Challenging Expert Testimony: Does *Daubert* Make a Difference?

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Beginnings of Expert Evidence

- *Frye v. United States*, 293 F. 1013 (1923)
  - "General acceptance" standard enunciated
- *Logerquist v. McVey*, 196 Ariz. 470 (2000)
  - Arizona's Formulation
  - "Expert evidence based on a qualified witness' own experience observation, and study is treated differently from opinion evidence based on novel scientific principles advanced by others."
- Time lag between admissibility and scientific acceptance
- Application generally uniform

Frye vs. Daubert in Arizona

- *Logerquist v. McVey*, 196 Ariz. 470 (2000)
  - 3-2 vote rejecting *Daubert* in Arizona
  - majority opinion does not actually follow *Frye* either
- Two Dissents
  - Justice McGregor was gentler in tone
    - "I also am concerned that, by rejecting *Daubert,* we lose the flexibility needed to admit evidence based upon reliable, but newly-developed, scientific principles."
  - Justice Martone
    - "Suffice it to say, there are almost no views or opinions expressed in the majority opinion that I share."

Conforming Arizona to Federal

- Supreme Court Administrative Order 2010-42 (3/24/10)
  - Established ad hoc committee to compare the Ariz. R. Evid. to the federal rules and conform Arizona to the feds where appropriate.
- R-10-0035
  - Rule change petition put forth by the ad hoc committee
  - Rule change petition included 3 proposals for Rule 702:
    1. Keep current;
    2. Change to *Daubert*; or
    3. Mauet's hybrid version.
- S.B. 1189 (2010), enacted as § 12-2203; held unconstitutional as violating separation of powers in *Lear v. Fields*, 226 Ariz. 226 (App. 2011).

Debate on Rule 702 in 2010-11

Supporters of maintaining *Frye*
- Arizona Trial Lawyers Ass'n
- Prosecuting agencies:
  - APAAC
  - Maricopa County Attorney
  - Pima County Attorney
  - Pinal County Attorney

Supporters of changing to *Daubert*
- Criminal Defense:
  - Arizona Attorneys for Criminal Justice (state NACDL affiliate)
  - Arizona Justice Project

Daubert

- *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993)
  - "General acceptance" is no longer a precondition to admission of expert evidence
  - Trial court now has a gatekeeper function to exclude unreliable expert opinions
  - Focus now is whether the expert testimony is not only relevant, but reliable
- *United States v. Williams*, 506 F.3d 151 (7th Cir. 2007)
  - "*Daubert* did make plain that Rule 702 embodies a more liberal standard of admissibility for expert opinions than did *Frye*."
- Completing the Trilogy
  - *General Electric v. Joiner*, 522 U.S. 136 (1997)
  - *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999)

Arizona Rule of Evidence 702

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

(a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

(b) the testimony is based on sufficient facts or data;

(c) the testimony is the product of reliable principles and methods; and

(d) the expert has reliably applied the principles and methods to the facts of the case.

Rule 702 – General Considerations

- *Rule 702 only applies Prospectively*.
  - *State v. Miller*, 234 Ariz. 31, ¶¶ 28-31 (2013)
    - Rule 702 is not constitutionally-rooted and thus is not retroactive
    - Cases that went to trial in 2011 or earlier still apply *Frye*
- Not intended to Displace the Jury
  - *State v. Bernstein*, 237 Ariz. 226, 349 P.3d 200 (2015)
    - Gatekeeping function not intended to displace adversary system
    - Cross-examination before fact finder is preferred method to test shaky evidence
- Evidentiary Hearing?
  - *Glazer v. State*, 234 Ariz. 305 (App. 2014), *vacated in part on other grounds* 237 Ariz. 160 (2015).
    - Trial court need not hold evidentiary hearing before admitting expert testimony

Rule 702 – Qualified as an Expert

- Most Meet Multiple Categories
  - Knowledge
  - Skill
  - Experience
    - Generally focused on the practical experience
    - Includes witnesses with no formal training or education
  - Training
    - Job instruction or work related classes
  - Education
    - Includes witnesses with no practical experience
    - Includes informal or self-study
- *Felipe v. Theme Tech Corp.*, 235 Ariz. 520 (App. 2014)
  - Investigating police officer gave expert opinion when his testimony extended beyond his observations at the scene and his physical investigation.

Rule 702(a)

- Text
  - (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue
- Expert Needed?
  - Federal Rule 702 Advisory Committee Note
    - "There is no more certain test for determining when experts may be used than the **common sense inquiry** whether the untrained layman would be qualified to determine intelligently and to the best possible degree the particular issue without enlightenment from those having a specialized understanding of the subject involved in the dispute."
- *State v. Romero*, 236 Ariz. 451 (App. 2014), *petition for review granted*:
  - By 2-1 vote, Court of Appeals holds that defense expert in experimental design is not qualified to critique firearms comparison evidence.

Rule 702(b)

- Text
  - (b) the testimony is based on sufficient facts or data
- Quantitative inquiry
  - Did the expert consider enough information to form an opinion
- Intended to be broad
  - Other expert's opinions
  - Hypothetical facts
- The reference is not intended to preclude expert opinion testimony when experts differ on the facts.
  - Consideration under Rule 702(c)

Rule 702(c)

- Text
  - (c) the testimony is the product of reliable principles and methods
- Focus is whether the expert properly reached his or her opinions
  - Consider *Daubert* factors
  - Test other possible explanations
- Broad enough to include competing methods
  - But did expert reach conclusions other experts would not rationally reach?
- Non-scientific experts (Soft Sciences)
  - Proof is particularly difficult, so trial court has broad discretion

Daubert Factors

- Adopted in Arizona
  - *State ex rel. Montgomery v. Miller (Madrid)*, 234 Ariz. 289 (App. 2014)
- Five Factors:
  - (1) Whether the expert's theory or technique can be tested;
    - Objective challenges vs. subjective and conclusory
  - (2) Whether the theory or technique has been subjected to peer review and publication;
    - Nature of publication matters
  - (3) Whether the technique or theory is generally accepted within the relevant scientific community;
    - *Frye*
  - (4) The known or potential rate of error of the technique or theory when applied; and
  - (5) The existence and maintenance of standards controlling application of the technique.
    - Licensure also relevant

Daubert Factors

- Importance of Factors?
  - *Kumho Tire* holds that *Daubert* applies to non-scientific expert testimony, but
  - Factors are not exclusive
  - *ASH/Ariz. Cmty. Prot. & Treat. Ctr. v. Klein*, 231 Ariz. 467 (App. 2013)
- Trial court Determines which Factors are Appropriate
  - Leads to inconsistent application
  - Courts admit testimony even when skeptical of *Daubert* factors

Other Considerations

- Adopted in Arizona
  - *State ex rel. Montgomery v. Miller (Madrid)*, 234 Ariz. 289, 321 P.3d 454 (App. 2014)
- Various other factors applied by the courts:
  - Expert's testimony is prepared solely in anticipation of litigation;
  - Expert's field of expertise/discipline is known to produce reliable results;
  - Other courts have found reliability;
  - Non-judicial uses for the expert's methodology/science;
  - Expert just as cautious for litigation as with professional work;
  - Accounted for obvious alternative explanations; and
  - Adequately accounts for available data and unknown variables.

Rule 702(d)

- Text
  - (d) the expert has reliably applied the principles and methods to the facts of the case.
- Two Main Considerations
  - Cold Experts = Admissible
    - *State v. Salazar-Mercado*, 234 Ariz. 590 (2014)
      - Federal Advisory Committee Note - The testimony must "fit" the facts of the case, but the expert does not have to be the one who makes it fit.
  - Reliability = Admissibility vs. Weight
    - *State v. Bernstein*, 237 Ariz. 226, 349 P.3d 200 (2015)
      - "[A]lleged flaws in the application of a reliable methodology should not result in exclusion of evidence unless they so infect[] the procedure as to make the results unreliable."

New Rule 702 Supposed to Eliminate Junk Science

What qualifies as reliable versus junk?

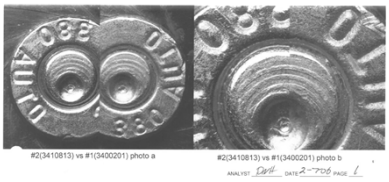
- National Academy of Sciences reviewed forensic sciences in 2007-08 and issued report, *Strengthening Forensic Science in the United States: A Path Forward* (available online at https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf).
- NAS found flaws in methodology in numerous law enforcement forensic sciences

Focus on Forensic Sciences

- Courts have greater opportunity to scrutinize Forensic Sciences
  - But hesitant to preclude established approaches
  - Does NAS Report mean forensic sciences are junk science or not?
- Courts are Combining Rules 702 and 403
  - Find forensic scientists are experts, reliable, and applicable, but
  - Disagree with overly certain identifications
    - *Compare* Firearms = 100% certain of a "match"
    - *With* DNA = Statistical calculation
- Result
  - Allow testimony on science and results
  - Preclude testimony on identification

Forensic Science Examples

Example of shell casing comparison

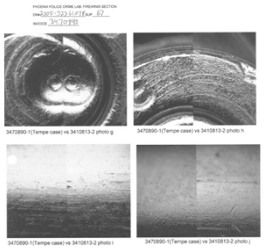


3410813-2 – casing near victim #1

3400201-1 – casing found at location

EXPERT: FIRED FROM SAME GUN

Example of shell casing comparison

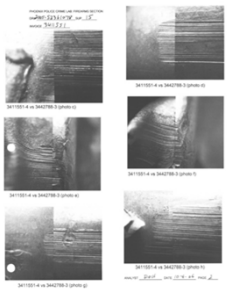


3410813-2: casing from near victim #1

3470890-1: casing from near victim #2

EXPERT: FIRED FROM SAME GUN

Example of bullet comparison



3411551-4 – bullet from victim #1

3442788-3 – bullet from victim #3

EXPERT: FIRED FROM SAME GUN

Firearms comparison – NAS Report

- "[T]he decision of the toolmark examiner remains a subjective decision based on unarticulated standards and no statistical foundation for estimation of error rates."
- "Because not enough is known about the variabilities among individual tools and guns, we are not able to specify how many points of similarity are necessary for a given level of confidence in the result. Sufficient studies have not been done to understand the reliability and repeatability of the methods."
- "A fundamental problem with toolmark and firearms analysis is the lack of a precisely defined process. AFTE has adopted a theory of identification, but it does not provide a specific protocol. . . ."

Firearms comparison - AFTE

- Association of Firearm and Tool Mark Examiners (AFTE) responded to NAS report in its trade journal:
  - "There is an extensive body of research, extending back over one hundred years, which establishes the accuracy, reliability, and validity of conclusions rendered in the field of firearm and toolmark identification."
  - "[T]he NAS Committee in effect chose to ignore extensive research supporting the scientific underpinnings of the identification of firearm and toolmark evidence, despite having been provided with documentation referencing many of these studies as early as June 2008."

State v. Romero, 236 Ariz. 451 (App. 2014)

- State's firearms examiner testified that he could match a bullet to a gun to a reasonable degree of scientific certainty.
- Defense filed motion to preclude (1) firearms comparison testimony entirely; or (2) an opinion as to "match." Both denied.
- State filed motion to preclude defense expert in experimental design. Granted.

Romero

- Court of Appeals affirmed all rulings.
  - No court in the country has entirely precluded firearms comparison. Even those that have limited it the most allow for class characteristic similarities.
  - State's expert cannot testify to a "match to the exclusion of all other guns in the world with no doubt," but because he said "reasonable degree of scientific certainty," it was ok.
  - Expert in experimental design not qualified to discuss firearm toolmark analysis because he was a forensic psychologist and lacked experience in "any physical sciences on which toolmark analysis rests, such as ballistics, metallurgy, or physics," and "could not describe the methods or protocols of a toolmark analyst."

Romero

- Judge Eckerstrom dissented from preclusion of defense expert
  - Defense witness, expert in experimental design, could help jury understand the scientific underpinnings and the fallibility / limitations of firearms comparison.
  - No rule that experts must have parallel credentials. Defense expert not required to be firearms examiner.
  - Majority failed to address trial court's erroneous ruling that allowing defense expert to challenge state's expert would result in "a second Daubert hearing before the jury."
  - Applying the "helpfulness" standard of *Salazar-Mercado*, Eckerstrom finds that the defense expert "far exceeded this modest standard."
  - Concurred in the result because error was harmless.

How did the science develop?

- Is there a community of scientists, independent of law enforcement, that has tested the scientific theories underpinning the discipline / application?
- If not, then NAS Report calls for greater independence for the practitioners. In particular, crime labs should not be operated by law enforcement.

Noncontroversial applications

- DNA – everyone LOVES DNA because it arose out of academic research and is conclusively scientifically validated.
- Fingerprints – admissible with limitations
  - *State v. Favela*, 234 Ariz. 433 (App. 2014)
  - *USA v. Herrera*, 704 F.3d 480 (7th Cir. 2013)
- Polygraphs – still inadmissible
  - *State v. Perez*, 233 Ariz. 38 (App. 2013)

Changing science and *Daubert*

- Concurrently with the Rule 702 change, courts are being presented with new challenges to old sciences/arts
- Many of the forensic sciences were under attack in court at the time of the rule change; moving away from *Frye* allowed the defense to bring new challenges.
- Generally, defense success is due to changing science, not changing rules.

Questionable Sciences

- Comparative Bullet Lead Analysis
  - In 2002, the FBI called its own theories and practices into question
  - *Clemons v. State*, 896 A.2d 1059 (Md. 2006) (CBLA fails both under *Frye* and *Daubert* now that there is controversy over its scientific underpinnings)
  - *Ragland v. Comm.*, 191 S.W.3d 569 (Ky. 2006) ("The scientific study commissioned by the FBI Laboratory, itself, raised questions about the reliability and relevancy of CBLA that were sufficiently serious to convince the Laboratory to discontinue forthwith CBLA testing.").

Questionable Sciences

- Hair Microscopy
  - *Meskimen v. Comm.*, 435 S.W.3d 526 (Ky. 2013) ("Microscopic hair analysis is a scientifically reliable method, and we, therefore, do not require that a *Daubert* hearing be held with regard to the admittance of such evidence. . . .")
  - Recently, the FBI has admitted that certain conclusions were flawed and is reviewing old cases in conjunction with the Innocence Project and defense attorneys.
  - Washington Post series of articles by Spencer Hsu reported on evolution of science of hair microscopy and FBI's work with defense community.

Challenges to Traditional Sciences

- Handwriting Analysis
  - Called into question by NAS report.
  - Even before NAS report, very few courts would allow an examiner to testify to a "match" and restricted the expert to testify only as to similarities shared between questioned document and known exemplar.

Handwriting Analysis

Challenges to Traditional Sciences

- Child Sexual Abuse Accommodation Syndrome
  - *State v. Lindsey*, 149 Ariz. 472 (1986)
    - CSAAS admissible without requiring *Frye* analysis.
  - *State v. Salazar-Mercado*, 234 Ariz. 590 (2014)
    - Defendant to present any evidence raising questions about prior decisions permitting CSAAS evidence.
  - *State v. Ortiz*, 238 Ariz. 329 (App. 2015)
    - The average juror is not familiar with the behavioral characteristics of victims of child molesting (CSAAS), so the testimony is permissible under Rule 702(a).

Challenges to Traditional Sciences

- Arson investigation
  - *United States v. Markum*, 4 F.3d 891 (10th Cir. 1993)
    - Expert testimony of fire chief that fire was deliberately set is the kind of evidence that is generally accepted
  - *Willingham v. Cockrell*, 61 Fed. Appx. 918 (5th Cir. 2003)
    - Certificate of appealability denied because arson investigator's testimony that fire was intentionally set was "not debatable"
  - *Ex parte Robbins*, __ S.W.3d __, n.5 (Tex. Crim. App. 2014)
    - "Arson science came to the public's attention after the execution of Cameron Todd Willingham and the concern that he may have been convicted of the capital murder of his three children based on outmoded arson theories and techniques."
  - Pioneer Fire case and the release of Louis Taylor in 2013

Abusive Head Trauma

- For decades, physicians testified that a baby who presents with a triad of symptoms (cerebral edema, subdural hematoma, retinal hemorrhaging) is a victim of abusive shaking.
- In 2009, the name was changed to abusive head trauma.
- Beginning in 1997, medical examiners and biomechanical engineers began challenging the assumptions underlying SBS/SIS/AHT.

Abusive Head Trauma

- There is now a debate in the medical community: pits pediatrics (pro) against forensic pathologists and biomechanical engineers (con).
- Defendants occasionally given new trials or having cases dismissed outright because of the debate in the medical community.
- To date, there is still no published case of a state's doctor being precluded from testifying to the AHT theory. Both sides call their experts and the jury sorts it out.
- *See* NDAA, *Overcoming Defense Expert Testimony in Abusive Head Trauma Cases*, *available at* http://www.ndaa.org/pdf/Abusive%20HeadTrauma_NDAA.pdf.

Police officers

- Under previous Rule 702, police officers could testify to "training and experience" without being subject to *Frye* hearing
  - "For-sale expert" – opinion evidence that drugs were possessed for sale
  - Narcotics trade – *modus operandi*, lingo, driving in tandem, etc.
  - Gang behavior – colors, tattoos, slang, etc.
- With *Daubert*, officers may still testify based on experience, but their expert opinions can be challenged in pre-trial hearings.

Appellate review of *Daubert* rulings

- *Barabin v. AstenJohnson, Inc.*, 740 F.3d 457 (9th Cir. 2014) (en banc):
  - Trial court may not avoid difficult or complex issues "by giving each side leeway to present its expert testimony to the jury," but must explicitly find that proposed testimony is relevant and reliable under *Daubert*
  - If the record is insufficient, relief is either a new *Daubert* hearing or a new trial. In this case, vote was 6-5 in favor of a new trial.
- *Glazer v. State*, 234 Ariz. 305 (App. 2014), *vacated in part on other grounds*
  - Sidesteps the question of whether a express factual findings are necessary
- **Practice Pointer: even if you win in the trial court, make sure you have a good record!**

Conclusions

- *Daubert* provides for more extensive and intense pre-trial litigation for proffered expert testimony.
- *Daubert* hearings rarely result in preclusion of witnesses, but trial judges are more likely to limit testimony after an evidentiary hearing. Under *Frye*, such hearings rarely occurred.
- The rule has changed, but human nature causes people to draw on previous experience, even if that experience was under *Frye*. Courts also rely on precedent even when the law has changed.