

**The Evaluation Engineer, the Courts, and the Search
for "Cosmic Understanding"
or
Speedbumps on the Path of Truth**

Been to court lately? As an expert witness, I mean. Some of us do a fair amount of expert witness work in tax appeals, regulatory hearings, and arbitrations but occasionally there is the appearance in real court with attorneys in sincere suits, judges in black robes, and maybe even a jury. Court can be pretty intense stuff; most engineers would just as soon forego the pleasure, preferring a trip to the dentist. In today's blame-someone-else environment, however, you never know when some work that you did might end up the centerpiece of a lawsuit or when you might be retained as an expert evaluation witness in civil or other litigation. SPEE members in particular, because of our presumed greater experience and knowledge, stand a better chance than most of having this opportunity, so it might be a good idea to be aware of what is going on in terms of acceptable expert testimony these days.

Before you go to court, or better yet, before you start work every morning, here are some names to keep in mind:

Frye vs. United States¹
Daubert et al vs. Merrell Dow Pharmaceuticals
Robinson et al vs. E.I. du Pont de Nemours
State of California vs. Robert Emmett Kelly
State of California vs. William Michael Leahy

The Frye Standard

Frye v. U.S. was a federal case, decided by the Supreme Court in 1923, in which an expert witness was called to testify as to the result of a deception test described as a systolic blood pressure test - the precursor to polygraph tests. At the time, the test procedure was new - it was described as "novel" by the Supreme Court. The trial court sustained an objection by the opposing side, in this case the government, and would not allow the expert testimony to be admitted as evidence. In their appeal of the trial court decision, the defense (Mr. Frye) argued that the testimony should be admitted, as follows:

"When the question involved does not lie within the range of common experience or common knowledge, but requires special experience or special knowledge, then the opinions of witnesses skilled in that particular service, art, or trade to which the question relates are admissible in evidence."

The U.S. Supreme Court had no problem with the qualifications of the expert witness but was concerned about the novel aspect of the subject of the testimony, to wit:

"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." (emphasis added)

The Supreme Court upheld the trial court as to the non-admissibility of the expert testimony and went on to say that the "...systolic blood pressure deception test has not yet gained such standing.... as would justify the courts in admitting expert testimony.." based on the test.

The "general acceptance" test or Frye test became the standard in federal courts and in many state court systems for 70 years. Along the way, however, it seemed to some that so-called expert testimony got out of hand and, further, various courts, even within the federal system, had differing definitions of the "general acceptance" standard and/or placed all weight on the acceptance of the expert and gave indifferent attention to the methods used by the expert and the science (engineering) behind the testimony. In some jurisdictions, acceptance of a witness as an expert was sufficient to allow whatever the witness had to say into the record and into jury deliberations.

Enter Daubert

During the late 1970's but especially into the 1980's and up to today, the growth of the contingency fee litigation industry brought literally hundreds of civil law suits regarding production such as Bendectin, Benlate, silicone implants and others which purported to show damages to plaintiffs but where the claims were supported by little or no scientific evidence. Much of the testimony offered in these cases quickly spawned the term "junk science" which has also been expanded to cover other issues where the ratio of publicity to real science is highly inflated.

Anyway, the Daubert case became the poster child for "Junk Science." William Daubert et al claimed that serious birth defects in their children had been caused by prenatal ingestion by the mothers of Bendectin, a prescription drug to alleviate morning sickness, made by Merrell Dow. The trial court granted summary judgement to Dow based on testimony by Dow experts that the "... extensive published scientific literature..." had not shown Bendectin to be a risk factor regarding birth defects. Plaintiffs (Daubert) presented eight expert witness's who disputed the Dow expert but the court found that the testimony by these witness did not meet the Frye "general acceptance" test.

Plaintiffs appealed to the U.S. Ninth Circuit Appeals Court which upheld the trial court stating that the methodology used by plaintiffs experts diverges "...significantly from the procedures accepted by recognized authorities in the field... cannot be shown to be generally accepted as a reliable technique..." Plaintiffs appealed the case to the Supreme Court. In a June, 1993 decision the Supreme Court opined that the Frye test had been superseded by the Federal Rules of Evidence which were adopted in the 1970's and stated, "Nothing in (the Federal) Rules ... gives any indication that 'general acceptance' is a necessary precondition to the admissibility of scientific evidence." The court characterized the Rules as "liberal" and endorsed "relaxing the traditional barriers to 'opinion' testimony."

The Supreme Court went on to say that the trial judge (a) is responsible for making a "preliminary assessment" of whether the testimony offered (1) is "scientifically valid" and (2) "can be applied to the facts at issue," and (b) should rely on cross-examination and presentation of contrary evidence to challenge evidence presented by an expert. The judge is instructed to focus on "...principles and methodology not on the conclusions they generate..." and that the "...Rules are not designed to seek cosmic understanding but, rather, to resolve legal disputes..."

In short, the Supreme Court, citing the Federal Rules of Evidence, made the judge of the court a screener or gatekeeper of expert testimony and required the judge to make a determination of "...whether the testimonies underlying reasoning or methodology is scientifically valid and properly can be applied to the

facts at issue.” The result is that the screening of expert testimony and evidence which under Frye was effectively done by the "general acceptance" of the relevant scientific community, would now be done by a lawyer (judge) in a courtroom setting.

Not to worry. The court offered some "general considerations" to help the judge but cautioned that these were not a definitive checklist or test but also said there could be “...many considerations...”and that “The inquiry is a flexible one...” The general considerations mentioned were:

- Has the theory or technique in question been tested?
- Has it been subjected to peer review and publication?
- What is its known or potential error rate?
- Are there standards which control its operation?
- Has it attracted widespread acceptance within a relevant scientific community?

The Supreme Court overturned the Ninth Circuit and ordered the Daubert appeal be reheard.

Back in San Francisco

The U.S. Ninth Circuit court in San Francisco decided to re-hear the Daubert appeal and issued its opinion in January, 1995. The Appeals Court responded to the concerns of the Supreme Court regarding the previous use of the Frye test and reviewed the expert testimony based on the directions contained in the higher court decision. Now, I wouldn't normally recommend casual reading of appeals court decisions but this one is worth the effort. While not exactly humorous it does have its entertaining moments. Judge Kozinski, writing for the court, focused on the new requirements of the Daubert decision:

"Under Daubert, we must engage in a difficult, two-part analysis. First, we must determine nothing less than whether the experts testimony reflects "scientific knowledge," whether their findings are "derived by the scientific method," and whether their work product amount to "good science." Second, we must ensure that the proposed expert testimony is "relevant to the task at hand." "Our responsibility,...., is to resolve disputes among respected, well-credentialed scientists about matters squarely within their expertise,"

Judge Kozinski further notes, "The question of admissibility (of evidence or testimony) only arises if it is first established that the individuals whose testimony is being proffered are experts in a particular scientific field; here, for example, the Supreme Court waxed eloquent on the impressive qualifications of plaintiffs experts. Yet, something doesn't become "scientific knowledge" just because it's uttered by a scientist; nor can an expert's self-serving assertion that his conclusions were 'derived by the scientific method' be deemed conclusive, else the Supreme Court's opinion could have ended with footnote two."

The appeals court went on to apply the Daubert "considerations."

- “...the party presenting the expert must show that the expert's findings are based on sound evidence...”

- “One ... fact to be considered is whether the experts are proposing to testify about matters growing... out of research ... conducted independent of the litigation, or ... expressly for purposes of testifying.”
- “...we may not ignore the fact that a scientist's normal workplace is the lab or the field, not the courtroom or the lawyer's office.”
- Re: Scientifically valid principles - "One means of showing this is by proof that the research supporting the proffered conclusions have been subjected to normal scientific scrutiny through peer review and publication."

The Ninth Circuit noted the difference between Frye and Daubert as one of focus.

“The focus under Daubert is on the reliability of the methodology and, in addressing that question the court and the parties are not limited to what is generally accepted; methods accepted by a minority in the scientific community may well be sufficient....” BUT acceptance “...by only a minority of scientists would be a proper basis for impeachment at trial.”

The Ninth Circuit decided that the plaintiffs experts did not meet the new Daubert criteria either and again found for Merrell Dow.

The World Since Daubert

The Daubert opinion, as might be expected, caused something of a stir in the halls of justice. It was greeted as being a more "liberal" ruling that overturned the "conservative" Frye standard and had the effect of highlighting the issue of marginal science and expert testimony in general even if it did not really settle anything. The influence of the decision spread quickly as federal and state courts began to apply the "considerations" to current issues. The apparently "liberal" decision turned out to be more effective than the old standard at removing "junk science" from courtrooms as numerous cases in state and federal court were either dismissed or the expert testimony was thrown out as being scientifically invalid.

In the short period from June, 1993 to the present, Daubert has seen considerable use in the federal courts. An article in *Business Week* from August 14, 1995 notes numerous lawsuits in which claims against manufacturers and others similar to Merrill Dow have been dismissed for lack of adequate or valid scientific support. The article notes that the Daubert decision, which even the court described as liberal, has reacted to favor, in some circumstances, defendant companies as the focus of expert witness scrutiny has been shifted to methodology and quality of underlying analysis. This shift may result in a reduction of the "junk" component but it has also brought about greater scrutiny of the expert witness, his qualifications, and the way in which his work is done. The same *Business Week* article mentioned that several witness's who were accountants and engineers were dismissed or discounted resulting from analysis of their qualifications including grades in college.

Petroleum engineers, geologists, and evaluation and appraisal specialists should take no comfort from the references to scientists and science in the above discussion. In Daubert the court was concerned with issues related to bio-medical science and causation of birth defects, however, there is nothing to restrain application of Daubert to the so-called cutting edge of scientific research. It will be applied to all expert testimony when it is advantageous for one side or the other in a dispute to do so. The days of ready acceptance of your expert opinion simply because you knew the oil-in-question when it was a dinosaur, are gone.

The Daubert fallout will impact every court case where the decision may hinge on some form of technology that is not in the common experience of jurors and/or judges and where it is sufficiently complex that tedious and possibly confusing explanations are required. While the general considerations of the Supreme Court may not have been intended as a checklist, the Ninth Circuit review proceeded to use them as a checklist. You can bet the next year's production that any attorney worth his Gucci's will have those 4-5 general considerations worked into a list of questions about every part of the evaluation you present. Woe betide the world renowned good-ole-boy who testifies that his opinion is based on his experience and "everybody knows" without having the support necessary to satisfy the general considerations expressed in the Daubert decision.

Daubert in the State Courts

While the original Daubert decision was a federal court issue and was resolved based on the Federal Rules of Evidence, the state courts have taken notice of the decision with predictably mixed results.

The Supreme Court of Texas adopted the Daubert approach in deciding *Robinson et al v. E.I. du Pont de Nemours*. In a July, 1995 decision the court affirmed a trial court which had excluded the testimony of the plaintiffs only expert witness for several reasons saying that the witness' testimony:

- (1) was not grounded upon careful scientific methods and procedures,
- (2) was not shown to be derived by scientific methods or supported by appropriate validation,
- (3) was not shown to have a reliable basis in the knowledge and experience of the witness' scientific discipline,
- (4) was not based on theories and techniques that had been subjected to peer review and publication,
- (5) was not based on a procedure reasonably relied upon by experts in the field.

The Texas Supreme Court decision specifically notes that many lower courts had been disposed to allow any testimony by witness' considered or offered as experts in their fields and that often the scrutiny of the underlying support was limited. Indeed, there was an extensive dissenting opinion to the Robinson decision based largely on the idea that judges should not be placed in the position of deciding the validity of testimony in fields far distanced from their own training and experience. Say goodbye to "That's the way we have been doing it in this business forever." criteria.

Apparently several other states including Louisiana have followed Texas in adopting, more or less, the Daubert

California, however, decided to follow its own precedents. In an October, 1994 decision in *State of California vs. William Michael Leahy ("Leahy")* the California Supreme Court upheld a lower court decision that was based on the Frye standard and a previous California case (*State vs. William Emmett Kelly ("Kelly")*) that had been accepted by the court after the Federal Rules of Evidence were put in place. The California court decided that these decisions, which comprise the current Kelly/Frye standard in California are to be used rather than the Daubert criteria. General acceptance remains the governing criteria in California.

What Does This Mean to You?

The "general acceptance" approach allowed a witness, who was accepted as an expert based on his or her qualifications, to testify regarding issues of petroleum engineering, geology, and economic evaluation based on methods and procedures that could be shown to be essentially the standard operating procedures in industry or at least in the expert's particular field. While the court may well accept this testimony, the Daubert criteria allow the testimony to be challenged as having insufficient support, which will require the court to examine the experts methods and procedures using the Daubert, and/or local version, checklist. This means increased preparation and documentation of whatever you plan to present. As an example, if you are planning to testify as to value using a new theory that you have developed or use rules-of-thumb that are not generally accepted you had better consult the checklist beforehand. If you can successfully pass the test then, to paraphrase Judge Kozinski, be mindful of your position in the legal system, take a deep breath, and proceed with your task. Careful of the speedbumps.