The *Daubert* Crucible

By Ronald H. Kauffman, Esq. Miami, FL


R. KAUFFMAN

For residents of the Massachusetts Bay Colony in 1692, life was rough: French and Indian raids, disease, and death. The devil-fearing Puritans thought witchcraft was to blame. So they fought back, using the legal system as their weapon. After all, being a witch was not only a sin it was a crime.[1]

In May 1692, the Massachusetts Governor established the Court of Oyer and Terminer. The Puritans were enlightened for the time, scrupulous about fairness, and looked down on European "folk methods" of proof. Gone were the days of "trial by ordeal" to unmask witches.[2]

These new trials would be different. The Court required indictments and held public hearings.[3] Qualified experts on witchcraft were introduced, rendering opinions based on body marks, observed behaviors, learned treatises, and more controversially, "spectral evidence".[4]

The testimony by the experts at Salem may be a case where reliability is wholly lacking, but there is no denying that the witnesses were experts.[5] However, there was little the accused could do about dubious evidence and opinions, as there was little precedent on the admissibility of expert testimony.

Since 1923 though, courts have relied on the *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923) "general acceptance" standard as the talisman for the admissibility of expert testimony.[6] In 1993, the U.S. Supreme Court adopted a new standard in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) which requires trial judges to screen expert testimony for relevance and reliability. The *Frye* rule was simple, but there has always been debate over whether *Frye* or *Daubert* was the stricter standard.[7]

In 2013, the Florida Legislature ended any debate[8] by amending Sections 90.702 and 90.704 of the Florida Statutes to bind Florida courts to the *Daubert* standard for the admission of expert testimony and the basis for an expert's opinion.[9]

Several articles on the new *Daubert* test were published after the legislative change.[10] Since then, application of the new expert witness rules has been reviewed by only a few District Courts of Appeal. This Article is a primer on the *Frye* and *Daubert* cases, and discusses expert testimony under the amended evidence rules.

The *Frye* Test

Until the 2013 amendment, Federal and Florida courts used different standards to admit expert testimony into evidence. It was not always this way. For almost 70 years, both court systems used the same test established in *Frye*.[11]

In *Frye,* a defendant on trial for murder wanted to offer an expert witness to testify about the results of an early version of a lie detector test. The trial judge denied the request. The appellate court affirmed: ". . . while courts will go a long way in admitting expert testimony . . . the thing from which the deduction is made must . . . have gained *general acceptance* in the particular field in which it belongs."[12]

The Federal Evidence Code was established in 1975. The Florida Evidence Code followed in 1979, and adopted the same numbering system and significant portions of the Federal Code. There was a dispute as to whether establishment of evidence codes replaced the *Frye* standard. The U.S. Supreme Court held that the Code supersede *Frye.* However, the Florida Supreme Court never addressed whether Florida's Evidence Code superseded *Frye*.[13]

Until 2013, Florida was one of the few remaining jurisdictions still applying the *Frye* test. The Florida Supreme Court announced in *Brim v. State*, 695 So.2d 268, 271 (Fla. 1997), that "despite the federal adoption of a more lenient standard in *Daubert* . . . we have maintained the higher standard of reliability as dictated by *Frye*."[14]

However, the *Frye* rule was always applied very loosely in Florida. For instance, the Florida Supreme Court held in *Marsh v. Valyou*, 977 So.2d 543 (Fla. 2007), that if an expert relies only on his or her personal experience and training, "pure opinion", then the testimony is admissible without the need for a *Frye* hearing.[15]

Marsh also created an exclusion from *Frye* by limiting it to opinions involving "new or novel scientific techniques." As most expert testimony does not involve new or novel scientific techniques, the "vast majority" of expert testimony in Florida was never even subject to *Frye*.[16]

Amended Sections 90.702 and 90.704, Florida Statutes

The bill amending Sections 90.702 and 90.704, Florida Statutes, became effective July 1, 2013, and fundamentally changed Florida law on testimony by experts. However, there is still a simmering controversy about the way the bill became effective.

Generally, legislation which encroaches on the Supreme Court's power to regulate courtroom practice and procedure is unconstitutional, but the Legislature can enact sub-

stantive law.[17] When one branch of government encroaches on another branch, Florida traditionally applies a "strict separation of powers doctrine."[18]

Given that the Evidence Code contains both substantive and procedural provisions, there is still lingering suspicion that the Legislature violated the separation of powers doctrine.[19] However, that issue has not been accepted by the Florida Supreme Court to date.[20]

Florida's expert witness rules, as amended, state:

> Section 90.702, **Testimony by experts**. – If scientific, technical, or other specialized knowledge will assist the trier of fact in understanding the evidence or in determining a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify about it in the form of an opinion or otherwise, if:
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> (1) The testimony is based upon sufficient facts or data;
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> (2) The testimony is the product of reliable principles and methods; and
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> (3) The witness has applied the principles and methods reliably to the facts of the case.
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> Section 90.704, **Basis of opinion testimony by experts**. – The facts or data upon which an expert bases an opinion or inference may be those perceived by, or made known to, the expert at or before the trial. If the facts or data are of a type reasonably relied upon by experts in the subject to support the opinion expressed, the facts or data need not be admissible in evidence. Facts or data that are otherwise inadmissible may not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.

The preamble to House Bill 7015 (2013) states the legislative intent was to pattern our expert witness rules after the Federal Rules of Evidence, adopt the *Daubert* standard, banish the *Frye* rule, and prohibit "pure opinion testimony" in Florida courts.[21]

The *Daubert* Test

The *Daubert* test developed in three product liabilities cases in which the main issue was causation. The plaintiffs in each case tried to introduce expert testimony to prove products caused their damages. The courts ultimately rejected each of the plaintiffs' experts. The result was a coven of opinions which increasingly tightened the rules for admitting expert testimony. The three cases, and their impact on existing Florida law are examined below.

Daubert

The trilogy began in 1993 with *Daubert*.[22] *Daubert* was a toxic tort case against the maker of the morning sickness drug Bendectin. The plaintiffs alleged Bendectin caused limb reduction birth defects.[23]

Recall that *Frye* admitted all expert testimony as long as it was based on a science generally accepted in the scientific community. After *Daubert,* a judge has to ensure that expert testimony is both *relevant* and *reliable*. This requires establishing the expert's theory or technique is scientifically valid, and can "fit" to the facts in issue.[24]

Daubert requires that the evidence be relevant, that it prove or disprove a material fact in the case. For example, an expert on the phases of the moon may be relevant to prove it was dark, if visibility is in dispute. However, if the evidence of a full moon is used to prove why someone was acting strangely, it would be inadmissible.[25] Relevance requires a valid scientific connection as a precondition to admissibility.

Daubert also requires that the expert testimony be reliable. This requires a showing that the testimony is based on "scientific knowledge." The Court listed four non-exclusive factors to consider when applying the reliability test: (1) whether the theory or technique can be tested; (2) whether the theory or technique has been peer reviewed; (3) what the "potential rate of error" is; and (4) whether it has widespread acceptance.

The fourth *Daubert* factor, "widespread acceptance", is essentially the *Frye* test. In Florida, that used to end the inquiry. The *Daubert* test requires consideration of at least three additional factors, and is "flexible" enough to consider even more.[26]

Joiner

The second case in the trilogy was *General Electric Co. v. Joiner*, 522 U.S. 136 (1997).[27] The plaintiff was an electrician who claimed his exposure to polychlorinated biphenyls (PCBs) caused his lung cancer. The Plaintiff's expert testified that it was "more likely than not that lung cancer was causally linked to PCB exposure" by extrapolating from animal studies in which mice were injected with PCBs. The trial judge excluded the expert's testimony because the studies did not sufficiently support the expert's conclusion that PCBs caused cancer.

The U.S. Supreme Court held that the "abuse of discretion" standard should be applied to rulings on the admissibility of expert testimony. This is another split from the former rule in Florida. The abuse of discretion standard is far more deferential than the *de novo* standard we had been using in Florida.[28]

Joiner also resolved the challenge to the underlying expert testimony by requiring the trial judge to sit as "gatekeeper" to screen testimony. Moreover, *Joiner* made inadmissible "pure opinion" testimony, finding: "nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert."[29] This means that trial courts are free to exclude testimony when "there is

continued, next page

The *Daubert* Crucible
from preceding page

simply too great an analytical gap between the data and the opinion proffered."[30]

Kumho Tire Co.

The third case in the trilogy was *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999).[31] The plaintiffs sued after a tire blew out on their minivan, causing a fatal accident. The plaintiffs' expert, a tire-failure analyst, testified that the tire was defective after visually inspecting it. The trial judge excluded the expert's testimony.

The appellate court reversed, limiting *Daubert* to cases where an expert is applying scientific principles, rather than personal observation. The U.S. Supreme Court reversed, and extended the *Daubert* test to all expert testimony.[32]

Kumho marks another difference with Florida case law. Remember, *Marsh* limited the *Frye* test to "new or novel scientific techniques", rendering it "inapplicable in the vast majority of cases." By contrast, *Kumho* extended the new *Daubert* standard to all expert testimony, forcing experts to apply the same "intellectual rigor in their field" to the courtroom.[33]

Expert Testimony Post-*Daubert*

The *Daubert* test is new to Florida, and few Florida cases have addressed it.[34] Qualifying an expert witness, the relevancy and reliability prongs of *Daubert,* and the grounds for excluding experts, are best illustrated in analyzing the few Florida appellate opinions to apply the new evidentiary rules.

Relevancy, Reliability & *Perez*

In *Perez v. Bell South Telecommunications Inc.*, 138 So. 3d 492 (Fla. 3d DCA 2014), the plaintiff became pregnant while employed as a call center operator by Bell South. Plaintiff's doctor, Dr. Isidro Cardella, a board-certified obstetrician and gynecologist, classified plaintiff's pregnancy as "high risk", and recommended bed rest, limiting her work hours, and allowing frequent bathroom breaks.[35]

The plaintiff had also had a prior medical history which contributed to her high-risk pregnancy: she was obese, and had gastric surgery due to her obesity, she had suffered two herniated discs, had back surgery, and had her gall bladder removed prior to her pregnancy.

On August 11, 2004, the plaintiff was fired for non-performance. Two days later, she suffered a placental abruption and delivered her child twenty weeks early. Dr. Cardella opined in his deposition that workplace stress, exacerbated by Bell South's alleged refusal to accommodate Ms. Perez's medical condition, was the causal agent of the abruption. Dr. Cardella's testimony was the only testimony linking the premature birth to Bell South.

However, Dr. Cardella also testified there was no way of ever knowing for sure what caused the placental abruption, and that his conclusions were purely his own personal opinion, not supported by any credible scientific research.

Interestingly, the trial court dismissed Dr. Cardella's testimony under the *Frye* standard.[36] In affirming the lack of admissibility of the plaintiff doctor's testimony, the *Perez* panel held that under *Daubert:*

> "the subject of an expert's testimony must be 'scientific knowledge.' "[I]n order to qualify as 'scientific knowledge,' an inference or assertion must be **derived by the scientific method**."
>
> The touchstone of the scientific method is empirical testing—developing hypotheses and testing them through blind experiments to see if they can be verified. "[S]cientific method [is][a]n analytical technique by which a hypothesis is formulated and then systematically tested through observation and experimentation."). As the United States Supreme Court explained in *Daubert*, "This methodology is what distinguishes science from other fields of human inquiry."
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> Thus, "a key question to be answered" in any *Daubert* inquiry is whether the proposed testimony qualifies as "scientific knowledge" as it is understood and applied in the field of science to aid the trier of fact with information that actually can be or has been tested within the scientific method. "General acceptance" [from the Frye test] can also have a bearing on the inquiry, as can error rates and whether the theory or technique has been subjected to peer review and publication.
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> Thus, there remains some play in the joints. However, "general acceptance in the scientific community" alone is no longer a sufficient basis for the admissibility of expert testimony. It "is simply one factor among several." Subjective belief and unsupported speculation are henceforth inadmissible.[37]

In finding Dr. Cardella's testimony inadmissible, the *Perez* panel found that Dr. Cardella never before related a placental abruption to workplace stress, and knew of no one who had. There was no scientific support for his opinion, and his opinion was a classic example of the common fallacy of assuming causality from temporal sequence.

Perez established three things: (1) the Legislature intended to "tighten the rules for admissibility of expert testimony", (2) the *Daubert* standard applies retroactively to all cases, and (3) an expert's subjective, unsupported belief – the so-called "pure opinion" testimony – is inadmissible.

The *Perez* case applied *Daubert* to testimony involving obstetrics and gynecology. Medicine is a natural science, and therefore considered one of the "hard sciences." Psychology, political science, and sociology are considered "soft sciences".[38] Soft sciences are the type routinely relied on in family law cases. Left unresolved by the Court in *Perez* was how the

Daubert test could be applied to testimony involving the soft sciences.

Excluding Expert Testimony: *Booker*

In the recent case of *Booker v. Sumter County Sheriff's Office / N. Am. Risk Services*, 166 So. 3d 189 (Fla. 1st DCA 2015), the Court added two new tasks to a trial judge's "gatekeeper" role.[39] First, determine the timeliness of the objections to expert testimony. Second, decide whether the objection is sufficient to put opposing counsel on notice to address any defect in the expert's testimony. *Booker* also important helps define "pure opinion" evidence, and raises the "judicial notice" exception to *Daubert*.

In *Booker,* the appellant was aware in April that the opposing expert was relying on various studies in support of his opinion.[40] The appellant raised a *Daubert* objection in September, two weeks before the final hearing. The trial judge ruled the objection untimely. The First District affirmed, finding that the *Daubert* challenge should have been made when the report was received, or promptly thereafter.

Finding the *Daubert* objection to the testimony was insufficient, the *Booker* opinion held that the objections must be directed to "specific opinion testimony," and "state a basis for the objection beyond just stating she was raising a *Daubert* objection."

The Court defined "pure opinion" as testimony based only on an expert's clinical experience and training. For example, if an expert was asked how he arrived at an opinion, and his response was that "when I was asked and thought about it, that is the answer that I came up with", *Booker* concludes the opinion is inadmissible because it: "provides no insight into what principles or methods were used to reach his opinion, and did not demonstrate that he applied any such principles or methods to the facts of this case."[41]

Finally, the *Booker* panel discusses an exception to *Daubert*. The exception is based on judicial notice, which "permits a judge to take judicial notice if the expert testimony has been deemed reliable by an appellate court."

As the majority opinion in *Daubert* itself noted, certain scientific theories are so firmly established as to "have attained the status of scientific law, such as the laws of thermodynamics, properly are subject to judicial notice under Federal Rule Evidence 201."[42]

While it would be a stretch for a court to take judicial notice that "PCBs do not cause lung cancer," the judicial notice exception relieves the burden of the proponent of objectionable testimony, and shifts the burden to the opponent to prove that such evidence is otherwise flawed or inadmissible.

Conclusion

By the time the Salem witch trials were stopped in October 1692, testimony by experts helped send nineteen people to Gallows Hill.[43] It was only after four months of hearings that people began to loudly question the evidence.[44] The Governor acted swiftly, and dissolved the Court.[45] The Governor also prohibited further use of spectral evidence. Not surprisingly, the remaining defendants were acquitted.[46]

The amendment to the expert witness rules brings Florida's expert testimony rules into line with the Federal Rules of Evidence and most state codes. The new rules bolster the reliability of expert testimony by requiring it to be based on the scientific method. The recent *Perez* and *Booker* cases show that a working knowledge of the *Daubert* standard, and how to apply it, is vital to every family law practice.

Ronald H. Kauffman *is board certified in marital and family law, and practices in Miami. He currently serves on the Executive Council of the Florida Bar Family Law Section.*

Endnotes

1 The General Court of the Massachusetts Bay Colony adopted a statute in 1641 which is a mix of biblical passages and colonial statutes: "If any man or woman be a WITCH, that is, hath or consulteth with a familiar spirit, they shall be put to death. Exod. 22. 18. Levit. 20. 27. Deut. 18. 10. 11." *See* Lyonette Louis-Jacques, *The Salem Witch Trials: A Legal Bibliography,* University of Chicago, available at http://news.lib.uchicago.edu/blog/2012/10/29/the-salem-witch-trials-a-legal-bibliography-for-halloween/.

2 *See generally,* Jane Campbell Moriarty, *Wonders of the Invisible World: Prosecutorial Syndrome and Profile Evidence in the Salem Witchcraft Trials*, 26 Vt. L. Rev. 43, 58 (2001). (European witch trials relied on trial by ordeal. The "water ordeal", for instance, involved binding the accused's thumbs to their toes, then tossing them into water. If they floated, they were guilty. If they sank, they were innocent.)

3 *See Id.* at 60.

4 Spectral evidence refers to testimony by witnesses that an accused's spiritual form appeared to them in visions and dreams. Rev. Cotton Mather, an expert witness, testified that spectral evidence is suitable in cases of necessity. *See* Peter Charles Hoffer, *The Salem Witch Trials: A Legal History*, University Press of Kansas (1997) p. 79.

5 *See e.g.* Fla.R.Civ.P. 1.390 (generally an expert witness is a person duly and regularly engaged in the practice of a profession who holds a professional degree from a college or one possessed of special knowledge or skill about the subject.) Rev. Cotton Mather, for instance, was from a prominent Puritan family, earned his M.A. at Harvard College, wrote over 400 works on witchcraft and a variety of scientific studies, and was elected to the Royal Society of London. *See* Rachel Walker, *Cotton Mather,* University of Virginia Documentary Archive and Transcription Project, available at *http://salem.lib.virginia.edu/people/c_mather.html*

6 *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

7 *See* Stephen E. Mahle, *The "Pure Opinion" Exception to the Florida Frye Standard*, 86 Fla. B.J., Feb. 2012, 41.

8 *See* §90.702, Fla. Stat. (2014).

9 The bill amended both §90.702 and §90.704, Florida Statutes. References to the expert witness rules in this article are sometimes referred to as Rule 702 for simplicity.

10 *See e.g.* Ronald H. Kauffman, *Out of the Frye Pan? Expert Witness Testimony Under New Rule 702*, The Commentator, (Fall 2013).

11 293 F. 1013 (D.C. Cir. 1923).

12 *Id.* (emphasis added).

13 *See Sikes v. Seaboard Coast Line R.R.,* 429 So.2d 1216, 1221 (Fla. 1st DCA 1983) (citing Charles W. Ehrhardt, *A Look at Florida's Proposed Code of Evidence*, 2 Fla. St. U.L.Rev. 681, 682–83 (1974)).

14 *Brim v. State*, 695 So.2d 268, 271 (Fla. 1997). Ironically, scholars have concluded that *Daubert* is the stricter standard. *See* Stephen E. Mahle, *The "Pure Opinion" Exception to the Florida Frye Standard*, 86 Fla. B.J., Feb. 2012, 41; Edward Cheng & Charles Yoon, *Does Frye or Daubert*

continued, next page

The *Daubert* Crucible
from preceding page

Matter?: A Study of Scientific Admissibility Standards, 91 Va. L. Rev. 471, 472 (2005).

15 977 So.2d 543 (Fla. 2007).

16 *Id.* at 547.

17 *See* Fla. Const. Art. V, §2 ("The supreme court shall adopt rules for the practice and procedure in all courts . . ."). *See also Massey v. David,* 979 So.2d 9314, 936 (Fla. 2008).

18 *Bush v. Schiavo,* 885 So.2d 321, 329 (Fla. 2004).

19 *See In re Amendments to the Florida Evidence Code*, 782 So.2d 339, 341 (Fla. 2000) (recognizing that the Florida Evidence Code contains both substantive and procedural provisions, and that the Florida Supreme Court regularly issues opinions adopting or refusing to adopt the procedural rules enacted as amendments to the Florida Evidence Code).

20 *See Perez v. Bell S. Telecommunications, Inc.*, 153 So. 3d 908 (Fla. 2014) (The Florida Supreme Court declined to accept jurisdiction.) *See also Perez v. Bell S. Telecommunications, Inc.*, 138 So. 3d 492, 498, n. 12 (Fla. 3d DCA 2014). ("We take comfort here in the fact that the Florida Supreme Court periodically adopts all legislative changes to the Florida Evidence Code to the extent they are procedural . . . and has already stricken all references to the Frye test from the Florida Rules of Juvenile Procedure . . .").

21 *See* Fla. HB 7015 (2013) at 1-3.

22 509 U.S. 579 (1993).

23 Interestingly, Bendectin is returning to the marketplace under a new name with a new maker. The FDA never required Bendectin's removal, it is just that no one wanted to risk litigation. *See* Amy Orciari Herman, *Morning-Sickness Pill Bendectin Back on the Market with a New Name,* http://www.jwatch.org/fw201304100000001/2013/04/10/morning-sickness-pill-bendectin-back-market-with (April 10, 2013).

24 *See Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590–591 (1993).

25 *Id.*

26 *See Id.* at 579.

27 522 U.S. 136 (1997).

28 *See Castillo v. E.I. Du Pont De Nemours & Co., Inc.,* 854 So.2d 1264, 1268 (Fla. 2003).

29 *Joiner*, 522 U.S. at 146. *Ipse dixit* is Latin for "he himself said it".

30 *Id.*

31 526 U.S. 137 (1999).

32 *Id.*

33 *Id.* at 152.

34 *See Conley v. State*, 129 So. 3d 1120, 1121 (Fla. 1st DCA 2013), (remanding for a determination of the admissibility of the evidence under the *Daubert* standard codified by section 90.702). *See also Booker v. Sumter County Sheriff's Office/N. Am. Risk Services,* 166 So. 3d 189 (Fla. 1st DCA 2015).

35 *Perez v. Bell S. Telecommunications, Inc.*, 138 So. 3d 492 (Fla. 3d DCA 2014).

36 Section 90.702 of the Florida Evidence Code was held to be applied retrospectively. *See Id.* at 498.

37 *Id. at* 498-99 [internal citations omitted].

38 *See* Pamela Frost, *Metanews: Columbia University*, available at http://www.columbia.edu/cu/21stC/issue-1.1/soft.htm

39 166 So. 3d 189 (Fla. 1st DCA 2015).

40 *See Id.*

41 *See Giaimo v. Florida Autosport, Inc.*, 154 So.3d 385, 387-88 (Fla. 1st DCA 2014).

42 *See Daubert*, 509 U.S. at 592, n.11.

43 Experts disagree over the actual location of Gallows Hill. *See* http://historyofmassachusetts.org/where-is-the-real-gallows-hill/

44 *See* Moriarty, *supra* n.2 at 80-81.

45 The Governor's alacrity may stem from the fact that his wife was taken in for questioning about witchcraft. *See* Juss Blumberg, *A Brief History of the Salem Witch Trials*, The Smithsonian, available at http://www.smithsonianmag.com/history/a-brief-history-of-the-salem-witch-trials-175162489/?page=1.

46 *See* Sarah Kreutter, *The Devil's Specter: Spectral Evidence and the Salem Witchcraft Crisis*, The Spectrum: A Scholars Day Journal: Vol. 2, Article 8. Available at: http://digitalcommons.brockport.edu/spectrum/vol2/iss1/8