judge, this digest.

**Judges and Science:**

- Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert II), 43 F.3d 1311, 1316 (9th Cir. 1995) ("Though we are largely untrained in science and certainly no match for any of the witnesses whose testimony we are reviewing, it is our responsibility to determine whether those experts' proposed testimony amounts to 'scientific knowledge,' constitutes 'good science,' and was 'derived by the scientific method.'").
- Glaser v. Thompson Medical Co., Inc., 32 F.3d 969 (6th Cir. 1994) ("[J]udges should respect scientific opinion and recognize their own limited scientific knowledge. . . .").
- United States v. Shonubi (Shonubi II), 895 F. Supp. 460, 464-65 (E.D.N.Y. 1995) ("It should come as no surprise that in addition to rational analysis, the forensic factfinder depends upon assumptions and methods of thinking that may introduce biases and errors").
- Zuchowicz v. United States, 870 F. Supp. 15 (D. Conn. 1994) ("Judges may not always have the 'special competence' to resolve
complex issues which stand 'at the frontier of current medical and epidemiological inquiry').

**Judges Securing Their Own Experts:**


- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2798 (1993) (Fed. R. Evid. 706 allows the court to secure its own expert, which allows the judge to play an expanded role in evaluating the reliability of expert evidence).
- *United States v. Shonubi (Shonubi III)*, 895 F. Supp. 460, 468 (E.D.N.Y. 1995) ("[T]o help the court evaluate the statistical evidence proffered by the parties' experts, the court appointed a panel of experts. Federal Rule of Evidence 706 provides that 'the court may appoint expert witnesses of its own selection.' Judges are encouraged to avail themselves of this procedure.") (citations omitted).
- *See Williamson v. Reynolds*, 904 F. Supp. 1529, 1562 (E.D. Okla. 1995) ("[W]hen forensic evidence and expert testimony are critical parts of the criminal prosecution of an indigent, due process requires the State to provide an expert who is not beholden to prosecution").

**Judicial Notice:**

- *TMI Litigation Cases Consolidated II, In re*, 911 F. Supp. 775 (M.D. Pa. 1996) ("In the long run, the expert may be proven to be correct. The tests that he did not perform because he believes them to be highly ineffective may eventually prove to be highly ineffective. . . . However, the court takes judicial notice of the fact that the relevant scientific communities regularly use [these tests] and find them to be a valid means of measuring radioactivity. . . . [His] refusal to consider such information calls into question the reliability and scientific validity of his conclusions").
- *United States v. Bonds*, 12 F.3d 540, 551 (6th Cir. 1993) (the court refused to take judicial notice of a scientific paper for the first time on appeal: the contents of the paper were subject to reasonable dispute; and noting that whether Daubert has been satisfied de-
pends on the state of knowledge at the time of trial; discussion of conflict between judicial notice and *Daubert*).


- *United States v. Johnson*, 56 F.3d 947, 952-53 (8th Cir. 1995) (the Eighth Circuit has taken judicial notice of the general theory and methodology of RFLP DNA profiling; at the *Daubert* hearing in this case, the experts testified that differences between the judicially noticed protocol and protocol used here would produce no meaningful difference in result; these minor variations did not negate the methodology's reliability, i.e., this is not a "new" methodology, the reliability of which must be proven ab initio).

- *United States v. Martinez*, 3 F.3d 1191, 1197 (8th Cir. 1993), cert. denied, 114 S. Ct. 734 (1994) (judicial notice of "the reliability of the general theory and techniques of [RFLP] DNA profiling").

- *United States v. Quinn*, 18 F.3d 1461, 1465 (9th Cir. 1994), cert. denied, 114 S. Ct. 2755 (1994) (the court found no novel or questionable scientific techniques; what the court did here is much like judicial notice).

- See *Iacobelli Construction, Inc. v. County of Monroe*, 32 F.3d 19, 25 (2nd Cir. 1994) (the circuit court seems to be taking judicial notice of reliability of the theory and methodology "typically used and accepted in construction-litigation cases").

**Jury — *Daubert* "Hearing" Held in Front of the Jury:**

See also *Timing of *Daubert* Hearing*, this digest.

- *Carroll v. Morgan*, 17 F.3d 787, 790 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994) (thirty years of practice as a board-certified cardiologist was sufficient to qualify an expert under *Daubert*).

- *United States v. Johnson*, 28 F.3d 1487, 1496 (8th Cir. 1994), cert. denied, 115 S. Ct. 768 (1995) (gang member allowed to testify as an expert on gang membership; expertise established with foundational testimony before the jury").

- See *Case v. Unified School District No. 233*, 895 F. Supp. 1463, 1472 (D. Kan. 1995) (in this trial to the court, little if any judicial economy would result from the exclusion of the expert evidence; even if the evidence was excluded, its proponent would be allowed to make an offer of proof at trial or at hearing; partly because there was no jury, it made no difference whether the *Daubert* hearing was pretrial or during the trial).
JURY INSTRUCTION:


- *United States v. Rincon*, 28 F.3d 921, 925-26 (9th Cir. 1994), cert. denied, 115 S. Ct. 605 (1994) (although an expert’s testimony about the weaknesses of eyewitness testimony “may have been informative, the district court conveyed that same information by providing a comprehensive jury instruction to guide the jury’s deliberations”).

JURY — MISLEADING OR CONFUSING JURY.

See Rule 403, this digest.

JURY — QUESTIONS FOR JURY VERSUS QUESTIONS FOR JUDGE:

See also Weight Versus Admissibility, this digest.

- *Bammerlin v. Navistar International Transportation Corp.*, 30 F.3d 898, 900 (7th Cir. 1994) (the plaintiff’s experts testified that the defendants’ seat belts did not comply with their understanding of federal standards; the defendant moved to strike their testimony on the grounds that they had misinterpreted the federal standards; the trial court denied the motion, and, instead of interpreting the federal standards for the jurors, allowed them to reach their own conclusion about their meaning: “This was a serious mistake. The meaning of federal regulations is not a question of fact, to be resolved by the jury after a battle of experts. It is a question of law, to be resolved by the court.”).

KINDS OF EVIDENCE:

- Accident reconstructionist: See *Rosado v. Deters*, 5 F.3d 119, 122, 124 (5th Cir. 1993) (disallowing the testimony of an expert on police procedures and training in the area of accident reconstruction).

- Accident simulation, computer generated: See Computer-generated accident simulation, this heading.

- Accounting methods: See *Frymire-Brinati v. KPMG Peat Marwick*, 2 F.3d 183, 186 (7th Cir. 1993) (an accountant’s expert testimony was improperly admitted because the witness “did not employ the methodology that experts in valuation find essential”).

- Asbestos: See *Cantrell v. GAF Corp.*, 999 F.2d 1007, 1014 (6th Cir. 1993) (the trial court properly admitted a physician’s testimony concerning the medical effects of asbestos).

- Bankruptcy: See *Bistrian, In re*, 184 B.R. 678, 684-85 (E.D. Pa. 1995) (even though the bankruptcy court refused to qualify the “expert Chapter 7 trustee . . . this formal error could not have prejudiced Bistrian.”).
• Biology — effect of radiation on plants: *See In re TMI Litigation Cases Consolidated II*, 911 F. Supp. 775 (M.D. Pa. 1996) (excluding the proffered expert’s testimony on the damage done to trees in the area of a nuclear reactor accident).
• Blood: *See DNA profiling and matching, this heading.*
• Cardiologist: *See Carroll v. Morgan*, 17 F.3d 787, 790 (5th Cir. 1994), *reh'g denied*, 26 F.3d 1117 (5th Cir. 1994) (allowing a cardiologist to testify as an expert).
• Character evidence: *See United States v. Shay*, 57 F.3d 126, 131 (1st Cir. 1995) (when evidence of untruthful character is admissible, it may be provable by expert testimony).
• Claims procedure, with claims adjuster as witness: *See Reedy v. White Consolidated Industries, Inc.*, 890 F. Supp. 1417, 1447 (N.D. Iowa 1995) (the “claims adjusting procedure is . . . something about which the average juror is unlikely to have sufficient knowledge or experience to form an opinion without expert guidance, thus expert testimony would not be superfluous”).
• Clinical ecology: *See Summers v. Missouri Pacific RR. System*, 897 F. Supp. 533 (E.D. Okla. 1995) ("multiple chemical sensitivity" is "a diagnosis which is not supported by sound scientific reasoning or methodology, and should be excluded pursuant to Daubert"); *see also* Multiple chemical sensitivity (MCS) disorder, this heading.
• Criminal activity, police officer as expert witness on specific kinds: *See United States v. Thomas*, 74 F.3d 676 (6th Cir. 1996) (courts overwhelmingly find such evidence admissible where it aids the jury in understanding an area of criminal activity).
• Demonstrations and re-creations: *See Fusco v. General Motors Corp.*, 11 F.3d 259, 264 (1st Cir. 1993) (excluding a demonstration “rife with the risk of misunderstanding”).
• Design: *See Delaney v. Merchants River Transportation*, 829 F. Supp. 186, 189-90 (W.D. La. 1993), *aff’d*, 16 F.3d 1214 (5th Cir. 1994) (the witness was not qualified as an expert in the design of barges); *see also* Technical knowledge, this heading.
• Differential diagnosis: *See Cavallo v. Star Enterprise*, 892 F. Supp. 756, 771 (E.D. Va. 1995) (the final cause remaining after eliminating all other causes must actually be capable of causing the injury
in question); *Hose v. Chicago Northwestern Transportation Co.*, 70 F.3d 968, 973, (8th Cir. 1995) ("ruling out alternative explanations for injuries is a valid medical method").


- Document examiner: *See Forensic document examiner, this heading.

- Drug dealers, and the business aspects of large quantities of illegal drugs. *See United States v. Sepulveda*, 15 F.3d 1161, 1182-84 (1st Cir. 1993), cert. denied, 114 S. Ct. 2714 (1994) (the expert's opinions were inadequately supported and were properly excluded).

- Economist — before-and-after model for fixing damage in a price fixing case: *See Aluminum Phosphide Antitrust Litigation, In re*, 893 F. Supp. 1497, 1506 (D. Kan. 1995) (before an expert can apply a before-and-after model for computing damages in a price fixing case, the proponent must show that the witness is proposing to testify to (1) economic knowledge that (2) will assist trier of fact to understand or determine a fact in issue).

- Economist — future lost earnings: *See Henry v. Hess Oil Virgin Islands Corp.*, 163 F.R.D. 237, 245-48 (D.V.I. 1995) (the proffered expert's opinion was based on another expert's assessment of the plaintiff's lost earning capacity and the underlying expert's assessment was overly speculative and methodologically unreliable and consisted of unsubstantiated conclusions; the proffered expert's testimony was based on data not reasonably relied on by experts in the field; the proffered expert's opinions were inadmissible).

- Economist — worklife expectancy: *See Marcel v. Placid Oil Co.*, 11 F.3d 563, 567-68 (5th Cir. 1994) (the exclusion of the proffered expert economist was proper).


- Experimental test results: See McKnight ex rel. Ludwig v. Johnson Controls, Inc., 36 F.3d 1396 (8th Cir. 1994) (the evidence admissible if the tests were conducted under conditions substantially similar to the actual conditions; perfect identity is not required).


- Forensic document examiner: See Handwriting analyst, this heading.

- Fourier Transform Infrared Spectrophotometer (FTIR): See Cocaine, this heading.

- Gang activities — gang member as expert: See United States v. Johnson, 28 F.3d 1487, 1496 (8th Cir. 1994), cert. denied, 115 S. Ct. 1263 (1995) (gang member allowed to testify "as an expert on drug trafficking").


- Heart: See Cardiologist, this heading.

- Hedonic damages: See Ayers v. Robinson, 887 F. Supp. 1049, 1064 (N.D. Ill. 1995) (the technique is not scientifically reliable and that there was a lack of fit between the testimony and the issues; the testimony was unhelpful and unfairly prejudicial); Hein v. Merck & Co., Inc., 868 F. Supp. 230 (M.D. Tenn. 1994) (excluding hedonic

- Hypnotically-refreshed testimony: See Borawick v. Shay, 68 F.3d 597, 610 (2nd Cir. 1995) (regarding the admissibility of post-hypnotic testimony of lay witnesses, though Daubert is not directly applicable, Daubert does counsel flexibility and the trial judge should have conducted an evidentiary hearing on the admissibility of the testimony).


- Language: See Interpreter, this heading.

- Laser-beam cocaine testing: See Cocaine, this heading.


- Longshore worker safety: See Thomas v. Newton International Enterprises, 42 F.3d 1266, 1272 (9th Cir. 1994) (finding an abuse of discretion when expert testimony was excluded).

- Manganese encephalopathy: See Hose v. Chicago Northwestern Transportation Co., 70 F.3d 968, 973 (8th Cir. 1995).

- Mens rea, evidence of: See Psychiatric testimony, this heading.

- Mental illness: See Goomar v. Centennial Life Insurance Co., 855 F. Supp. 319, 326 (S.D. Cal. 1994), aff’d, 76 F.3d 1059 (9th Cir. 1996) (“Retrospective expert testimony regarding the existence or onset of a mental illness is inadmissible speculation”).


- Multiple chemical sensitivity (MCS) disorder: See Bradley v. Brown, 42 F.3d 434, 438 (7th Cir. 1994) (the “science” of MCS’s etiology is hypothetical, not scientific knowledge); Summers v. Missouri Pacific Railroad System, 897 F. Supp. 533, 538 (E.D. Okla. 1995) (MCS is an “unproven hypothesis,” “experimental,” and “hypothetical” and no scientific evidence supports the contention that it is a significant cause of disease or that such diagnostic tests or treatments have any therapeutic value); see also Clinical ecology, this heading.

- Nuclear engineering: See engineering, this heading.

• Photogrammetry: See United States v. Quinn, 18 F.3d 1461 (9th Cir. 1994), cert. denied, 114 S. Ct. 2755 (1994).
• Platinum salts exposure: See Pulmonology, this heading.
• Plume dispersion: See Meteorology, this heading.
• Polygraph examination:
  • In general:
    • Ulmer v. State Farm Fire & Casualty Co., 987 F. Supp. 299 (W.D. La. 1995) (Rule 702: "This court notes that polygraph theory and technique have been tested, have been subject to peer review and extensive publication, and have been shown to have a not unreasonable potential rate of error . . . [.,] the examinations at issue here were administered and interpreted by a polygraphist certified to perform these functions by the State of Louisiana through its Polygraphist Act." Rule 403: the examiner was not an independent examiner privately commissioned by the party offering the evidence, but an employee of the State Office of Public Safety working at the request of the State Fire Marshall, and there is a special need for the evidence in this case; one negative factor is that evidence is to go to the jury in an actual trial, rather than to the judge in a pretrial hearing, but still the evidence is admissible).
    • United States v. Black, 831 F. Supp. 120, 122 (E.D.N.Y. 1993) (polygraph results are inadmissible under Frye and nothing in Daubert changes that finding).
    • United States v. Kwong, 69 F.3d 633, 668 (2d Cir. 1995) (even if polygraph results pass Fed. R. Evid. 702, they are still inadmissible under Fed. R. Evid. 403; the "legal Pandora's Box" the Fifth Circuit opened in the Pasado case "is not yet agape in this Circuit").
because the questions to the examinee called for a belief about the legal implications of his actions).

- **United States v. Posado**, 57 F.3d 428, 436 (5th Cir. 1995) (remanded for consideration of the admissibility of polygraph results under Daubert).

- **United States v. Pulido**, 69 F.3d 192, 205 (7th Cir. 1995) (affirming a decision to exclude polygraph evidence; no abuse of discretion).

- Unilateral (privately commissioned):


- Probabilistic evidence: **See Statistical probabilities**, this heading.

- Pseudologia fantastica, psychiatric evidence of: **See United States v. Shay**, 57 F.3d 126, 130 (1st Cir. 1995) (excluding expert evidence because "the jury was capable of determining the reliability of [the defendant's] statements without the testimony").


- Pulmonary hypertension: **See Zuchowicz v. United States**, 870 F. Supp. 15, 20 (D. Conn. 1994) (the expert's testimony was "valuable to the trier of fact").


- Re-creations: **See Demonstrations and re-creations**, this heading.


- Semen: **See DNA profiling and matching**, this heading.

- Specific intent, evidence of: **See Psychiatric testimony**, this heading.

- Spectrum analysis: **See Laser-beam cocaine testing**, this heading.

- Statistical probabilities: **See Christopher v. Cutter Laboratories**, 53 F.3d 1184 (11th Cir. 1995), reh'g denied, 65 F.3d 185 (11th Cir. 1995) (despite statistical inaccuracies, the testimony was admissible because there was no timely objection made at trial); **United

- Technical knowledge: See Asplundh Manufacturing Division a Division of Asplundh Tree Expert Co. v. Benton Harbor Engineering, 57 F.3d 1190, 1206 (3d Cir. 1995) (opinion evidence from a lay witness with technical knowledge); Officer v. Teledyne Republic / Sprague, 870 F. Supp. 408 (D. Mass. 1994) ("While Daubert's principles have valuable application in determining the admissibility of controversial and novel scientific hypotheses, they have less use in fields like design engineering where 'general acceptance' is the norm, not the exception").

- Tinnitus: See Hearing loss, this heading.

- Torture, particularly electric shock: See Wilson v. City of Chicago, 6 F.3d 1233, 1238 (7th Cir. 1993), cert. denied, 114 S. Ct. 1844 (1994) (a pathologist was not qualified to testify about his avocation, the study of torture).


- Voice identification: See United States v. Jones, 24 F.3d 1177, 1180 (9th Cir. 1994).

**Lay Witnesses:**

- Asplundh Manufacturing Division v. Benton Harbor Engineering, 57 F.3d 1190, 1202 (3d Cir. 1995) (discussing the three categories of lay opinion evidence and the intersection of lay and expert opinion evidence, i.e., the intersection of Fed. R. Evid. 701 and 702; noting that, although Daubert does not apply to lay opinion witnesses, the spirit of Daubert "counsels trial judges to carefully exercise a screening function with respect to Rule 701 opinion when the lay opinion offered closely resembles expert testimony").

- Bistrian, In re, 184 B.R. 678, 684 (E.D. Pa. 1995) (in highly technical areas lay and expert witnesses both draw on prior experience not shared by society generally, but the lay witness' opinion is "more restricted" than the expert's because the lay witness may give an opinion based only on personal "perception," Fed. R. Evid. 701, while an expert may state an opinion based on facts "made known . . . [at the] hearing," Fed. R. Evid. 703; the essential difference between lay and expert witnesses is that experts may answer hypothetical questions, and lay witnesses may not).

- Borawick v. Shay, 68 F.3d 597, 610 (2nd Cir. 1995) (regarding the admissibility of post-hypnotic testimony of a lay witness, though Daubert is not directly applicable to this lay witness, Daubert does counsel flexibility and the trial judge should have conducted an evidentiary hearing on its admissibility).
- *United States v. Jones*, 24 F.3d 1177, 1180 (9th Cir. 1994) (a witness called as an expert, but not qualified, was allowed to give a lay opinion).

- *United States v. Shay*, 57 F.3d 126, 133 (1st Cir. 1995) (unless a witness' opinions were formed by expertise, they are no more helpful than the opinions of a lay witness and cannot be admitted under Fed. R. Evid. 702 but, instead, must comply with Fed. R. Evid. 701).

**Limits on Coverage of Daubert:**

* See also Lay Witnesses, this digest.

- Administrative agencies: *See Sierra Club v. Marita*, 46 F.3d 606, 619 (7th Cir. 1995) (*Daubert* does not apply at the administrative level; an agency may use its own methodology so long as it is not irrational).

- Administrative regulations and standards: *See Questions of law, this heading.*


- FELA cases: *See Claar v. Burlington Northern Railroad Co.*, 29 F.3d 499, 503 (9th Cir. 1994) (*Daubert* applies even though the standard of causation is lower in these cases than the usual negligence case).

- Habeas corpus review of state court conviction in death penalty cases: *See Williamson v. Reynolds*, 904 F. Supp. 1529, 1554-66 (E.D. Okla. 1995) (on review of the trial court's application of *Daubert* to the testimony of an expert in forensic hair examination, a finding that the testimony was improperly admitted).

- Irrelevance of *Daubert*: *See Conde v. Velsicol Chemical Corp.*, 24 F.3d 809, 814 (6th Cir. 1994) (if all of the evidence added together, including the novel scientific evidence, is insufficient for a reasonable juror to find the point made, the court can then assume *Daubert* admissibility and still grant summary judgment, thereby avoiding what may be the high cost in time and money of full-blown *Daubert* testing).

- Lay witness' competence: *See Lay Witnesses, this digest.*

- Lay witness opinion testimony: *See Lay Witnesses, this digest.*

- Non-scientific evidence:

  - *Daubert's* details apply to scientific knowledge, because that is the context of *Daubert*, but its general methods and its discussion of controlling rules applies to all Fed. R. Evid. 702 specialized knowledge. *See United States v. Posado*, 57 F.3d 428, 432 (5th Cir. 1995).
- *Daubert* applies to all expert testimony, scientific and otherwise. See *Berry v. City of Detroit*, 25 F.3d 1342, 1350 (6th Cir. 1994), *cert. denied*, 115 S. Ct. 902 (1995) (“Although . . . *Daubert* dealt with scientific experts, its language relative to the “gatekeeper” function of federal judges is applicable to all expert testimony offered under Rule 702”).

- *Daubert* does not apply to non-scientific evidence:
  - *Iacobelli Construction, Inc. v. County of Monroe*, 32 F.3d 19 (2d Cir. 1994) (*Daubert* clarified the standard for evaluating “scientific knowledge” and the affidavits in question did not present the kind of “junk science” problem *Daubert* was meant to address).
  - *Tamarin v. Adam Caterers, Inc.*, 13 F.3d 51, 53 (2nd Cir. 1993) (*Daubert* was inapplicable because it “dealt with the admissibility of scientific evidence”).
  - *United States v. Sinclair*, 74 F.3d 753 (7th Cir. 1996) (*Daubert* did not apply to all witnesses claiming expertise, just witnesses claiming scientific expertise).
  - *United States v. Starzecpyzel*, 880 F. Supp. 1027, 1039 (S.D.N.Y. 1995) (“It is unclear whether *Daubert* provides, or was intended to provide, useful guidance for nonscientific expert testimony”).


- Questions of law:
  - Admissibility of evidence: See *Borawick v. Shay*, 68 F.3d 597, 610 (2nd Cir. 1995) (*Daubert* is not directly applicable because *Daubert* concerns the admissibility of specialized knowledge and expert opinion the only expert evidence received here was received by the judge alone, an issue of whether the plaintiff was competent to be a witness).
  - Meaning of law: See *Bammerlin v. Navistar International Transportation Corp.*, 30 F.3d 898, 900 (7th Cir. 1994) (the meaning of federal law, including federal administrative standards, is a question of law to be decided by the court, not a question of fact to be decided by the jury on the basis of expert testimony).
that *Daubert* does not apply to "soft" social sciences such as economics).

- Technical knowledge: **See Officer v. Teledyne Republic/Sprague**, 870 F. Supp. 408, 410 (D. Mass. 1994) (*Daubert's* principles have valuable application to the admissibility of controversial and novel scientific evidence, but less use in fields like design engineering where "general acceptance" is the norm, not the exception).


- Tested as of time of trial, not time of appeal: **See United States v. Bonds**, 12 F.3d 540, 553 (6th Cir. 1993) ("[T]he key is whether the testimony met the requirements of Federal Rule of Evidence 702 at the time of the district court's admissibility determination, not whether subsequent events provide evidence that contradicts or calls into question the district court's view at the time of its admissibility ruling").

**MOTION FOR A NEW TRIAL:**

- **Henry v. Hess Oil Virgin Islands Corp.**, 163 F.R.D. 237, 241-48 (D.V.I. 1995) (motion for a new trial granted because data underlying the expert opinion was not the kind reasonably relied on by experts in the field).

**MOTION IN LIMINE:**

**See also** Hearings — Rule 104 *Daubert* Hearings; Objection, this digest.

In addition to the following cases, see William S. Schwarzer, **Federal Judicial Center, Reference Manual on Scientific Evidence**, Management of Expert Evidence 29 (1994).


- **Borawick v. Shay**, 68 F.3d 597 (2d Cir. 1995) (granting a motion *in limine* to exclude post-hypnotic testimony of lay witness).

- **Cantrell v. GAF Corp.**, 999 F.2d 1007, 1013 (6th Cir. 1993) (the defendant moved *in limine* to prevent the expert from basing opinions on clinical experience, arguing that clinical experience does not prove anything; the court denied the motion, noting that evidence does not have to "prove" anything, just be a link in the chain).

- **Cavallo v. Star Enterprise**, 892 F. Supp. 756 (E.D. Va. 1995) (the defendant's motion *in limine* was granted, and the plaintiff's expert testimony regarding causation was excluded; as a conse-
sequence of that ruling the defendant’s motion for summary judgment was granted).

- *Christopher v. Cutter Laboratories*, 53 F.3d 1184, 1191-92 (11th Cir. 1995), *reh’g denied*, 65 F.3d 185 (11th Cir. 1995) (the defendant neither filed a motion in limine challenging the expert’s testimony nor raised contemporaneous objections; the issue was not preserved for appeal).

- *Gier v. Educational Serv. Unit No. 16*, 845 F. Supp. 1342, 1349 (D. Neb. 1994), *aff’d* 66 F.3d 940 (8th Cir. 1995) (a Daubert hearing was held in response to a motion in limine).

- *Hein v. Merck & Co., Inc.*, 868 F. Supp. 230, 235 (M.D. Tenn. 1994) (a motion in limine was granted because proffered hedonic-damages evidence “is unreliable and invalid under the teaching of Daubert”).


- *United States v. Brien*, 59 F.3d 274, 277 (1st Cir. 1995), *cert. denied*, 116 S. Ct. 401 (1995) (a motion in limine to have evidence ruled admissible was denied because, despite repeated opportunities and repeated requests from the trial court, the movant offered practically nothing in support of the motion).

- *United States v. Sepulveda*, 15 F.3d 1161, 1184 (1st Cir. 1993), *cert. denied*, 114 S. Ct. 2714 (1994) (a motion in limine to preclude expert testimony was denied; during trial, cross-examination of the witness revealed that the witness’ opinions were highly speculative in nature and had no plausible basis and, midway through the cross-examination, the court struck all of the expert’s testimony).

- *See Auvil v. CBS 60 Minutes*, 836 F. Supp. 740, 743 (E.D. Wash. 1993), *aff’d*, 67 F.3d 816 (9th Cir. 1995) (denying a motion to strike an expert’s testimony).

- *See Case v. Unified School District No. 233*, 895 F. Supp. 1463, 1472 (D. Kan. 1995) (the plaintiffs may renew objections to the expert’s testimony during trial, but the pretrial was denied because there is little if any judicial economy from pretrial exclusion and “[e]ven if testimony were excluded, defendants would be allowed to make offer of proof at hearing or trial” and “because this is trial to court, the court can evaluate admissibility at time of trial without the presence of a jury”).

ing was combined with a motion to strike the plaintiff's expert testimony).

Motion to Strike:

See Motion in Limine; Objection, this digest.

Objection

See also Motion in Limine, this digest.

- Cantrell v. GAF Corp., 999 F.2d 1007, 1014 (6th Cir. 1993) (the real problem here was not Daubert but Fed. R. Evid. 403, and no Rule 403 objection was made).

- Christopher v. Cutter Laboratories, 53 F.3d 1184, 1192 (11th Cir. 1995), reh'g denied, 65 F.3d 185 (11th Cir. 1995) (because the defendant neither filed a motion in limine challenging the expert's testimony nor raised contemporaneous objections, the issue was not preserved for appeal).

- McKnight ex rel. Ludwig v. Johnson Controls, Inc., 36 F.3d 1396, 1407 (8th Cir. 1994) (the district court is not required to exercise gatekeeping authority over expert testimony if there is no objection; without an objection, the issue will not receive consideration on appeal unless there is evidence of plain error).

- United States v. Gomez, 67 F.3d 1515, 1525 (10th Cir. 1995), cert. denied, 116 S. Ct. 737 (1996) (if no objection to the admission of expert testimony is made at trial, then, absent plain error, the issue is not properly before appellate review).

- See Auvil v. CBS 60 Minutes, 836 F. Supp. 740, 743 (E.D. Wash. 1993), aff'd, 617 F.3d 816 (9th Cir. 1995) (denying a motion to strike the expert's testimony).

- See Case v. Unified School District No. 233, 895 F. Supp. 1463, 1472 (D. Kan. 1995) (the pretrial motion to strike the expert's testimony was denied; there would be little, if any, judicial economy from pretrial exclusion because, even if the testimony was excluded, the defendants would be allowed to make an offer of proof at hearing or the trial; because this was a trial to the court, the court could evaluate admissibility during the trial without concern for a jury).


Peer Review:

See Factors to be Considered at a Daubert Hearing; Scientific (or Other Relevant) Community, this digest.

Personal Experience of Expert:

See Experience, this digest.

Pre- and Post-Daubert Distinguished:
• *Daubert v. Merrell Dow Pharmaceuticals, Inc.* (Daubert II), 43 F.3d 1311, 1315 (9th Cir. 1995) ("Federal judges ruling on the admissibility of expert scientific testimony face a far more complex and daunting task in a post-Daubert world than before").

• *Joint Eastern and Southern District Asbestos Litigation, In re*, 827 F. Supp. 1014, 1030-31 (S.D.N.Y. 1993), rev’d, 52 F.3d 1124 (2d Cir. 1995) (the pre-Daubert early years where, once an expert's credentials were established, courts left the rest to the jury; contrasted with pre-Daubert later years where courts' fidelity to a traditional standard of deference cracked in the face of huge cases and huge jury awards based on doubtful or nonexistent scientific evidence, and the standard of deference was replaced with a threshold of causation designed to eliminate perceived abuse of expert testimony; contrasted with post-Daubert judges are required to make their own assessment of whether the methodology underlying the expert's opinion is fundamentally sound).


• *United States v. Posado*, 57 F.3d 428, 433 (5th Cir. 1995) (polygraph evidence did not survive the *Frye* test but, without a fully developed record, the court cannot say whether it survives the *Daubert* test).

• *United States v. Shonubi (Shonubi II)*, 895 F. Supp. 460, 499 (E.D.N.Y. 1995) (*Daubert* implements "broad general principles favoring admissibility and openness to new scientific information and analytic methods").

• See *Benedi v. McNeil-P.P.C., Inc.*, 66 F.3d 1378, 1384, 1995 WL 593007 (4th Cir. 1995) (a methodology good enough for the day-in, day-out practice of a diagnosing physician, after *Daubert*, still is good enough for federal courts).

• See *United States v. Black*, 831 F. Supp. 120, 123 (E.D.N.Y. 1993) (polygraph examinations were inadmissible under *Frye* because they were insufficiently reliable; nothing in *Daubert* changes that).

**Prejudice:**

See Rule 403, this digest.

**Pretrial Hearing:**

See Timing of Daubert Hearing, this digest.

**Privilege, Evidentiary**

See Discovery, this digest.

**Qualifications (or Lack Thereof) of the Witness:**

**Qualified:**

• *Becker v. National Health Products, Inc.*, 896 F. Supp. 100, 103 (N.D.N.Y. 1995) (one expert — thirty years of experience as a phy-
sician, board certified internist and nutritionist, relevant research, review of the plaintiff's medical records; second expert — relevant research, review of the plaintiff's medical history and hospitalization records, relevant clinical experience with 10,000 patients).

- *Cantrell v. GAF Corp.*, 999 F.2d 1007, 1013-14 (6th Cir. 1993) (the clinical experience of the medical doctor).

- *Carroll v. Morgan*, 17 F.3d 787, 790 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (6th Cir. 1994) (expert cardiologist qualified by thirty years experience, review of the deceased's medical records and of the coroner's records, and knowledge of a broad spectrum of published materials; the question is not whether one expert is more qualified than another, but whether each individual expert is sufficiently qualified to testify; that is, beyond the threshold of qualifications, qualitative differences are matters of credibility for the jury, not matters of admissibility for the judge).

- *McCullock v. H.B. Fuller Co.*, 61 F.3d 1038, 1043 (2d Cir. 1995) (determining that (1) the specialized knowledge qualifying one as an expert witness and the scientific investigation on which the expert opinion will be based, need not necessarily be within precisely the same concentration in the same branch of the same scientific subspecialty; and 2) the *Daubert* hearing should not focus on academic training to the exclusion of practical experience).

- *Reedy v. White Consolidated Industries, Inc.*, 890 F. Supp. 1417, 1448 (N.D. Iowa 1995) (a claims adjuster was found to have sufficient practical experience to qualify as an expert to state an opinion about claims procedures).

- *Thomas v. Newton International Enterprises*, 42 F.3d 1266, 1269 (9th Cir. 1994) (a longshore worker with twenty-nine years of work experience in every job category within the industry and for several stevedoring companies qualified as an expert on hazardous conditions within industry).


- *United States v. Thomas*, 74 F.3d 676 (6th Cir. 1996) (a police officer was qualified as an expert regarding specific criminal activity).

- *Ventura v. Titan Sports, Inc.*, 65 F.3d 725 (8th Cir. 1995), cert. denied, No. 95-1192, 1996 WL 38089 (1996) (the expert's "qualifications are quite impressive, and certainly more so than those of some experts whose testimony this court has permitted"; an expert who testifies to a relevant industry-wide practice is not rendered unqualified by the fact that he has not studied the particular practice of the relevant party in the case at hand).
NOT QUALIFIED:

- **Diaz v. Johnson Matthey, Inc.**, 893 F. Supp. 358, 373 (D.N.J. 1995) (though the threshold for qualifying one as an expert is admittedly low, and the qualifications requirement is interpreted liberally, the plaintiff’s proposed expert was not qualified; he was not Board Certified in the relevant subspecialty, not expert in relevant subspecialties, lacked experience in treating or diagnosing patients with the condition in question, and had limited familiarity with literature in field).
- **Marcel v. Placid Oil Co.**, 11 F.3d 563, 567-68 (5th Cir. 1994) (the trial record was inadequate for the appellate court to “hold that it was an abuse of discretion to exclude the tendered evidence”).
- **Martincic v. Urban Redevelopment Authority of Pittsburgh**, 844 F. Supp. 1073, 1075 (W.D. Pa. 1994) (a proffered expert was not qualified because the proffered expert had no education or background in the social science of statistics).
- **Rosado v. Deters**, 5 F.3d 119, 124 (5th Cir. 1993) (the witness could not provide the necessary physical and mathematical bases for his opinion, was last qualified as accident reconstruction expert twenty-five years before, and had not taken any refresher courses in the meantime was not a qualified expert).
- **TRW Title Insurance Co. v. Security Union Title Insurance Co.**, 890 F. Supp. 756, 759 (N.D. Ill. 1995) (an auditor with no expertise in the legal impact of actions is not qualified to give such an opinion).
- **United States v. Jones**, 24 F.3d 1177, 1180 (9th Cir. 1994) (the witness was not qualified as an expert in voice identification but was allowed to testify to his opinion as a lay witness).
- **United States v. Sepulveda**, 15 F.3d 1161, 1183 (1st Cir. 1993), **cert. denied**, 114 S. Ct. 2714 (1994) (voir dire is an effective way to test qualifications).
- **Wilson v. City of Chicago**, 6 F.3d 1233, 1238 (7th Cir. 1993), **cert. denied**, 114 S. Ct. 1844 (1994) (a pathologist called to testify regarding torture was not qualified).

SEEMED QUALIFIED, AND ALLOWED TO TESTIFY, BUT ON CROSS-EXAMINATION SHOWN TO BE UNQUALIFIED:

- **United States v. Sepulveda**, 15 F.3d 1161, 1183 (1st Cir. 1993), **cert. denied**, 114 S. Ct. 2714 (1994) (the court denied a motion in limine to preclude expert testimony; cross-examination revealed opinions were highly speculative in nature and had no plausible basis, and the expert's testimony was struck midway through cross-examination).
• See Henry v. Hess Oil Virgin Islands Corp., 163 F.R.D. 237, 241-45 (D.V.I. 1995) (the opinion was not allowed into evidence because the data underlying the expert opinion was not data reasonably relied on by experts in field).

MISCELLANEOUS:
In addition to the cases under this heading, see Margaret A. Berger, Federal Judicial Center, Reference Manual on Scientific Evidence, Evidentiary Framework 55-67 (1994).

• Borawick v. Shay, 68 F.3d 597, 610 (2d Cir. 1995) (Daubert concerns the admissibility of specialized knowledge and expert opinion; the only expert testimony involved here was received by the judge, on the issue of whether the lay-plaintiff was competent to be a witness, and did not go to the jury; though Daubert is not directly applicable, it does counsel flexibility, and this trial judge’s test for admissibility was insufficiently flexible.).

• Claar v. Burlington Northern Railroad Co., 29 F.3d 499, 503 (9th Cir. 1994) (even though the standard of causation is lower in a FELA case, this does not mean causation may be established by less competent witnesses).

• Frymire-Brinati v. KPMG Peat Marwick, 2 F.3d 183, 186 (7th Cir. 1993) (just finding a witness qualified as an expert is not enough; Daubert testing involves more).

• Officer v. Teledyne Republic/Sprague, 870 F. Supp. 408, 410 (D. Mass. 1994) (Daubert does not address who may testify as an expert, but what are appropriate subjects for expert testimony).

• Paoli Railroad Yard PCB Litigation, In re, 35 F.3d 717, 741 (3d Cir. 1994), cert. denied, 115 S. Ct. 1253 (1995) (Fed. R. Evid. 702’s requirement that the witness be an expert is a liberal one and formal qualifications are not required).

• Summers v. Missouri Pacific Railroad System, 897 F. Supp. 533, 542 (E.D. Okla. 1995) ("scientific controversies must be settled by the methods of science rather than the methods of litigation" and that the judge must exercise a gatekeeper role).

REASONABLY RELIED UPON BY OTHER EXPERTS IN RELEVANT FIELD:
See Scientific (or Other Relevant) Community, this digest.

RE-CREATIONS:
See Kinds of Evidence, Demonstrations, this digest.

RELEVANCE — EXPERT TESTIMONY MUST BE TIED TO CASE AT HAND:
See also Helpfulness — Is the Expert Evidence Helpful to the Trier of Fact?; Fed. R. Evid. 403; Speculation, this digest.

In addition to the following cases, see Margaret A. Berger, Federal Judicial Center, Reference Manual on Scientific Evidence, Evidentiary Framework 45-49 (1994).
• *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2796 (1993) (asking whether the evidence is “scientifically valid and . . . whether that reasoning or methodology properly can be applied to the facts in issue”).


• *Cavallo v. Star Enterprise*, 892 F. Supp. 756 (E.D. Va. 1995) (an expert opinion must be scientifically valid and must advance the trier of fact’s understanding of a material issue in the case; though courts must not exclude expert testimony based on a valid methodology simply because they disagree with the ultimate conclusion, they must ensure that the conclusion is reliable; that is, courts must analyze the reliability of the expert’s application of tested principles to the facts at issue).

• *Claar v. Burlington Northern Railroad Co.*, 29 F.3d 499, 503 (9th Cir. 1994) (just because less is required to satisfy the burdens of production and proof on the issue of causation in FELA cases, this does not mean that less is required for the admission of evidence).

• *Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert II)*, 43 F.3d 1311, 1322 (9th Cir. 1995) (the experts were unprepared to testify that the defendant’s drug caused the plaintiffs’ injuries; the most they would say is that the drugs “could possibly have,” but this is not enough of a “fit”).

• *Deimer v. Cincinnati Sub-Zero Products, Inc.*, 58 F.3d 341, 344 (7th Cir. 1994) (evidence must assist the trier of fact, meaning that there must be a sufficient “fit” between the evidence and an issue; the witness in this case did not have the requisite experience to assess the product’s suitability for the intended purpose within a hospital environment or to assess the product’s adherence to prevailing standards; the witness’ analysis could not be applied to facts of the case at hand).

• *Marcel v. Placid Oil Co.*, 11 F.3d 563, 568 (5th Cir. 1994) (the proffered evidence was insufficiently reliable).

• *Martincic v. Urban Redevelopment Authority of Pittsburgh*, 844 F. Supp. 1073 (W.D. Pa. 1994) (there were insufficient facts to tie “expert” testimony to the particular case because the expert offered meaningless statistics, not correlated in a mathematically meaningful way with the facts of the case).

• *O’Connor v. Commonwealth Edison Co.*, 13 F.3d 1090, 1106 (7th Cir. 1994), cert. denied, 114 S. Ct. 2711 (1994) (the proposed scientific testimony must “fit” the issue to which the expert is testifying).

• *Pestel v. Vermeer Manufacturing Co.*, 64 F.3d 382, 384 (8th Cir. 1995) (an expert witness fabricated a guard for a machine; because
the expert admitted he would not use his guard in its present state, without certain specified modifications, the guard he had fabricated was irrelevant).

- *Pomella v. Regency Coach Lines, Ltd.*, 899 F. Supp. 335, 343 (E.D. Mich. 1995) (the plaintiff's case contained expert opinion evidence that was based on valid scientific theory and methodology; what was missing was the "fit" between the expert opinion and the specific case at hand because the opinion was based on wrong assumptions).

- *Porter v. Whitehall Laboratories, Inc.*, 9 F.3d 607 (7th Cir. 1993) (one expert could not rule out other causes and another expert had to speculate regarding key factual elements; the required connection between their general knowledge and facts of the case at hand was missing).

- *TMI Litigation Cases Consolidated II, In re*, 911 F. Supp. 775 (M.D. Pa. 1996) (models "proffered to demonstrate what may have happened" bore no meaningful relationship to actual data regarding the accident at bar).

- *United States v. Posado*, 57 F.3d 428, 432 (5th Cir. 1995) ("Whether evidence assists the trier of fact is essentially a relevance inquiry"; if the question is whether the witness is telling the truth, polygraph evidence may or may not be reliable but if it is reliable, it is certainly relevant).

- *Vadala v. Teledyne Industries, Inc.*, 44 F.3d 36, 38-39 (1st Cir. 1995) (the expert knew the science of polymerization and knew the condition of the plane after the crash, but could not connect the science to the crash).

- *Ventura v. Titan Sports, Inc.*, 65 F.3d 725, 733-34, 1995 WL 530276 (8th Cir. 1995), cert. denied, No. 95-1192, 1996 WL 38089 (1996) (where industry-wide practice is relevant, an expert who testifies to that industry-wide practice is not rendered unqualified by the fact that he has not studied the particular practice of the relevant party in the case at hand).

- *Williamson v. Reynolds*, 904 F. Supp. 1529, 1555-56 1995 WL 558566 (E.D. Okla. 1995) (this forensic hair examination and comparison was so imprecise and speculative that the testimony was irrelevant).

- *See Textron Inc. ex rel. Homelite Division v. Barber-Colman Co.*, 903 F. Supp. 1546, 1553, 1995 WL 590592 (W.D.N.C. 1995) (passing Fed. R. Evid. 702 does not give a witness an unlimited license to opine; the testimony must relate to the specialized knowledge that makes the witness an expert).

**Standard of Review on Appeal:**

*See* Standard of Review on Appeal, this digest.
Rule 104 Daubert Hearings:
See Hearings — Rule 104 Daubert Hearings, this digest.

Rule 403:
See also Helpfulness; Relevance; Speculation, this digest.

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S. Ct. 2786, 2798 (1993) (relevant evidence may be excluded if the probative value is “substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury. . . .”).


- *Cantrell v. GAF Corp.*, 999 F.2d 1007, 1014 (6th Cir. 1993) (finding that expert evidence of similar happenings was admissible under Fed. R. Evid. 702 and Fed. R. Evid. 703; the real problem with the evidence was that the danger of unfair prejudice substantially outweighed its probative value, but counsel did not make a specific objection under Fed. R. Evid. 403).

- *Claar v. Burlington Northern Railroad Co.*, 29 F.3d 499 (9th Cir. 1994) (even though the standard of causation is lower in FELA case, Fed. R. Evid. 403 still applies).


- *Fusco v. General Motors Corp.*, 11 F.3d 259 (1st Cir. 1993) (demonstrations and re-creations present the possibility of unfair prejudice or misleading the jury because of the danger that the jury will be overwhelmed).

- *Government of the Virgin Islands v. Sanes*, 57 F.3d 338, 341 (3d Cir. 1995) (part of the expert’s proposed testimony may have been good science, but it was of limited probative value, and what the value it did have “would have been outweighed by waste of time and confusion”).

- *Marcel v. Placid Oil Co.*, 11 F.3d 563 (5th Cir. 1994) (an expert economist’s opinion was found to be prejudicial and insufficiently reliable).

- *Martincic v. Urban Redevelopment Authority of Pittsburgh*, 844 F. Supp. 1073 (W.D. Pa. 1994) (a statistical report was found to be inadmissible because it failed to correlate in any mathematically meaningful way the personnel decisions in question with employee ages and its probative value was substantially outweighed by the
danger of unfair prejudice and the danger of misleading and confusing the jury).


- **TMI Litigation Cases Consolidated II, In re**, 911 F. Supp. 775 (M.D. Pa. 1996) (models offered to show what may have happened bore no meaningful relationship to the actual data regarding the accident; there was a high potential that such models would mislead the jury).

- **Ulmer v. State Farm Fire & Casualty Co.,** 897 F. Supp. 299, 303-04 (W.D. La. 1995) (the court applied *Fed. R. Evid.* 403 to this polygraph evidence and found it admissible; in favor of admissibility, the examiner was not privately commissioned by the party offering evidence but was an employee of the state working at the request of the State Fire Marshall and that there was a special need for the evidence; against admissibility, the evidence will go to a jury, rather than to a judge in a pretrial hearing).


- **United States v. Brien,** 59 F.3d 274, 277 (1st Cir. 1993) (expert testimony on the weakness of eyewitness testimony created undue opportunity for confusing and misleading the jury).

- **United States v. Crumby,** 895 F. Supp. 1354, 1361-63 (D. Ariz. 1995) (*Fed. R. Evid.* 403 considerations with regard to polygraph evidence including: societal fear of technology, time consumption, the aura of infallibility, and the fact that it may be an opinion regarding the ultimate issue).


- **United States v. Lech,** 895 F. Supp. 582, 585 (S.D.N.Y. 1995) (assuming polygraph evidence was admissible under *Fed. R. Evid.* 702 but finding it inadmissible under Rule 403 because questions to the examinee "call[ed] for his belief about the legal implications of his actions").

- **United States v. Posado,** 57 F.3d 428, 435 (5th Cir. 1995) (evidence that passes *Fed. R. Evid.* 702 may still fail *Fed. R. Evid.* 403; *Daubert* analysis may well mandate an enhanced role for *Fed. R.
Evid. 403, particularly regarding novel or controversial scientific or technical knowledge; the risk of unfair prejudice is minimized when evidence is offered at a pretrial hearing before the judge, because the judge is less likely to be intimidated and to assign evidence inappropriate evidentiary value).

- United States v. Powers, 59 F.3d 1460, 1472-73 (4th Cir. 1995), cert. denied, 116 S. Ct. 784 (1996) (it was within the trial court’s discretion to decide that evidence that showing that 40% of the time incest abusers exhibit characteristics of fixated pedophiles, coupled with evidence that the defendant did not show those characteristics, did not assist the trier of fact and its probative value was substantially outweighed by Fed. R. Evid. 403 considerations).

- United States v. Pulido, 69 F.3d 192, 205 (7th Cir. 1995) (citations omitted) (the trial court’s decision to exclude polygraph evidence was affirmed; “a trial court deciding whether to admit polygraph evidence ‘must engage in a delicate balancing of many factors including probative value, prejudicial effect, confusion of the issues, misleading the jury, and undue delay’”).

- United States v. Rincon, 28 F.3d 921, 926 (9th Cir. 1994), cert. denied, 115 S. Ct. 605 (1994) (though relevant, this expert testimony “would likely confuse or mislead” the jury).

- United States v. Shay, 57 F.3d 126, 131 (1st Cir. 1994) (at trial, the government objected to the evidence under both Fed. R. Evid. 403 and 702; the trial court held a hearing regarding the Fed. R. Evid. 702 objection, issued findings, and excluded the evidence; the appellate court found that the trial court had abused its discretion under Fed. R. Evid. 702 and the case had to be remanded as to Fed. R. Evid. 403 because, as to this objection, there had been no hearing and were no findings; the appellate court remanded, but retained jurisdiction to review the final court conclusions regarding Fed. R. Evid. 403).


- United States v. Sinclair, 74 F.3d 753 (7th Cir. 1996) (the potential for jury confusion may be substantial when expert evidence refers to legal issues at the heart of other litigation, for this can create a distracting trial within a trial; the trial court may exclude the evidence when the purpose for which it was offered can be accomplished through other means).

• *United States v. Thomas,* 74 F.3d 676 (6th Cir. 1996) (a court must exercise caution when using the same witness as an expert and a fact witness because there may be a significant risk that the jury will be confused by the witness’ dual role).

• *Williamson v. Reynolds,* 904 F. Supp. 1529, 1558 (E.D. Okla. 1995) (citations omitted) (forensic hair examination and comparison was found to be “‘extremely unfair’ and could ‘prejudice the defendant without any real probative value’”).

• *See Milone v. Camp,* 22 F.3d 693, 702 (7th Cir. 1994), *cert. denied,* 115 S. Ct. 720 (1995) (the *Daubert* test is an evidentiary test, not a constitutional test; the standard for showing a constitutional violation is not whether the testimony satisfied the *Daubert* test but whether the probative value of the state’s evidence was so greatly outweighed by its prejudice to the defendant that its admission denied the defendant a fundamentally fair trial).

**Scientific (or Other Relevant) Community:**

• *See also* Factors to be Considered at a *Daubert* Hearing; Specialized Knowledge, this digest.

• *Aluminum Phosphide Antitrust Litigation, In re,* 893 F. Supp. 1497, 1507 (D. Kan. 1995) (the expert’s methodology was fatally flawed because the expert failed to consider too much relevant information that experts in the field would normally consider).

• *Cavallo v. Star Enterprise,* 892 F. Supp. 756, 766-68 (E.D. Va. 1995) (this expert’s opinion was not supported by the scientific community).

• *Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert II),* 43 F.3d 1311, 1316 (9th Cir. 1995) (each proffered expert assured the court that he or she was relying on data reasonably relied on by experts in the field; an expert’s bold assurance to this effect is not enough; the party offering the evidence must show that the expert’s findings are based on sound science, which “require[s] some objective, independent validation of expert’s methodology”; that the expert’s testimony is “based directly on legitimate, preexisting research unrelated to the litigation provides the most persuasive basis for concluding that the opinions he expresses were ‘denied by the scientific method’”).


• *Henry v. Hess Oil Virgin Islands Corp.,* 163 F.R.D. 237 (D.V.I. 1995) (the data underlying the expert opinion was not the kind reasonably relied on by experts in the field; this defect in the basis for the expert’s opinion was a question for the trier of law and rendered the opinion inadmissible under *Fed. R. Evid.* 703).
Livingston v. Isuzu Motors, Ltd., 910 F. Supp. 1473 (D. Mont. 1995) (a computer-generated accident simulation was admissible because the expert "identified peers within his discipline who have worked with him and evaluated his work. He testified that he had presented his theories both in publications and lectures. Thus, the evidence satisfied the factor calling for general acceptance in the scientific community").

* Pestel v. Vermeer Manufacturing Co., 64 F.3d 382, 384 (8th Cir. 1995) (the plaintiff's expert's evidence was not generally accepted in the relevant community).

Summers v. Missouri Pacific Railroad System, 897 F. Supp. 533 (E.D. Okla. 1995) (the plaintiff's expert's evidence was not recognized by traditional professional societies, was rejected by one, was not accepted within the relevant community, was not supported by peer-reviewed scientific studies and literature, and was rejected by other federal courts).

* United States v. Dorsey, 45 F.3d 809, 815 (4th Cir. 1995), cert. denied, 115 S. Ct. 2631 (1995) (the evidence was inadmissible because it was not generally accepted in the relevant scientific community).

United States v. Martinez, 3 F.3d 1191, 1198-99 (8th Cir. 1993), cert. denied, 114 S. Ct. 734 (1994) (the DNA profiling testing protocols and procedures used in this case were generally accepted in the scientific community).

Williamson v. Reynolds, 904 F. Supp. 1529, 1557-58 (E.D. Okla. 1995) (there was no general acceptance of forensic hair examination in a relevant scientific community; "any general acceptance seems to be among hair-experts who are testifying for prosecution, not scientists who can objectively evaluate such evidence").

* Wilson v. City of Chicago, 6 F.3d 1233 (7th Cir. 1993), cert. denied, 114 S. Ct. 1844 (1994) (under Daubert, there need not be a recognized scientific community into which scientific evidence can be fit; whether there is or not, the court must make its own decision on reliability of the science).

Zuchowicz v. United States, 870 F. Supp. 15, 18 (D. Conn. 1994) (acceptance in the relevant scientific community is one factor to be considered under Daubert).

Scientific Knowledge:
See Specialized Knowledge, this digest.

Sentencing Hearing.

* United States v. McCaskey, 9 F.3d 368, 380 (5th Cir. 1993), cert. denied, 114 S. Ct. 1565 (1994) (Daubert does not apply; the court discusses the United States Sentencing Guidelines standard for use of expert evidence at the sentencing hearing).
• *United States v. Shonubi (Shonubi III),* 895 F. Supp. 460, 492 (E.D.N.Y. 1995) (there is a “strong federal policy favoring admissibility of, and reliance on, all helpful information . . . . A fortiori, this inclusive approach applies to sentencing proceedings, where exclusionary rules of evidence do not apply”).

**Specialized Knowledge:**

*See also Experience; Qualifications (or Lack Thereof) of the Witness; Scientific (or Other Relevant) Community; Weight Versus Admissibility, this digest.*


• *Bradley v. Brown,* 42 F.3d 434, 438-39 (7th Cir. 1994) (the “science” of Multiple Chemical Sensitivity etiology is hypothetical and not scientific knowledge).

• *Carroll v. Morgan,* 17 F.3d 787 (5th Cir. 1994), cert. denied, 26 F.3d 1117 (5th Cir. 1994) (admissibility is not a question of which expert has the most specialized knowledge, but a question of whether each proffered expert has enough specialized knowledge; beyond that threshold, any qualitative differences are for the jury).

• *Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert IT),* 43 F.3d 1311, 1316 (9th Cir. 1995) (“[T]hough we are largely untrained in science and certainly no match for any of the witnesses whose testimony we are reviewing, it is our responsibility to determine whether those experts’ proposed testimony amounts to ‘scientific knowledge,’ constitutes ‘good science,’ and was ‘derived by the scientific method’”).

• *Deimer v. Cincinnati Sub-Zero Products, Inc.,* 58 F.3d 341, 344-45 (7th Cir. 1995) (expert scientific testimony must pertain to “scientific” knowledge and must be subjected to the scientific method; the proffered scientific testimony was unsupported by appropriate validation, not derived by scientific method, and not shown to be scientific).

• *McCullock v. H.B. Fuller Co.,* 61 F.3d 1038, 1043-44 (2d Cir. 1995) (the specialized knowledge qualifying one as an expert witness and the scientific investigation on which an expert opinion will be based need not necessarily be within precisely the same concentration in the same branch of a scientific subspecialty as is most directly relevant to the case at hand).

• *Officer v. Teledyne Republic/Sprague,* 870 F. Supp. 408, 410 (D. Mass. 1994) (*Daubert’s* principles have valuable application to the
admissibility of controversial and novel scientific evidence, but less use in technical "fields like design engineering where "general acceptance" is the norm, not the exception.

- *Porter v. Whitehall Laboratories, Inc.*, 9 F.3d 607, 614 (7th Cir. 1993) (a "kind of a curb side opinion" that is not an "analytical, scientific opinion" is not specialized knowledge).

- *Reedy v. White Consolidated Industries, Inc.*, 890 F. Supp. 1417 (N.D. Iowa 1995) (the claims adjusting procedure is something about which an average juror is unlikely to have sufficient knowledge or experience to form an opinion without expert guidance; this claims adjuster has sufficient practical experience to offer an expert opinion regarding claims procedures).

- *Textron Inc. ex rel. Homelite Division v. Barber-Colman Co.*, 903 F. Supp. 1546 (W.D.N.C. 1995) (passing FED. R. EVID. 702 does not give the witness an unlimited license to opine; the testimony must relate to the specialized knowledge that makes the witness an expert).

- *TRW Title Insurance Co. v. Security Union Title Insurance Co.*, 890 F. Supp. 756, 759 (N.D. Ill. 1995) (an auditor with no expertise regarding the legal impact of actions was not qualified to give such an opinion).

- *United States v. Alzanki*, 54 F.3d 994, 1005 (1st Cir. 1995), cert. denied, 116 S. Ct. 909 (1996) (the defendants objected to the testimony of a "victimologist" on the grounds that her "qualifications related only to sexual abuse victimology, not the behavioral responses of domestic workers subjected to involuntary servitude"; the defendants' argument focused only on FED. R. EVID. 702's "specialized knowledge" requirement, whereas the real test there is whether the "specialized knowledge" the witness does possess "will assist the trier of fact").


- *Ventura v. Titan Sports, Inc.*, 65 F.3d 725, 733-34 (8th Cir. 1995), cert. denied, No. 95-1192, 1996 WL 38089 (1996) (the question is not which expert has the most specialized knowledge of the particular parties in the case at hand, but whether each expert has enough relevant specialized knowledge).

- *Williamson v. Reynolds*, 904 F. Supp. 1529, 1557-58 (E.D. Okla. 1995) (this forensic hair examination and comparison was too speculative to be scientific knowledge).

- *Wilson v. City of Chicago*, 6 F.3d 1233, 1238-39 (7th Cir. 1993), cert. denied, 114 S. Ct. 1844 (1994) (a pathologist was not qualified to testify about his avocation, torture).
SPECIAL MASTERS:
See also Judges Securing Their Own Experts, this digest.

SPECULATION:
See also Helpfulness; Qualifications (or Lack Thereof) of the Witness; Relevance; Rule 403, this digest.

- Aluminum Phosphide Antitrust Litigation, In re, 893 F. Supp. 1497, 1507 (D. Kan. 1995) (the expert's methodology was fatally flawed; the key assumption was an arbitrary assumption not based on evidence or science).
- Bottomly v. Leucadia National, 163 F.R.D. 617, 621 (D. Utah 1995) (the expert's opinion that discovery of privileged material "might" turn up something relevant and necessary to the defense was not enough to break the privilege).
- Bradley v. Brown, 42 F.3d 434, 438-39 (7th Cir. 1994) (the "science" of Multiple Chemical Sensitivity etiology is hypothetical and not scientific knowledge).
- Deimer v. Cincinnati Sub-Zero Products, Inc., 58 F.3d 341, 344-45 (7th Cir. 1995) (expert opinion that is unsupported speculation will not be admitted).
- Goomar v. Centennial Life Insurance Co., 855 F. Supp. 319, 326 (S.D. Cal. 1994) (the court rejects "unsupported speculation;" "[r]etrospective expert testimony regarding the existence or onset of a mental illness is inadmissible speculation").
- Henry v. Hess Oil Virgin Islands Corp., 163 F.R.D. 237, 245-48 (D.V.I. 1995) (the proffered expert's opinion on the plaintiff's lost future earnings, based on another expert's assessment of the plaintiff's lost earning capacity, was rejected because the underlying expert's assessment was overly speculative, methodologically unreliable, and consisted of unsubstantiated conclusions).
- O'Conner v. Commonwealth Edison Co., 13 F.3d 1090, 1106 (7th Cir. 1994), cert. denied, 114 S. Ct. 2711 (1994) (the court must rule out subjective belief or unsupported speculation).
- Porter v. Whitehall Laboratories, Inc., 9 F.3d 607, 612-16 (7th Cir. 1993) (one of the plaintiff's experts offered a "curbside opinion," stating that a scientific opinion would take more work; another could not state his causation opinion to a reasonable degree of medical certainty; a third could not rule out other causes; and a fourth had to speculate regarding key factual elements; the court found the testimony of all four inadmissible).
- Textron Inc. ex rel. Homelite Division v. Barber-Colman Co., 903 F. Supp. 1546, (W.D.N.C. 1995) (an expert's opinion will be excluded when based on speculative assumptions not supported by the record; summary judgment is appropriate when the expert's opinion suggests a possibility as opposed to a probability).
• TMI Litigation Cases Consolidated II, In re, 911 F. Supp. 775 (M.D. Pa. 1996) (the expert’s “testimony consists of broad generalizations and suppositions regarding what might have happened during the accident. While such generalizations could provide a valid starting point for a detailed analysis, [his] opinions never move beyond this starting point”).

• Vadala v. Teledyne Industries, Inc., 44 F.3d 36, 38-40 (1st Cir. 1995) (the expert had the science and information about the aftermath of the crash, but had no way to connect the two).

• Wheat v. Pfizer, Inc., 31 F.3d 340, 343 (5th Cir. 1994) (the testimony was not scientific and was not of assistance when the witness said the agent “may have caused” the condition).

STANDARD OF REVIEW ON APPEAL:

• Benedi v. McNeil-P.P.C., Inc., 66 F.3d 1378, 1384 (4th Cir. 1995) (“Daubert clearly vests the district courts with discretion to determine the admissibility of expert testimony”).

• Bistrian, In re, 184 B.R. 678, 684 (E.D. Pa. 1995) (determining that, in an appeal of the bankruptcy court’s refusal to allow the debtor’s witness to testify as expert, review is de novo).

• Bradley v. Brown, 42 F.3d 434, 436-37 (7th Cir. 1994) (there will be “a de novo review of whether the district court properly followed the framework set forth in Daubert . . .” and if it did, then the appellate court “will not disturb the district court’s findings unless they are ‘manifestly erroneous’”).

• Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert II), 43 F.3d 1311, 1315 (9th Cir. 1995) (the standard is a “deferential abuse of discretion standard”).

• Deimer v. Cincinnati Sub-Zero Products, Inc., 58 F.3d 341, 344 (7th Cir. 1995) (noting that the trial court has “broad discretion” and will be affirmed “on appeal unless manifestly erroneous”) (internal quotation marks omitted).

• Frymire-Brinati v. KPMG Peat Marwick, 2 F.3d 183 (7th Cir. 1993) (though trial judges have a great deal of discretion over expert testimony, they do not have the discretion to ignore Daubert).

• Fusco v. General Motors Corp., 11 F.3d 259, 246 (1st Cir. 1993) (the trial judge has great discretion regarding the reliability requirement for expert re-creations or demonstrations).

• Gruca v. Alpha Therapeutic Corp., 51 F.3d 638, 642-43 (7th Cir. 1995) (where Daubert applies, Daubert testing is mandatory and the expert evidence cannot be let in without it).

• Government of the Virgin Islands v. Sanes, 57 F.3d 338, 341 (3d Cir. 1995) (citations omitted) (“Whether to allow scientific or technical expert testimony . . . is within the discretion of the district court and is reviewed only for abuse”).
Hose v. Chicago Northwestern Transportation Co., 70 F.3d 968, 972-73 (8th Cir. 1995) (citations omitted) (“We review a trial court's decision on the admissibility of expert medical evidence for a clear abuse of discretion. If the party opposing the evidence does not properly object, however, we review for plain error. Finally, we will not reverse a jury verdict if an erroneous admission of expert testimony is harmless”).

McCullock ex rel. Ludwig v. H.B. Fuller Co., 61 F.3d 1038, 1042 (2d Cir. 1995) (“The decision to admit expert testimony is left to the broad discretion of the trial judge and will be overturned only when manifestly erroneous”).

McKnight ex rel. Ludwig v. Johnson Controls, Inc., 36 F.3d 1396 (8th Cir. 1994) (the admissibility of evidence of experimental tests is within the trial judge's discretion and will not be overturned on appeal “absent a clear showing of an abuse of discretion”).

Paoli Railroad Yard PCB Litigation, In re, 35 F.3d 717, 749-50 (3d Cir. 1994), cert. denied, 115 S. Ct. 1253 (1995) (abuse of discretion review includes “a hard look at review of the district court's exercise of discretion” but does not require assessing truthfulness of the witness and thus is no more difficult on a cold record).

Pestel v. Vermeer Manufacturing Co., 64 F.3d 382, 385 (8th Cir. 1995) (the standard is an abuse of discretion standard).

Rosado v. Deters, 5 F.3d 119 (5th Cir. 1993) (the trial court has discretion regarding whether a witness is qualified to testify as an expert).

Thomas v. Newton International Enterprises, 42 F.3d 1266, 1269 (9th Cir. 1994) (the witness was qualified to state an expert opinion and that the trial court's contrary ruling was an abuse of discretion).

United States v. Alzanki, 54 F.3d 994, 1005 (1st Cir. 1995), cert. denied, 116 S. Ct. 909 (1996) (“We review challenges to expert-witness qualifications only for manifest abuse of discretion”).


United States v. Hughes, 15 F.3d 798, 800 (8th Cir. 1994) (the decision “to permit expert testimony is within the sound discretion of the trial court and will not be reversed absent an abuse of discretion”).

• *United States v. Jones*, 24 F.3d 1177, 1180 (9th Cir. 1994) (the trial court did not abuse its discretion when it allowed a witness to give only a lay opinion, not expert testimony).

• *United States v. Pulido*, 69 F.3d 192, 205 (7th Cir. 1995) (exclusion of polygraph examination evidence was not an abuse of discretion).

• *United States v. Quinn*, 18 F.3d 1461, 1465 (9th Cir. 1994), *cert. denied*, 114 S. Ct. 2755 (1994) ("We cannot conclude that the court abused the discretion trial courts must exercise in choosing the best manner in which to determine whether scientific evidence will assist a jury").

• *United States v. Rincon*, 28 F.3d 921, 923 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 605 (1994) (reviewed for an abuse of discretion, the trial court’s refusal to allow an expert to testify was affirmed even though the testimony might have been informative).

• *United States v. Sinclair*, 74 F.3d 753 (7th Cir. 1996) (rulings on admissibility of expert testimony are entitled to the same deference as evidentiary rulings generally; an abuse of discretion exists only when no reasonable person could agree with the court’s ruling).

• *United States v. Thomas*, 74 F.3d 676 (6th Cir. 1996) (the standard of review may involve as many as three separate standards of review: preliminary factfinding under Rule 104(a) is reviewed for clear error; whether proffered expert opinion is properly the subject of “scientific, technical, or other specialized knowledge” is reviewed de novo; and whether proffered expert opinion will assist the trier of fact to understand evidence or to determine facts in issue and whether the probative value is substantially outweighed by the danger of unfair prejudice is reviewed for abuse of discretion).

• *United States v. Van Dyke*, 14 F.3d 415, 422 (8th Cir. 1994) (the trial court decision to exclude expert testimony is accorded broad discretion and would be upheld on appeal unless manifestly erroneous).

• *United States v. Velasquez*, 64 F.3d 844, 848 (3d Cir. 1995) (the admissibility of expert evidence is reviewed for abuse of discretion, except that “to the extent the district court’s ruling turns on an interpretation of a Federal Rule of Evidence our review is plenary”").

• See *United States v. Bonds*, 12 F.3d 540, 553 (6th Cir. 1993) (“The key is whether the testimony met the requirements of Federal Rule of Evidence 702 at the time of the district court’s admissibility determination, not whether subsequent events provide evidence that contradicts or calls into question the district court’s view at the time of its admissibility ruling”).
SUMMARY JUDGMENT:
See also Hearings — Rule 104 Daubert Hearings, this digest.
In addition to the following cases, see William W Schwarzer, Federal Judicial Center, Reference Manual on Scientific Evidence, Management of Expert Evidence 30 (1994).

- **Daubert v. Merrell Dow Pharmaceuticals, Inc.**, 113 S. Ct. 2786, 2798 (1993) (citations omitted) ("[I]n the event the trial court concludes that the scintilla of evidence presented supporting a position is insufficient to allow a reasonable juror to conclude that the position more likely than not is true, the court remains free to direct a judgment and likewise to grant summary judgment").

- **Case v. Unified School District No. 233**, 895 F. Supp. 1463, 1472 (D. Kan. 1995) (the court denied a motion for summary judgment and found that, at this trial to the court, it was better to have the Daubert hearing during the trial, rather than at the pretrial).

- **Cavallo v. Star Enterprise**, 892 F. Supp. 756 (E.D. Va. 1995) (the plaintiff's expert testimony regarding causation was excluded and the plaintiff's motion for summary judgment was granted).

- **Claar v. Burlington Northern Railroad Co.**, 29 F.3d 499 (9th Cir. 1993) (granting summary judgment to the defendant after the plaintiffs had two opportunities to submit affidavits describing their exposure to the alleged agent of injury, their doctor's opinions as to causation, and the basis for those opinions).

- **Conde v. Velsicol Chemical Corp.**, 24 F.3d 809 (6th Cir. 1994) (expert testimony may be admissible under Daubert and still insufficient to allow a reasonable juror to conclude the position taken is more likely than not true; in that case, a verdict may be directed or summary judgment granted even over expert testimony in evidence).

- **Dana Corp. v. American Standard, Inc.**, 866 F. Supp. 1481, 1498 (N.D. Ind. 1994) (on motion for summary judgment, "facts and opinions stated in an expert's affidavit may be considered only if they would be admissible under the Federal Rules of Evidence").

- **Daubert v. Merrell Dow Pharmaceuticals, Inc. (Daubert II)**, 43 F.3d 1311, 1316 (9th Cir. 1995) (granting summary judgment on remand from the United States Supreme Court).

- **Deimer v. Cincinnati Sub-Zero Products, Inc.**, 58 F.3d 341, 343-45 (7th Cir. 1995) (summary judgment was affirmed where defective-design witness' testimony was excluded because the testimony was not scientific and the proffered witness did not have the requisite experience to assess the product's suitability for its intended purpose within a hospital environment).
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- **Diaz v. Johnson Matthey, Inc.,** 893 F. Supp. 358, 377-78 (D.N.J. 1995) (after the plaintiff’s expert was excluded, the plaintiff could not prove causation and summary judgment was granted).

- **Gier v. Educational Serv. Unit No. 16,** 845 F. Supp. 1342 (D.Neb. 1994), aff’d, 66 F.3d 940 (8th Cir. 1995) (the court held much of the plaintiffs’ expert testimony inadmissible and, then, finding the plaintiffs unable to meet the burden of proof without that evidence, granted summary judgment to the defendant).

- **Joint Eastern and Southern District Asbestos Litigation, In re,** 827 F. Supp. 1014, 1038 (S.D. N.Y. 1993), rev’d, 52 F.3d 1124 (2d Cir. 1995) (when epidemiological evidence fails to satisfy any one of the discussed “sufficiency criteria,” it will not withstand a motion for summary judgment).

- **Pomella v. Regency Coach Lines, Ltd.,** 899 F. Supp. 335 (E.D. Mich. 1995) (the court prohibited the witness from testifying because of an insufficient fit between the expert evidence and the facts of the case at hand; without the witnesses’ testimony there was no evidence of causation, and a motion for summary judgment was granted).

- **Stover v. Eagle Products, Inc.,** 896 F. Supp. 1085, 1092 (D. Kan. 1995) (the defendant moved for summary judgment; the court denied the defendant’s motion but allowed the defendant an opportunity to reopen discovery in order to take a second deposition of the plaintiff’s expert, and then refile for summary judgment).

- **Textron Inc. ex rel. Homelite Division v. Barber-Colman Co.,** 903 F. Supp. 1546, 1556 (summary judgment is appropriate where expert opinion suggests a possibility as opposed to a probability).

**TIMING OF Daubert Hearing:**

*See also Case Management; Jury — Daubert Hearing Held in Front of Jury; Motion in Limine; Summary Judgment; Voir Dire of Witnesses Qualifications, this digest.*

- **Case v. Unified School District No. 233,** 895 F. Supp. 1463, 1472 (D. Kan. 1995) (partly because there was no jury, it made no difference whether the Daubert hearing was pretrial or during trial).

- **Hose v. Chicago Northwestern Transportation Co.,** 70 F.3d 968, 973 n.3 (8th Cir. 1995) (“Challenges to the scientific reliability of expert testimony should ordinarily be addressed prior to trial. . . . An early evidentiary challenge allows the trial judge to exercise properly the ‘gatekeeping role’ regarding expert testimony envisioned under Daubert”).

- **Robinson v. Missouri Pacific Railroad Co.,** 16 F.3d 1083 (10th Cir. 1994) (“[W]e suggest that as ‘gatekeeper’ the district court carefully and meticulously make an *early pretrial* evaluation of issues of admissibility” (emphasis added)).
• *TMI Litigation Cases Consolidated II, In re, 911 F. Supp 775 (M.D. Pa. 1996) (citations omitted) ("[W]e suggest that as "gatekeeper" the district court carefully and meticulously make an early pretrial evaluation of issues of admissibility, particularly of scientific expert opinions in films or animations illustrative of such opinions").

• *United States v. Sepulveda, 15 F.3d 1161, 1182-83 (1st Cir. 1993), cert. denied, 114 S. Ct. 2714 (1994) (voir dire can be a useful, perhaps even necessary, way for opposing counsel to test the qualifications of a putative expert).

• *See also Bottomly v. Leucadia National, 163 F.R.D. 617 (D. Utah 1995) (at a pretrial hearing on the defendants' request for discovery of privileged material, the court accepted the defendants' expert's testimony regarding what material the plaintiff's expert might reasonably rely on in testifying, and what material the defendants' experts would need to be able to form their own opinions).

• *See United States v. Bonds, 12 F.3d 540, 551-53 (6th Cir. 1993) (refusing to take judicial notice of a scientific paper stating that "the key is whether the testimony met the requirements of Federal Rule of Evidence 702 at the time of the district court's admissibility determination, not whether subsequent events provide evidence that contradicts or calls into question the district court's view at the time of its admissibility ruling").

TREATING PHYSICIAN:

See also Qualifications, this digest.

• Benedi v. McNeil-P.P.C., Inc., 66 F.3d 1378, 1384 (4th Cir. 1995) (determining that a methodology good enough for the day-in, day-out practice of a diagnosing physician is good enough for the federal courts).

• Cantrell v. GAF Corp., 999 F.2d 1007, 1014 (6th Cir. 1993) (qualifying an expert based on expertise gained in part through clinical experience, including examining 150 workers from the defendant's plant).

• O'Connor v. Commonwealth Edison Co., 13 F.3d 1090, 1106-07 (7th Cir. 1994), cert. denied, 114 S. Ct. 2711 (1994) (applying *Daubert* to the testimony of a treating physician when the treating physician testifies as expert).

VOIR DIRE OF THE WITNESS' QUALIFICATIONS:

See also Timing of *Daubert* Hearing, this digest.

• *United States v. Sepulveda, 15 F.3d 1161, 1182-83 (1st Cir. 1993), cert. denied, 114 S. Ct. 2714 (1994) (voir dire can be a useful, perhaps even necessary, way for opposing counsel to test the qualifications of a putative expert).
WEIGHT VERSUS ADMISSIBILITY:

See also Jury — Questions for the Jury, Versus Questions for the Judge, this digest.

- *Becker v. National Health Products, Inc.*, 896 F. Supp. 100, 103 (N.D.N.Y. 1995) (the fact that these experts' theories were not subject to peer review, publication, or general acceptance goes to weight, not admissibility).

- *Cantrell v. GAF Corp.*, 999 F.2d 1007, 1013-14 (6th Cir. 1993) (the argument that the evidence does not prove the contested fact goes to weight, not admissibility).

- *Carroll v. Morgan*, 17 F.3d 787, 790 (5th Cir. 1994), reh'g denied, 26 F.3d 1117 (5th Cir. 1994) (qualitative differences between experts is a matter of credibility for the jury, not admissibility for the judge).

- *Claar v. Burlington Northern Railroad Co.*, 29 F.3d 499, 501 (9th Cir. 1994) (the admissibility decision for the trial court focuses on the expert's methods and reasoning; the credibility decision for the jury focuses on the expert's underlying conclusions).

- *Glaser v. Thompson Medical Co., Inc.*, 32 F.3d 969, 975 (6th Cir. 1994) (if other experts disagree, it does not invalidate the witness' opinion, but creates material issues of fact for the jury).

- *Henry v. Hess Oil Virgin Islands Corp.*, 163 F.R.D. 237, 245-47 (D.V.I. 1995) (this expert's opinion was based on data not reasonably relied on by experts in the field; this defect in the basis for opinion was a question for the trier of law and rendered the opinion inadmissible under Rules 702 and 703).

- *Hose v. Chicago Northwestern Transportation Co.*, 70 F.3d 968, 976 (8th Cir. 1995) ("[I]t is common that medical experts . . . disagree on diagnosis and causation[;] questions of conflicting evidence must be left for the jury's determination.").

- *Joint Eastern and Southern District Asbestos Litigation, In re*, 827 F. Supp. 1014, 1030-36 (E.D.N.Y. 1993), rev'd, 52 F.3d 1124 (2d Cir. 1995) (pre-Daubert, early years — once an expert's credentials were established, courts were reluctant to evaluate the expert's testimony and left it to the jury; pre-Daubert, later years — courts' fidelity to the traditional standard of deference cracked in the face of huge cases and huge jury awards based on doubtful or nonexistent scientific evidence, and the standard of deference was replaced with the threshold of causation designed to eliminate perceived abuse of expert testimony; and post-Daubert — Daubert requires the judge to make his own assessment of whether the methodology underlying the expert's opinion is fundamentally sound, which still leaves the evaluation of the weight of evidence to the jury).
McCullock v. H.B. Fuller Co., 61 F.3d 1038, 1045 (2d Cir. 1995) (if the background offered to qualify one as an expert is not precisely within the same concentration in a branch of a subspecialty of a science, this may well go to the weight, not admissibility; "Trial judges must exercise sound discretion as gatekeepers of expert testimony under Daubert. [The defendant,] however, would elevate them to the role of St. Peter at the gates of heaven, performing a searching inquiry into the depth of an expert witness's soul — separating the saved from the damned. Such an inquiry would inexorably lead to evaluating witness credibility and weight of the evidence, the ageless role of the jury.").

Norton v. Caremark, Inc., 20 F.3d 330, 340 (8th Cir. 1994) (as general rule, the question of the validity of factual assumptions underlying an expert's opinion is a question of fact (credibility and weight), not a question of law (admissibility)).

Paoli Railroad Yard PCB Litigation, In re, 35 F.3d 717, 741-50 (3d Cir. 1994), cert. denied, 115 S. Ct. 1253 (1995) (FED. R. EVID. 702's requirement that the witness be an expert is a liberal one; if the witness meets liberal minimum qualifications, the level of expertise goes to credibility and weight, not admissibility).

Reedy v. White Consolidated Industries, Inc., 890 F. Supp. 1417, 1448 (N.D. Iowa 1995) (the proffered experts were ruled competent to testify and the motion to strike their testimony was denied; the party challenging the witnesses "is, of course, entitled to pursue further challenges to these experts' skill or knowledge in order to attack the weight to be accorded their expert testimony").


TMI Litigation Cases Consolidated II, In re, 911 F. Supp. 775 (M.D. Pa. 1996) ("The court finds that the technique-utilized [sic] by [the expert] is generally accepted, and that the issue of whether it is the preferred technique goes to weight rather than admissibility").

United States v. Bonds, 12 F.3d 540, 562 (6th Cir. 1993) (that there may be a better test does not render inadmissible the one offered in evidence).

United States v. Chischilly, 30 F.3d 1144, 1152-58 (9th Cir. 1994), cert. denied, 115 S. Ct. 946 (1995) (faulty methodology or theory raises an admissibility question for the judge; imperfect execution of laboratory techniques where the theoretical foundation passes muster under Daubert raises a weight of the evidence question for the jury; the impact of methodologically sound but imperfectly con-
ducted laboratory procedures might more properly go to weight, not admissibility).

- *United States v. Shay*, 57 F.3d 126, 131 (1st Cir. 1995) (the jury decides whether testimony is believable and an expert opinion that the “witness is lying or telling the truth is ordinarily inadmissible”; there is, however, no rule requiring “automatic exclusion of expert testimony simply because it concerns a credibility question;” whether the witness is telling truth is a weight problem, whereas whether the witness has a truthful character starts as an admissibility problem).

- *United States v. Velasquez*, 64 F.3d 844, 848 (3d Cir. 1995) (the same considerations that inform the court’s decision to admit a particular methodology may also influence the factfinder’s decision as to what weight the evidence should receive; the trial court refused to admit testimony that criticized the lack of standards in the field of handwriting analysis because the trial court had already determined that the methodology was sufficiently reliable to allow the handwriting analysis testimony to be received into evidence; that ruling, state the appellate court, confuses admissibility and weight — just because the methodology is sufficiently reliable to be allowed in does not foreclose challenging the weight the jury should give to the methodology).


- *Zuchowicz v. United States*, 870 F. Supp. 15, 18 (D. Conn. 1994) (whether an expert’s testimony’s underlying reasoning or methodology is scientifically valid and can be properly applied to the facts in issue is a flexible inquiry that focuses on principles and methodology rather than on the conclusion generated).

- *See Bammerlin v. Navistar International Transportation Corp.*, 30 F.3d 898 (7th Cir. 1994) (determining that the meaning of federal law, including federal administrative standards, is a question of law for the court, not a question of fact for the jury assisted by expert testimony).

- *But see, Pestel v. Vermeer Manufacturing Co.*, 1995 WL 500333 (8th Cir. 1995) (here, the court may have confused weight with admissibility).