

Daubert v. Merrell Dow: Who Won?

BY HASKELL SHELTON

On June 28, 1993, the United States Supreme Court rendered its long-awaited decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S.Ct. 2786 (1993). As soon as the Court's opinion was released, both plaintiff's and defendant's counsel argued vigorously to the media that the case represented a victory for their respective positions.

By any reasonable standard, the decision was a victory for plaintiffs. Before *Daubert*, appellate courts had turned sharply against those who sought to use poorly supported expert witness testimony. Many trial judges showed an increasing willingness to question both the underlying basis of an expert's opinion, as well as his or her reasoning. After the decision, almost every issue in connection with admissibility of expert witness testimony is once again in doubt. The only judicial basis for excluding unfounded expert opinion is the Supreme Court's admonition for trial courts to consider the "relevance and reliability" of opinion evidence in a "liberal" fashion, as required by the Federal Rules of Evidence.

In *Daubert*, two minor children and their parents sued Merrell Dow, alleging serious birth defects caused by the mother's prenatal use of Bendectin, a drug sold by Merrell Dow to control morning sickness. Hundreds of lawsuits were initiated against the pharmaceutical company alleging that Bendectin was responsible for a wide variety of birth defects. The overwhelming majority of these cases either were dismissed after motions for summary judgment, or resulted in defense verdicts after jury trial, or after trial upon a defense motion for entry of judgment n.o.v.

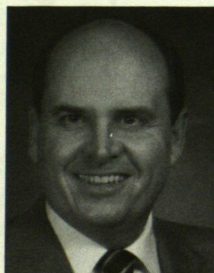
One key issue in the Bendectin litigation was the role, if any, judges in the federal system were to play in evaluating the underlying basis of an expert's opinion before allowing such opinions to be consid-

ered by a jury. Should there be some standard for ensuring reliability which would encompass all expert testimony? Did such a comprehensive standard exist under the Federal Rules of Evidence? If not, would such a standard be formulated? The Supreme Court in *Daubert* struck down the existing standard — and then firmly declined to substitute any definitive test to ensure reliability.

THE "GENERAL ACCEPTANCE" STANDARD

Before *Daubert*, plaintiffs' attorneys earnestly argued that the underlying basis of an expert's opinion "went to its weight, and not its admissibility." They argued that *all* opinions of qualified experts should be admitted under Rule 402 of the Federal Rules of Evidence, which provides that "all relevant evidence is admissible, except as otherwise provided . . ." Defense counsel, with equal vigor, argued that the basis of opinion evidence must be "generally accepted" by the scientific community, in accordance with the well-established rule of *Frye v. United States*, 293 Fed. 1013, 1014 (D.C.Cir. 1923). The defense argued that Rule 702, along with Rule 104(a), required the court to play a significant role in evaluating expert testimony.

The continuing validity of the *Frye* rule has long



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been an issue in cases involving admissibility of expert testimony, including the Bendectin litigation. In *Frye*, the court had formulated the rule that expert opinion based on a novel scientific principle or discovery is inadmissible unless it is sufficiently established to have gained "general acceptance in the particular field in which it belongs." The general acceptance standard had been the dominant test for admissibility of novel scientific evidence in the federal system, and in most state courts, since its inception in 1923.

Frye involved the admissibility of evidence from a systolic blood pressure deception test, an early type of polygraph. In evaluating the admissibility of opinion testimony based on this test, the Court of Appeals for the District of Columbia, in a now often-quoted passage, observed (293 Fed. at 1014):

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

Because the systolic test in *Frye* had "not yet gained such standing and scientific recognition" among the appropriate authorities to justify courts in admitting such testimony, opinion evidence flowing from its results was ruled inadmissible. The merits of the *Frye* test have been the subject of continuing debate, with plaintiffs contending that *Frye* was superseded by the Federal Rules of Evidence which were adopted in 1975, because the Rules contain no mention of a "general acceptance" standard for admissibility of scientific evidence.

In spite of strong objections by plaintiffs, federal appellate courts, until *Daubert*, continued to expand the role of trial judges in evaluating expert testimony using the general acceptance standard. Federal appellate decisions became increasingly harsh in their criticism of "junk science" in the courtroom, and even began routinely granting motions for summary judgment or judgments n.o.v. when it deemed expert opinion testimony to be groundless.

A major defeat for plaintiffs in the string of deci-

sions on Bendectin was the decision in *Richardson v. Richardson-Merrell, Inc.*, 857 F.2d 823 (D.C.Cir. 1988). The court adamantly refused to passively permit groundless scientific evidence to reach the jury without a threshold review. It stated (*id.* at 829):

The question whether Bendectin causes limb reduction defects is scientific in nature, and it is to the scientific community that the law must look for the answer. For this reason, expert witnesses are indispensable in a case such as this. But that is not to say that the court's hands are inexorably tied, or that it must accept uncritically any sort of opinion espoused by an expert merely because his credentials render him qualified to testify. The District Court ruled that Dr. Done's opinion lacked "a genuine basis, 'in or out of the record'" and that his "theoretical speculations" could not sustain the Richardsons' burden of proving causation. Whether an expert's opinion has an adequate basis, and whether without it an evidentiary burden has been met, are matters of law for the court to decide. (emphasis added)

After *Richardson*, numerous appellate courts excluded expert testimony when in their opinion the underlying basis or reasoning for such an opinion was deemed to be insufficient. The emphasis of the courts' opinions in these cases was on the danger posed by untrammelled admission of ill-founded expert testimony. Such opinions frequently elicited the court's skepticism where novel expert opinion was involved. For example, in *Viterbo v. Dow Chemical Co.*, 826 F.2d 420, 421 (5th Cir. 1987), a case involving alleged injury from the pesticide Tordon 10K, the court stated in a now

often-quoted passage:

In this case today we consider the question whether it is so if an expert says it is so. Although the plaintiff's expert here said it was so, the district court excluded the expert's opinion and granted summary judgment in favor of the defendant . . . We uphold the District Court because the plaintiff's expert brought to court little more than his credentials and a subjective opinion.

Courts have heard strong arguments by plaintiffs that the general acceptance standard should be abandoned, and a few decisions supported their contentions. See, e.g., *United States v. Williams*, 583 F.2d 1194 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979), where the court held that *Frye* is superseded by the Federal Rules of Evidence. Yet, as recently as 1991 a federal appeals court held that *Frye* and the Federal Rules of

By any reasonable standard, the decision was a victory for plaintiffs.

Evidence can co-exist. *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106 (5th Cir. 1991), cert. denied, 112 S.Ct. 1280 (1992).

DAUBERT: TRIAL COURT'S RESPONSIBILITIES

While many unanswered questions remain after the *Daubert* decision, certain basic issues are put to rest. The first concerns the role of the court in acting as a "gatekeeper" with regard to admissibility of expert testimony. Justice Blackmun, delivering the opinion for a unanimous Court, left no doubt that trial judges have a role in screening expert testimony (113 S.Ct. at 2795):

The primary locus of this obligation is Rule 702, which clearly contemplates some degree of regulation of the subjects and theories about which an expert may testify. "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue" an expert "may testify thereto." The subject of an expert's testimony must be "scientific . . . knowledge." The adjective "scientific" implies a grounding in the methods and procedures of science. Similarly, the word "knowledge" connotes more than subjective belief or unsupported speculation.

The Court's opinion in *Daubert* criticizes Chief Justice Rehnquist who, in a separate opinion, recognized a gatekeeping responsibility for the trial judge, but then did not say how Rule 702 accomplishes this, nor explain what the role entails. Interestingly, after this criticism, the Court's opinion similarly fails to supply any significant assistance to the trial court beyond the broadest guidelines, and supplies no threshold minimum to ensure scientific reliability. In this regard, the Court merely states (*id.* at 2795):

Rule 702 further requires that the evidence or testimony "assist the trier of fact to understand the evidence or to determine a fact in issue." This condition goes primarily to relevance. "Expert testimony which does not relate to any issue in the case is not relevant, and ergo, non-helpful." 3 Weinstein & Berger ¶702[02], p. 702-18. See also *United States v. Downing*, 753 F.2d 1224, 1242 (CA3 1985) ("An additional consideration under Rule 702 — and another aspect of relevancy — is whether expert testimony proffered in the case is sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute"). The consideration has been amply described by Judge Becker as one of "fit." *Ibid.* "Fit" is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.

The Court continues, in explaining the concept of "fit":

The study of the phases of the moon, for example, may provide valid scientific "knowledge" about whether a certain night was dark, and if darkness is a fact in issue, the knowledge will assist the trier of fact.

However (absent creditable grounds supporting such a link), evidence that the moon was full on a certain night will not assist the trier of fact in determining whether an individual was unusually likely to have behaved irrationally on that night. Rule 702's "helpfulness" standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.

Other than the concept of "fit," the Supreme Court offers no guidance to trial courts except an observation that, unlike an ordinary witness, an expert witness is permitted "wide latitude" to offer opinions, including those not based on first-hand knowledge or observation. The Court then also observed that *presumably* this relaxation "is premised on an assumption that the expert's opinion will have a reliable basis in the knowledge and experience of his discipline." *Id.* at 2796.

The Supreme Court apparently debunks its own assumption, because it goes about instructing the trial courts what they must determine at the outset, pursuant to Federal Rules of Evidence 104(a). Such a determination will entail:

- (1) whether the expert is proposing to testify to scientific knowledge; and
- (2) whether such testimony will assist the trier of fact to understand or determine a fact in issue.

In making such a determination, trial courts are specifically instructed (*id.*):

This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue. We are confident that federal judges possess the capacity to undertake this review. Many factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test. But some general observations are appropriate.

DAUBERT: "GENERAL OBSERVATIONS"

After setting forth the responsibilities of trial judges in determining the admissibility of scientific evidence, the *Daubert* Court then offered a list of "general observations" for making preliminary assessments of such proffered evidence. The observations include determinations as to: whether the theory or technique is scientific knowledge that will assist the trier of fact; whether it can and has been tested; whether it has been subjected to peer review and publication; and the known or potential rate of error. Finally, the Court noted that "general acceptance" can still be considered by a trial court. It

can yet have a bearing on the inquiry. A "reliability assessment does not require, although it does permit, explicit identification of a relevant scientific community and an express determination of a particular

degree of acceptance within that community." . . . Widespread acceptance can be an important factor in ruling particular evidence admissible, and "a known technique that has been able to attract only minimal support within the community," . . . may properly be viewed with skepticism.

In one cryptic note, the Court cautions trial courts not to accept its observations on evaluation of scientific testimony as rigid dogma (*id.* at 2797):

The inquiry envisioned by Rule 702 is, we emphasize, a flexible one. Its overarching subject is the scientific validity — and thus the evidentiary relevance and reliability — of the principles that underlie a proposed submission. The focus, of course, must be solely on the principles and methodology, not on the conclusions that they generate.

It is this last paragraph which will inevitably lead to the most discussion and argument concerning what the Court meant as to the "focus." Presumably, by using the words "principles" and "methodology," it really meant that "underlying scientific information and reasoning" is to be at the center of any evaluation of an expert's opinion. If an expert witness does not have sufficient data to support his or her opinion, the opinion is necessarily flawed. The requirement of a basis, or sufficient underlying data, is entirely apart from the reasoning which the expert uses in reaching his conclusions.

Could the Supreme Court, by any stretch of the imagination, be instructing trial courts that an expert's reasoning and logic is not subject to review by the court? In their opinion, the Justices clearly state an expert's reasoning may be questioned, but what was meant by the admonition that expert's conclusions are not to be the focus of court inquiry? In logic, flawed reasoning may be expressed by stating "your conclusion doesn't follow from your premises." This deficiency is the most frequent flaw in expert witness testimony.

Most typically, courtroom purveyors of junk science present complex scientific data, and then draw conclusions which reputable scientists do not accept as flowing from the data. If trial courts are to have a meaningful role in evaluating expert testimony, conclusions generated by such experts must be subject to challenge.

Usually, it will not be difficult for a trial judge to frame the issue which is being considered, and to initially determine whether the attack of an opposing party is based on absence of an adequate basis, or whether the quarrel is with the expert's reasoning. Care should be taken, however, to distinguish between whether it is the "principles," i.e., underlying data and information, or the "methodology," i.e., "reasoning" of the expert, which is in doubt. Confusion in this regard frequently exists as to the meaning

of these terms, and it is unfortunate that the Supreme Court chose not to define them.

A simple example illustrates the point. When opinion testimony is based on data derived from a polygraph test, it is the methodology or reasoning of the expert which is in doubt, not the underlying data. The polygraph machine unquestionably generates valid data concerning physiological changes which occur during testing. The key issue is whether the recorded physiological changes such as rising blood pressure, etc., indicate deception and whether such physiological changes have been accurately interpreted, not whether the underlying data are accurate.

PROBLEMS IN EVALUATING RELIABILITY AND RELEVANCY

The so-called "general acceptance" test of *Frye v. United States* permitted a court to evaluate reliability and relevance of scientific conclusions in a fashion which tied the evaluation to acceptance of what scientists in the appropriate discipline deemed to be true. With the decision in *Daubert*, the emphasis has markedly changed. Trial courts now must independently make an evaluation of scientific truth within the guidelines of the Federal Rules of Evidence, using unspecified factors. General acceptance is only one of the factors in the analysis. The *Daubert* Court rejected the general acceptance test as the sole means of evaluating admissibility of expert testimony (113 S.Ct. at 2793):

The merits of the *Frye* test have been much debated, and scholarship on its proper scope and application is legion. Petitioners' primary attack, however, is not on the content but on the continuing authority of the rule. They contend that the *Frye* test was superseded by the adoption of the Federal Rules of Evidence. We agree.

The Court is equally clear that scientific evidence remains subject to evaluation by the trial court as to its relevancy and reliability (*id.* at 2794):

That the *Frye* test was displaced by the Rules of Evidence does not mean, however, that the Rules themselves place no limits on the admissibility of purportedly scientific evidence. Nor is the trial judge disabled from screening such evidence. To the contrary, under the Rules the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.

While "relevancy" was not specifically discussed by the Supreme Court, it can't be overemphasized that the term can be used in two contexts. The first, and most obvious, is that the opinion offered must be relevant to an issue in the case. The second is that the evidence supporting the purported expert's opinion must be "relevant." I.e., it must be supportive of the conclusions offered. Without a relevant scientific ba-

sis, the conclusion itself (i.e., its ultimate reliability) is necessarily called into question. Once the relevancy issues are determined, the "reliability" of the opinion still rests upon the methodology or reasoning of the expert witness. If the reasoning behind the proposed scientific opinion doesn't follow logic and common sense, it *should* continue to be subject to exclusion, even in the post-*Daubert* era.

How is a trial judge to evaluate either the reasoning of an expert witness, or the basis for the expert's opinion in a complex field, where the judge's own logic and common sense don't guide him, especially where the judge does not have a knowledge base to evaluate the proposed testimony? If one witness concludes that complex laws of physics require one result, and yet another expert concludes precisely the opposite, doesn't the court necessarily have to rely solely upon the consensus of the scientific community?

The Supreme Court of the United States doesn't have the answer, but expresses its firm belief in the ability of trial judges to make an effective review of such evidence. It is in this area where the "general observations" of Justice Blackmun will require the most amplification. Justice Blackmun is correct in including each of the general observations set forth in the *Daubert* decision, including general acceptance, peer review, potential rate of error, and similar considerations. Ultimately, however, the trial court must still evaluate two or more sets of experts, often with widely divergent views and reasoning as to particular scientific conclusions to be drawn from known scientific facts.

UNANSWERED QUESTIONS

No guidance is supplied to the trial courts in *Daubert* as to how much "reliability" and "relevancy" are required before opinion testimony should be permitted to reach a jury. No comprehensive test or threshold of admissibility is enunciated. Will a single general finding by a court of relevancy and reliability of the principles and methodologies underlying a scientific opinion ultimately permit such an opinion to reach a jury? Should a trial court make a determination, not unlike a trial jury, that by a "preponderance" of the evidence, there is sufficient relevancy and reliability in order to permit an expert's opinion into evidence? Or should a trial court view all novel

scientific concepts as speculative until, to a reasonable scientific certainty, sufficient factors, including general acceptance, justify its admissibility? Finally, is such a determination left to the trial court's discretion, subject only to review when that discretion is abused?

The saving grace of sole reliance on a *Frye* "general acceptance" test was that it supplied a threshold or minimum standard for admissibility. When the Supreme Court in *Daubert* struck down the general acceptance test as the sole and exclusive test for admissibility, trial lawyers and judges were left with no minimum standard for evaluating reliability of proffered evidence. The trial judge now has no way of knowing whether, if some or most of the "general observations" are met, he or she may then with some confidence admit novel expert opinion testimony.

By striking down the general acceptance test, and not replacing it with anything other than a vague series of "general observations," the Supreme Court has greatly reduced, not enhanced, the search for scientific truth in the courtroom. In spite of the Supreme Court's firm admonition to the contrary, many courts will emphasize the wrong portion of the Court's opinion, and receive a far different message than the Court intended.

When faced with questionable scientific evidence, most judges now will dutifully conduct a pre-trial hearing and evaluate the com-

peting conclusions and the bases for such conclusions. They will faithfully include the observations of the Supreme Court in any opinion, and they will then in most cases make a finding of "sufficient reliability" to permit the expert opinion to be admitted, or find "insufficient reliability" and exclude the evidence.

Appellate courts will then evaluate the trial court's findings and conclude that the evidence was either sufficient or insufficient to go to the jury. In most cases, judges will studiously avoid becoming arbiters of scientific reliability, and inevitably, the courts will focus almost exclusively on language of the Federal Rules. They will recite that they are bound to apply a liberal standard in evaluating the Rules, regardless of the flimsy evidence underlying a given opinion. Virtually all scientific evidence will be admitted. Thanks to the *Daubert* decision, federal judges have been given a license to abdicate their responsibility. The

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Court's easy way out (113 S.Ct. at 2794) will often be cited:

The drafting history makes no mention of *Frye*, and a rigid "general acceptance" requirement would be at odds with the "liberal thrust" of the Federal Rules and their "general approach of relaxing the traditional barriers to 'opinion' testimony."

CONCLUSION

Who will benefit most by the *Daubert* decision? Unquestionably, it will be plaintiffs. Before the decision, plaintiff's counsel faced an ever more restrictive set of decisions mandating that courts, as a matter of law, evaluate the underlying basis and reasoning of an expert's opinion in terms of a "general acceptance" test. Now, trial courts, at least in the federal system, are free to use the arguably vague guidelines of the Federal Rules of Evidence and the Supreme Court's "general observations" without any threshold standard to guide them.

Faced with a total absence of a meaningful standard, courts will increasingly be guided by the liberal spirit of the Federal Rules of Evidence and will admit into evidence all so-called "expert opinions" having a colorable basis to support them. Increasingly, there will be an emphasis on what federal judges, not the scientific community, believe to be "scientific" under the Federal Rules. The emphasis on scientific truth, and the reliability it produces, will be greatly diluted.

The impact of the Supreme Court's decision in *Daubert* has already had this unfortunate result. In

Cantrell v. GAF Corp., 999 F.2d 1007 (6th Cir. 1993), a medical doctor expressed his "scientific" opinion that asbestos exposure could cause laryngeal cancer. He concluded that it was "highly unusual to find three cases of laryngeal cancer out of 150 individuals." The trial judge permitted the opinion to reach a jury. The Sixth Circuit affirmed, and permitted the doctor to rely upon "clinical experience" in support of his opinion. Judge Joiner wrote for the majority (999 F.2d at 1014):

Nothing in Rules 702 or 703 or in *Daubert* 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 conditions.

Ignored by Judge Joiner is the issue of whether the expert's "clinical experience" added anything to the scientific reliability of his otherwise unsupported opinion. The result of *Cantrell*, at least in the Sixth Circuit, is that unspecified and unanalyzed clinical experience forms a sufficient basis for an expert's opinion on causation. The fact that no reputable scientist in the world would reach the same opinion is ignored. The teaching of *Cantrell* is that if the requirements of Rule 702 are satisfied, scientific truth may be ignored.

One can confidently predict an increasing divergence between "scientific reliability" and "federal procedural reliability" until the Supreme Court chooses to re-visit the *Daubert* decision. Δ



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A Critical Analysis of *Daubert v. Merrell Dow*

BY ANDRE V. TOLPEGIN

The United States Supreme Court's decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S.Ct. 2786 (1993), received only a passing nod in most daily newspapers, and even in most legal publications little more than that. From the layperson's standpoint, the decision carried neither the publicity nor the social impact of more visible rulings by the high court, such as *Roe v. Wade* and *Brown v. Board of Education*.

For litigators, however, *Daubert* has a tremendous impact. It overturned the 72-year-old *Frye* test on the admissibility of expert testimony, and established the preeminence of the Federal Rules of Evidence. From the standpoint of both the product and chemical manufacturer on the one hand, and the alleged victim on the other, *Daubert* eliminated a somewhat discredited but at least familiar landmark. This article suggests that the Supreme Court replaced one arguably outmoded rule with but one-half of a new rule.

THE FRYE TEST

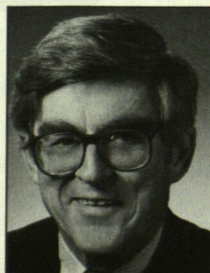
Frye v. United States, 293 Fed. 1013 (D.C.Cir. 1923), was a little noticed, two-page opinion on an appeal by a convicted murderer who had offered a lie detector test to support his claim of innocence. In rejecting his offer of proof, and sustaining his conviction, the court of appeals said: "[W]hile courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs." *Id.* at 1014.

The *Frye* decision thus defined the threshold for the admissibility of expert testimony, to wit: to be admissible, the expert's testimony must be based on principles meeting general acceptance in the scientific community. What was left unsaid was: general acceptance of what? — general acceptance of the basic scientific principle, or general acceptance of the meth-

odology used to apply that principle to the case at bar? In spite of this shortcoming, *Frye* became the standard, followed by both federal courts and state courts.

Frye's generalized, simplistic approach, coupled with an immense increase in scientific, medical, chemical, and physical knowledge, caused both courts and legal scholars to recognize that an overhaul, if not outright rejection, of *Frye* was necessary. In an excellent review of those cases which had to rule on novel scientific principles and grapple with *Frye*, Professor Paul Giannelli mentions such post-1923 scientific advances as neutron activation analysis, voice prints, psycholinguistics, atomic absorption, remote electromagnetic sensing, and bite mark characteristics. Note that the article was written thirteen years ago, a period which has seen even more dramatic scientific theories espoused. Giannelli, "The Admissibility of Novel Scientific Evidence: *Frye v. United States* a Half-Century Later," 80 Colum.L.Rev. 1197 (1980).

The criticisms of the *Frye* test can be generally broken down into three categories. The first and perhaps most obvious can be labeled "The Legal Shortcoming." In any scientific analysis, various disciplines are so closely interrelated that it is practically impossible to have a single expert rule on the benefits or hazards of a particular substance, chemical, or



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product. Thus, the use in *Frye* of the phrase "general acceptance in the particular field in which it belongs" raises a fundamental question: in what particular field is the court interested?

The second criticism of the *Frye* test is "The Scientific Shortcoming." The court failed to define whether, to be admissible, there must be a general acceptance of a particular scientific technique, or a general acceptance of both the underlying principle and the technique applying it. See McCormick, "Deception-Tests and the Law of Evidence," 15 Calif.L.Rev. 484 (1927).

To illustrate, suppose that a homicide suspect's pistol is found in his possession. Test firing of the weapon showed that bullets fired from it had the same striations as those found in the victim's body. Did *Frye* require that both, the basic principle that no two guns leave identical striations as well as the method used by the expert, meet general scientific acceptability — or only that the expert's methodology meet the threshold? The *Frye* opinion suggests that it was only the latter — but the uncertainty of the court's own language and its varying interpretations created a swell of criticism.

The third criticism of *Frye* fits more into the sociological mold than a scientific or legal one. "The Sociological Shortcoming" can be explained by the conflict between strict judicial control over the admissibility of sometimes novel (and too often bizarre) scientific theories versus the desire of courts to be open to the reception of new and innovative scientific discoveries. Indeed, were Louis Pasteur or Jonas Salk to have been offered as experts under the *Frye* test, neither would have been allowed to give their expert opinions.

On the other hand, many courts feel that the best approach is to "let it all in" or "let's let the jury decide." See, e.g., *Ferebee v. Chevron Chemical Co.*, 736 F.2d 1529 (D.C.Cir.), cert. denied, 469 U.S. 1062 (1984). We have seen the results of this excessively liberal attitude toward admissibility — a proliferation of "junk science" offered by glib, colorful, and comforting professional "experts" with degrees from marginal institutions, charming jurors with nonsensical theories.

Critics of the *Frye* rule have developed esoteric and sometimes strained theories on what should replace it. Even that eminent legal scholar Charles T. McCormick had difficulty in defining precisely what kind of threshold ought to be required for the introduction of expert testimony. For example, the Giannelli article, *supra*, cites McCormick's *Evidence* (1st ed. 1954), where the author states, at page 353-54:

"General scientific acceptance" is a proper condition upon the court's taking judicial notice of scientific facts, but not a criterion for the admissibility of

scientific evidence. Any relevant conclusions which are supported by a qualified expert witness should be received unless there are other reasons for exclusion.

Thus, McCormick appears to be saying that, while a basic principle does require general scientific acceptance, the technique applying the principle to a particular case need only be relevant and espoused by a qualified expert witness.

In critiquing McCormick, Giannelli cites what he describes as McCormick's shifting from advocacy of mere relevancy as a test of admissibility and then back to "general acceptance" and finally back again to substantial acceptance. The confusion by both professors is understandable when one considers not what *Frye* decided but what *Frye's* simplistic approach failed to decide.

As we have seen, *Frye* did not address, except obliquely, requisites for proof of the underlying principle. What it *did* address was the requirement for proof of the "thing from which the deduction was made," i.e., that the methodology used must meet general acceptance in the scientific community. In fact, McCormick discusses this very distinction when he speaks of "scientific facts which require general scientific acceptance."

FEDERAL RULES OF EVIDENCE

In 1975, Congress enacted the Federal Rules of Evidence. Three rules in particular are important in understanding how the courts applied them and the basis of the *Daubert* decision by the Supreme Court.

Rule 403:

Exclusion of Relevant Evidence on Grounds of Prejudice, Confusion, or Waste of Time.

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.

Rule 702:

Testimony by Experts.

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

The Advisory Committee commented on Rule 702 as follows: "The rule is broadly phrased. The fields of knowledge which may be drawn upon are not limited to the 'scientific' and 'technical' but extend to all 'specialized' knowledge. Similarly, the expert is viewed, not in a narrow sense, but as a person qualified by 'knowledge, skill, experience, training or education.' Thus, within the scope of the rule are not

only experts in the strictest sense of the word, e.g., physicians, physicists, and architects, but also the large group sometimes called 'skilled' witnesses such as bankers or landowners testifying to land values.

Rule 703:

Bases of Opinion Testimony by Experts.

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 the expert at or before the hearing. If of 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 in evidence.

In the Advisory Committee's notes, the observation is made that Rule 703 was designed to broaden the basis for expert opinions beyond that current (1976) in many jurisdictions and to bring judicial practice into line with the practice of the experts themselves in relying on outside sources, such as writings, laboratory reports, and the like. "If it be feared that enlargement of permissible data may tend to break down the rules of exclusion unduly, notice should be taken that the rule requires that the facts or data 'be of a type reasonably relied upon by experts in the particular field.' The language would not warrant admitting in evidence the opinions of an 'accidentologist' . . ."

Once the Federal Rules had been enacted, a new debate arose and a sharp division in court decisions occurred: Do the new Rules complement *Frye v. United States*, or do they overrule it? For a review of the conflicting decisions, see LeBlanc, "Scientific Truth in Toxic Tort Litigation," April 1993 *For The Defense* 2.

DAUBERT: PRIOR TO REACHING THE SUPREME COURT

The trial court in *Daubert v. Merrell Dow* sustained Merrell Dow's position that the plaintiffs had failed to show that their limb deformities had been caused by their mother's use of Bendectin. See 727 F.Supp. 870 (S.D.Cal. 1989). The summary judgment was upheld on appeal. 951 F.2d 1128 (9th Cir. 1991).

The primary issue was the admissibility of the plaintiffs' proffered testimony. Plaintiffs' experts had taken existing epidemiological studies which had shown no demonstrable correlation between Bendectin and limb deformities, and reanalyzed them. The experts attempted to show, by *reanalysis*, that indeed there was a connection, and that the conclusions reached by the prior studies were faulty.

In affirming, the court of appeals held (951 F.2d at 1131): "The reanalysis of epidemiological studies is generally accepted by the scientific community only when it is subjected to verification and scrutiny by others in the field. . . . Plaintiffs' reanalyses do not

comply with this standard; they were unpublished, not subjected to the normal peer review process and generated solely for use in litigation." Footnote 3 to the appellate opinion adds a warning relating, not to relevancy, but to reliability:

Scientific studies conducted in anticipation of litigation must be scrutinized much more carefully than studies conducted in the normal course of scientific inquiry. This added dose of skepticism is warranted, in part, because studies generated especially for use in litigation are less likely to have been exposed to the normal peer review process, which is one of the hallmarks of reliable scientific investigation.

Prior to *Daubert*, decisions in three separate federal circuits had held that the animal and chemical studies proffered by plaintiffs were insufficient to establish a link between Bendectin and birth defects. *Brock v. Merrell Dow Pharmaceuticals, Inc.*, 874 F.2d 307, modified, 884 F.2d 166 (5th Cir. 1989), cert. denied, 494 U.S. 1046 (1990); *Richardson v. Richardson-Merrell, Inc.*, 857 F.2d 823 (D.C.Cir. 1988), cert. denied, 493 U.S. 882 (1989); and *Lynch v. Merrell-National Laboratories*, 830 F.2d 1190 (1st Cir. 1987).

Richardson and *Lynch* had held that expert testimony that Bendectin caused birth defects, based solely on animal and chemical tests and reanalysis of epidemiological studies, was inadmissible under Federal Rule of Evidence 703, and therefore that plaintiffs had failed to present evidence to support a jury verdict. *Brock* did not hold that the plaintiff's expert's testimony was inadmissible, but did decide that it was insufficient to support the jury's verdict.

In *DeLuca v. Merrell Dow Pharmaceuticals, Inc.*, 911 F.2d 941 (3d Cir. 1990), the court left open the possibility that expert testimony based on the reanalysis of epidemiological studies may be admissible, if the testimony can be shown to be *reliable* and *not too likely to overwhelm, confuse, or mislead the jury*. It remanded the case to the district court to reconsider the admissibility of plaintiff's expert's testimony. The Third Circuit had specifically rejected *Frye's* "generally accepted" standard in *United States v. Downing*, 753 F.2d 1224 (3d Cir. 1985), and even more recently in *In re Paoli Railroad Yard PCB Litigation*, 916 F.2d 829 (3d Cir. 1990), cert. denied, 111 S.Ct. 1584 (1991).

GUARDING THE WRONG GATE

Justice Blackmun, writing for the majority in *Daubert*, reviewed the history of controversy surrounding the *Frye* rule. His first point was to argue that the Federal Rules of Evidence superseded the *Frye* test of general acceptability in the scientific community. Referring to Rule 702, he opined that "Nothing in the text of this Rule establishes 'general

acceptance' as an absolute prerequisite to admissibility." 113 S.Ct. at 2794. The Justice then qualifies his statement with the observation (*id.* at 2795):

But, in order to qualify as "scientific knowledge," an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation — *i.e.*, "good grounds," based on what is known. In short, the requirement that an expert's testimony pertain to "scientific knowledge" establishes a standard of evidentiary reliability.

Rule 702 further requires that the evidence or testimony "assist the trier of fact to understand the evidence or to determine a fact in issue." This condition goes primarily to relevance.

What is "relevant" is left to what Justice Blackmun dubs a trial court's "gatekeeping" role, which will allow each district judge to evaluate what is relevant and what is not. To assist the gatekeeper, the majority of the Justices would have the trial court utilize Rule 703 (admissibility of hearsay evidence only if the facts or data are of a type reasonably relied upon by experts), Rule 706 (court-appointed advisory experts), and Rule 403 (probative value versus prejudice).

The separate opinion by Chief Justice Rehnquist and Justice Stevens reflects the uncertainty that the majority has created by discussing only relevancy and ignoring reliability. The *Frye* rule, they agree, has been superseded by the Federal Rules of Evidence. What troubles Rehnquist and Stevens, however, is the majority's "general observations." The following reflects the dissenters' uneasiness (*id.* at 2799):

"General observations" by this Court customarily carry great weight with lower federal courts, but the ones offered here suffer from the flaw common to most such observations — they are not applied to deciding whether or not particular testimony was or was not admissible, and therefore they tend to be not only general, but vague and abstract. This is particularly unfortunate in a case such as this, where the ultimate legal question depends on an appreciation of one or more bodies of knowledge not judicially noticeable, and subject to different interpretations in the briefs of the parties and their *amici* . . .

But even if it were desirable to make "general observations" not necessary to decide the questions presented, I cannot subscribe to some of the observations made by the Court. . . . [which] concludes that reliability and relevancy are the touchstones of admissibility of expert testimony. . . . Federal Rule of Evidence 402 provides, as the Court points out, that "evidence which is not relevant is not admissible." But there is no similar reference in the Rule to "reliability."

The last statement (with emphasis added) is especially appropriate, and leads us to the observations and suggestions below.

REFLECTING ON DAUBERT

As we have seen, legal writers have divided the question of the admissibility of expert evidence into three categories — legal, scientific and sociological. That the Supreme Court failed to address the last two in *Daubert* is entirely understandable.

Law, unfortunately, is an inexact science, if it is a science at all. Consequently, the law is ill-equipped from both scientific and Constitutional concerns to lay down stringent and detailed rules on what kind of testimony ought to be allowed. Therefore, one cannot be surprised that *Daubert* did not cover this issue.

On the sociological implications of *Frye*, however, the *Daubert* court obviously felt the pressures of those who believe that strict adherence to the *Frye* rule inhibited the introduction of novel scientific theories into the courtroom. The Justices were persuaded by this group, rather than by those who feared that overruling *Frye* would open the door to even more "junk science."

The majority took great pains, therefore, to recognize those concerns and to justify their decision on the grounds that Rule 702, plus Rules 403 and 703, as well as the innate wisdom of federal judges, were adequate to protect both sides. 113 S.Ct. at 2797-99.

This then leaves us with the question of how well the Supreme Court addressed the legal issue.

Reading the majority opinion, it is obvious that first and foremost on the Court's mind was that the *Frye* test had outlived its usefulness. To replace it, the Court focused almost exclusively on Rule 702. Rule 702, however, is about *who* can testify, not about *what* they can testify to. Even in the absence of *Frye*, one cannot quarrel with *Daubert's* pronouncement that under Rule 702, the litmus test for admissibility is relevancy, and not acceptability in the scientific or medical community. Unfortunately, the opinion seems to stop right there. What is lacking is the court's failure to address the real issue in the controversy, which is: *What* should experts be allowed to testify about?

The basic problem with the proliferation of "junk science" is certainly not with the qualifications of its proponents. Rather it is with what they are trying to espouse.

As an example, one can cite the cases nationwide in which "clinical ecologists" have testified on the causation of what they call "Chemical AIDS." The proponents of this theory are oftentimes learned and well-respected physicians and surgeons. Their qualifications more than adequately enable them to hurdle the threshold of Rule 702 as expert witnesses. The fact remains, however, that "clinical ecology" is, in the eyes of professional groups such as the American Medical Association, "outlaw medicine." What one

hoped, therefore, is that, having eliminated *Frye* and discussed Rule 702 in terms of relevancy, the majority of the Supreme Court would have then turned its attention to the nature of the testimony proffered, something which is more accurately the subject of Rules 403 and 703.

In all but ignoring Rule 703, the Supreme Court gave implied acceptance to language such as that contained in *Ferebee v. Chevron Chemical Co.*, 736 F.2d 1529, 1534 (D.C.Cir. 1984): "On [scientific] questions . . . which stand at the frontier of current medical and epidemiological inquiry, if experts are willing to testify that . . . a link exists, it is for the jury to decide whether to credit such testimony." (Emphasis added.) At least one federal judge has tackled the issue from the standpoint of Rule 703. It is well worth reviewing Chief Judge Jack Weinstein's opinion in *In re "Agent Orange" Product Liability Litigation*, 611 F.Supp 1223 (E.D.N.Y. 1985).

"Agent Orange" involved Vietnam veterans and members of their families who had opted out of the class previously certified. See 100 F.R.D. 718 (E.D.N.Y. 1983), *mandamus denied*, 725 F.2d 858 (2d Cir.), *cert. denied*, 465 U.S. 1067 (1984). In granting summary judgment to seven chemical companies on the grounds that no plaintiff was able to prove that his or her injuries were caused by Agent Orange, Judge Weinstein discusses the various qualifications of and testimony given by some of plaintiffs' experts. One such expert was Dr. Samuel S. Epstein, whose affidavit in opposition to defendants' motion was ultimately dismissed by the judge. The court first noted that Dr. Epstein's "credentials clearly suffice to qualify him as an expert pursuant to Rule 702 of the Federal Rules of Evidence." 611 F.Supp. at 1238. Judge Weinstein then went on to state (*id.* at 1242-43):

Federal Rule 702 embodies a liberal policy toward qualification as an expert. The court makes the determination based on the witness' actual qualifications and knowledge of the subject matter and not his title. . . . Acceptability of the scientific technique under Rule 702 does not assure the testimony's compliance with the requirements of Rules 703 and 401 to 403

Dr. Epstein's affidavits and deposition demonstrate that his testimony would meet the standards of Rule 702. He is clearly a highly qualified expert in the field, his testimony meets the helpfulness requirement, and his analytical technique — inference from epidemiological data and medical records — is acceptable. Just as in the case of Dr. Singer's testimony, however, compliance with Rule 702 does not guarantee admissibility under Rules 703 and 403.

Judge Weinstein then discusses the two general approaches to Rule 703, the restrictive and the more liberal. *Id.* at 1244. The former view requires the trial court to determine not only whether the data are of a type reasonably relied upon by experts in the field,

but also whether the underlying data are untrustworthy for hearsay or other reasons. The more liberal view, based on *In re Japanese Electronic Products Antitrust Litigation*, 723 F.2d 238 (3d Cir. 1983), *rev'd on other grounds*, 475 U.S. 574 (1986), allows the expert to base an opinion on data of the type reasonably relied upon by experts in the field without separately determining the trustworthiness of the particular data involved. Judge Weinstein concludes (611 F.Supp. at 1245):

Rule 703 permits experts to rely upon hearsay. The guarantee of trustworthiness is that it be of the kind normally employed by experts in the field. The expert is assumed, if he meets the test of Rule 702, to have the skill to properly evaluate the hearsay, giving it probative force appropriate to the circumstances. Nevertheless, the court may not abdicate its independent responsibilities to decide if the bases meet minimum standards of reliability as a condition of admissibility. . . . If the underlying data are so lacking in probative force and reliability that no reasonable expert could base an opinion on them, an opinion which rests entirely upon them must be excluded. . . . The jury will not be permitted to be misled by the glitter of an expert's accomplishments outside the courtroom.

In his excellent analysis of the sufficiency of evidence in toxic tort litigation, University of Iowa Law Professor Michael D. Green observes:

Even in those instances where a modicum of epidemiologic evidence exists, serious judicial scrutiny of the sort advocated and employed by Judge Weinstein would require an appreciation for methodologic errors and inadequacies in those studies, an ability to assess the validity of a reanalysis of those studies, an understanding of the biological record on mechanisms associated with the disease in question, and a firm grounding in the concepts of relative risk, statistical significance and confidence intervals, and their relationship to the preponderance of the evidence standard. One must doubt that a judge will have sufficient expertise to make or review those judgments, especially when ruling on a motion for summary judgment without the benefit of a full hearing to explain these matters.

Green, "Expert Witnesses and Sufficiency of Evidence in Toxic Substances Litigation: The Legacy of *Agent Orange* and *Bendectin Litigation*," 86 *Nw.U.L.Rev.* 643, 681 (1992).

These are some of the issues which toxic tort litigators had hoped that the *Daubert* decision would address. In the writer's view, in rejecting *Frye* and accepting the supremacy of Rule 702, the Supreme Court really did nothing more than state the obvious. What it failed to address, and what indeed the dissenting and concurring opinions suggested it should have done, is to address the issue of reliability of the evidence proffered.

WHERE DO WE GO FROM HERE?

For the practitioner handling litigation involving scientific evidence who may be left as mystified as the writer on how to proceed, some suggestions might be in order. First, defense lawyers must carefully monitor the statutes and decisions in their states. Whenever it is practicable to do so, use state courts rather than the federal system — or, to be a little less delicate, do some forum shopping.

In California, for example, *Frye* appears to still be the law. It is known as the “Kelly-Frye test,” after *People v. Kelly*, 17 Cal.3d 24, 130 Cal.Rptr. 144 (1976). That opinion observed (130 Cal.Rptr. at 149):

The primary advantage . . . of the *Frye* test lies in its essentially conservative nature. For a variety of reasons, *Frye* was deliberately intended to interpose a substantial obstacle to the unrestrained admission of evidence based upon new scientific principles. “There has always existed a considerable lag between advances and discoveries in scientific fields and their acceptance as evidence in a court proceeding.” . . . Several reasons founded in logic and common sense support a posture of judicial caution in this area. Lay jurors tend to give considerable weight to “scientific” evidence when presented by “experts” with impressive credentials. We have acknowledged the existence of a “. . . misleading aura of certainty which often envelops a new scientific process, obscuring its currently experimental nature.”

In August 1993, while the ink was scarcely dry on the Supreme Court decision in *Daubert*, a California appellate court reversed a trial court’s admission of a police expert’s opinions regarding the validity, in a driving-while-intoxicated prosecution, of the horizontal gaze nystagmus test (HGN). *People v. Leahy*, 17 Cal.App.4th 1796, 22 Cal.Rptr.2d 322 (1993). The court reviewed many of the HGN cases preceding it, and touched on *Daubert*. It went on to say, however:

... [A]t least as the law of California currently stands, it will be error in the event of any retrial to permit such evidence as the basis of an opinion concerning intoxication without a *Kelly-Frye* foundation, i.e., proof of general acceptance of HGN in the scientific community.

Other states have already indicated, in the short period of time since *Daubert* was released, that they will not be bound by that decision. See, e.g., *Flanagan v. State*, 1993 Westlaw 347761 (Fla. 1993); *State v. Hill*, 1993 WL 334944 (Mo.App. 1993); *State v. Bible*, 1993 WL 306544 (Ariz. 1993). See also, *State v. Alt*, 504 N.W.2d 38 (Minn.App. 1993); *People v. Mehlberg*, 618 N.E.2d 1168 (Ill.App. 1993); *Keene Corp. v. Hall*, 96 Md.App. 644, 626 A.2d 997, 1003 n.2 (1993).

Other states, however, look to their own rules of evidence, which are typically the same as the Federal Rules, and then interpret them as did the *Daubert* Court. See, e.g., *Nelson v. State*, 628 A.2d 69 (Del.

1993); *State v. Cressey*, 628 A.2d 696 (N.H. 1993).

A second suggestion is that, if you are in a federal forum, or a state court that wants to follow *Daubert*, do not fight on the Rule 702 front. The Supreme Court, as we have seen, mentioned Rules 703 and 403 only in passing. This is where you must convince the trial judge to act as a “gatekeeper.” To assist him in so doing:

- Read *Daubert* carefully in conjunction with Rules 403, 702, and 703;
- Read the *Agent Orange* opinion discussed above; and
- Retain consultants in the desired discipline early in the litigation.

If you listen to and discuss with your consultant, by the time you get around to deposing plaintiff’s experts, your technical expertise will be as sound as your evidentiary expertise. This is not a suggestion that you challenge your adversary’s expert. But, you should be able to elicit enough of your adversary’s methodology to be able to convince the court of the *unreliability* of the proffered evidence, or of its lack of probative value.

Expand your knowledge by reading some of the creative opinions which preceded *Daubert*. For example, in *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1110 (5th Cir. 1991), the court suggests four pieces of inquiry. What gives them impact is that they form a relatively clear combination of guides:

- (1) whether the witness is qualified to express an expert opinion;
- (2) whether the facts upon which the expert relies are the same type as are relied upon by other experts in the field;
- (3) whether in reaching his conclusion the expert used a well-founded methodology; and
- (4) whether the testimony’s potential for unfair prejudice substantially outweighs its probative value.

The reader will note that the combination suggested encompasses Federal Evidence Rules 403, 702, 703 and 706 — and not just one rule. The resourceful practitioner should be able to convince a trial judge that the issue of admissibility of expert evidence is one requiring reliance on all applicable rules of evidence, and not just one.

Finally, read some of the articles, law reviews, and comments on *Frye* by various authors (someone coined the phrase “Fryologists”). See *Daubert*, 113 S.Ct. at 2793, footnotes 3, 4, 5.

As Justice Blackmun clearly concludes, “the *Frye* test was superseded by the adoption of the Federal Rules of Evidence.” 113 S.Ct. at 2793. However, the parameters set forth by the Court’s “general observations” are sufficiently unclear to allow the creative defense lawyer scope to craft arguments against the admissibility of “junk science.” Δ