

# Frye, Daubert and Where Do We Go From Here?

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## Introduction

In the United States, it is the responsibility of the court system, at state and federal levels, to interpret laws. Over time, these interpretations (altogether, they are called “jurisprudence”) are used to guide future decisions, based on the precedents set by past court rulings.

While state trial courts, appellate courts, and state supreme courts are able to make judgments on how to apply the laws made by a particular state’s legislators, it is the responsibility of the federal court system to make these decisions for national laws. The highest court in the nation, the United States Supreme Court, makes the highest rulings on American laws and how they are to be interpreted, implemented, and enforced.

The U.S. Supreme Court has passed down two key “landmark” cases regarding the use of forensic evidence, and especially expert witness testimony to help the judge and jury evaluate the evidence presented, in a trial court. These judgments have been applied to civil, criminal, and class action cases. As the prevalence and reliance on complex expert testimony and sophisticated forensic evidence has increased with technology, changes in crime, and other investigative developments, these key Supreme Court rulings have become even more important to the criminal justice process.

## *Frye v. United States*

The first of the key Supreme Court cases was issued in 1923 by the District of Columbia Circuit Court of Appeals. *Frye v. United States* was the first national precedent for how to decide what counted as “expert testimony” and who get to be relied on as an “expert.”

“Frye” (as the case is typically referred to) is one of the most cryptic and debated decisions in American jurisprudence. James Alphonzo Frye was tried for second degree murder. In his defense, he offered the results of a systolic blood pressure test through an expert’s testimony to show he was telling the truth when he denied culpability. (Since his blood pressure was notably low during his interview with police, he didn’t exhibit the signs typical of a person who is lying and, thus, must have been telling the truth – A sort of



medical lie-detector test.) The trial court refused to allow the testimony.

However, the D.C. Court of Appeals considered Frye's argument, and (in a now famous legal theorem) the court stated:

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.

So, what does this mean for lawyers arguing cases in a court of law? The Frye appeals court decision said that the expert's opinion must be "derived" from "a thing." (This distinguishes between testimony based on opinions derived from nothing, or just based solely on a witness' perspective rather than expertise with specific, reliable evidence). The expertise also must be based in "well recognized scientific principle or discovery." This tells us that, to be admissible in a trial court, the expert testimony must be founded on science which is widely accepted and understood as reliable ("demonstrable"), and not just proposed theories and ideas ("experimental").

For decades, the Frye decision lay dormant among the jurisprudence. Then, just before the adoption of national guidelines for the use of forensic evidence in courtroom proceedings (called the "Federal Rules of Evidence") in 1975, an explosion of decisions citing Frye began. The exact meaning of the court's written decision continued to be debated as the formal sciences of forensic investigations became evermore sophisticated throughout the 1970s and 1980s – a revolution in crime laboratory procedures, the implementation of national registry databases, computerized fingerprint matching, and the discovery

and the first use of DNA to identify individual suspects in the investigation of a violent crime. Legal scholars have analyzed Frye to exhaustion. Many courts and commentators have focused on what constitutes "general acceptance." Others have struggled with defining the "particular field" or "relevant scientific community" which determines whether the "thing" is generally accepted.

**The Frye Standard** (as the results of the Frye Supreme Court ruling are often called) establishes a method for ensuring the reliability of scientific evidence. It "assures that those most qualified to assess the general validity of a scientific method will have the determinative voice." Frye eliminates the need for time consuming hearings on the validity of innovative techniques.

But this has not prevented a multitude of questions and challenges to "the Frye test." Besides clarification on exactly what constitutes "general acceptance" and exactly how much agreement there must be among scientists before a new method of analysis is rendered "demonstrable" instead of "experimental," legal experts and professors have found the Frye test susceptible to inconsistent judicial application or even manipulation in the court room.

To clear up all of this ambiguity, Congress promulgated the Federal Rules of Evidence in 1975, including Rule 702:

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.

But the problems remained: While the Rule says an expert may testify to scientific or technical knowledge it nowhere indicates what constitutes such knowledge. The vagueness of the Frye standard was now simply complicated by a long list of rules.

These rules were used to continue debating the meaning of the original Frye decision. For example, in *United States v. Williams*, an appeals court used Frye

and Rule 702 to address the admissibility of voice spectrography evidence. These detailed reports of audio recording analysis had never before been used as evidence in a trial court and their validity needed to be confirmed.

The court initially noted that the "weight of authority" supported the admissibility of spectrographic voice identification evidence (and other newly emerging forms of digital evidence as well). The court also noticed that debate over the *correctness* of the audio expert's claims further troubled its attempts to determine the *admissibility* of those claims based on the modernity of the expert's science. The court room did not serve as a reasonable place for evaluating the reliability of new scientific understanding. The court finally stated that the applicable considerations for evaluating new methods of scientific evidence are "probativeness, materiality, and reliability of the evidence, on the one side, and any tendency to mislead, prejudice or confuse the jury on the other." By using these standards, the court held the spectrographic voice analysis admissible. (Eventually, this same type of analysis would be debunked and determined to both unreliable and inadmissible in later court proceedings.)

The ongoing problems of unique scientific theories and newly developed methods of analyzing crime scene evidence did not let up. Later courts questioned other scientific methods as well as how to determine the reliability of an individual expert who is likely to bring both prejudice and bias into court proceedings. And what to do if experts are later found to be unreliable, or their scientific reasoning shown to be faulty? It was suggested that expert witnesses be required to produce evidence of the basic science upon which their conclusions were drawn, demanding a whole new set of communication strategies and questioning skills in the court room.

Over time, other courts developed other lists of standards for determining the reliability of expert testimony. One court even sought out a list of reliability factors from a local university professor. These factors included:

- Whether the novel technique relates to more established modes of scientific analysis;

- Whether there is scientific literature dealing with the techniques;
- Whether the technique has been exposed to critical scientific scrutiny;
- The extent of the proposed experts' qualifications;
- The nonjudicial uses of the technique;
- The frequency with which the technique leads to erroneous results;
- Whether the technique's errors are objectively verifiable;
- Whether the technique has been admitted in other cases.
- Whether the proposed scientific evidence might confuse or mislead the jury. (The court noted scientific testimony based on data the jury can observe is less likely to mislead it, and, thus, might be more reliable than evidence that otherwise cannot be visibly demonstrated.)

The different national appeals courts began to recognize their own inconsistencies on the admissibility of emerging science and expert testimony. To resolve conflicts among the appellate courts, the United States Supreme Court eventually decided to review an earlier decision, **Daubert v. Merrell Dow Pharmaceuticals**.



### ***Daubert v. Merrell Dow Pharmaceuticals***

In 1993, the mothers of Jason Daubert and Eric Schuller alleged they had taken Bendectin during pregnancy which caused their sons to have muscular disability in their upper arms. (Bendectin is an FDA approved drug designed to reduce so-called "morning sickness" during pregnancy.) Plaintiffs proposed that their experts would testify that Bendectin has a chemical structure similar

to known teratogens (chemical substances that cause birth defects), that it causes injuries to animal cells in test tubes and to animals in laboratories, and that reanalysis of published epidemiological studies showed a statistical correlation with birth defects. From this the experts claimed that Bendectin similarly could or did cause injuries to humans, such as the muscular deformities of the mothers' children. Merrell Dow (the pharmaceutical company that produced and manufactured the drug in question) argued the published epidemiological studies showed that among hundreds or thousands of people exposed to Bendectin there is no significantly greater incidence of the injuries claimed by the plaintiff than among the general or unexposed population.

The mothers were basically claiming that the pharmaceutical company's data was wrong, and they were using expert testimony to prove it. But the courts weren't buying their argument.

The court used the general acceptance test (the Frye test) to state that reanalysis of epidemiological studies generally accepted by the scientific community was not scientifically valid, and therefore, inadmissible. The plaintiffs' unpublished reanalysis did not comply with the Frye standard. But, the U.S. Supreme Court had a different perspective.

When the case reached the Supreme Court, it was stated that, while the Frye standard had been properly used for the last several decades, and had been correctly applied by the previous courts involved in the case, the rules set forth by Congress in 1975 superceded the Frye standard and now changed how courts should be evaluating the validity of expert testimony.

The Court said Rule 702 "clearly contemplates some degree of regulation" of the content of expert testimony. The expert must testify about "scientific ... knowledge". Quoting *Webster's Dictionary*, the Court said knowledge "applies to any body of known facts or any body of ideas inferred from such facts or accepted as truths on good grounds." It also quoted from the *amicus curia* brief of the American Association for the Advancement of Science and the National Academy of Sciences: "Science...represents a process for proposing

and refining theoretical explanations about the world that are subject to further testing and refinement." Therefore, "scientific knowledge is an assertion or inference derived by the scientific method."

The Supreme Court used these statements to show how, even though the Frye standard prohibited the testimony in question, Rule 702 did in fact allow it. The Court concluded this part of the decision by observing that the Rule 702 "helpfulness" standard requires a valid scientific connection to the pertinent issue. As long as the expert testimony can be shown in good faith to be valid and relevant to the case at hand, it must be allowed.

The Court explained that while peer review (which is the type of testimony offered by the mothers in the Daubert case) is not "dispositive," it is relevant. Moreover, a "known technique that has been able to attract only minimal support within the relevant scientific community" may be viewed skeptically. The Court also imposed on trial courts the "gatekeeper" role: "The trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." This requires "...a preliminary assessment of whether the reasoning or methodology is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts" of the case. The Court expressed confidence that federal judges could fulfill this role.

### **Where do we go from here?**

While the Frye standard has been used over the course of the last century to determine the validity of new developments in scientific research as they relate to the law, the U.S. Supreme Court has now offered a new standard by which we must evaluate these methods. As technology's role in evidence analysis grows greater and greater, and as more sophisticated methods for analyzing evidence of crimes of all types become available, the Daubert standard provides the necessary flexibility for investigators and prosecutors to continue to apply cutting-edge technologies to the search for justice.

However, the question remains: Is flexibility the best option when crime and punishment are at stake?

