

Forensic Science Paradox

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Early Cases

- Fingerprints: People v. Jennings (1911)
- Firearms (“ballistics”) Identifications
 - Sacco & Vanzetti (1927)
 - Burchett v. State (Ohio App. 1928)
 - St. Valentine’s Day Massacre (1929)
- Handwriting Comparison
 - Lindbergh Kidnapping Trial (1936)

Linbergh Case

- Bruno Hauptmann's conviction in the Linbergh case “created landmarks in scientific crime detection, in the utilization of forensic scientists, and in the courtroom presentation of scientific and demonstrative evidence.”
 - Baden, 28 J. Forensic Sci. 1035 (1983).

Linbergh Case

- Albert Osborn, one of the handwriting experts in the trial, “became a kind of public hero, and the validity of ‘scientific’ handwriting identification when practiced by a ‘competent’ practitioner became public knowledge”
 - Risinger et al., 137 U. Pa. L. Rev. 731, 738 (1989)

Sacco & Vanzetti

- Captain Proctor's affidavit: repeatedly told the prosecutor that "he would have to answer in the negative if he were asked whether he had found positive evidence that the fatal bullet had been fired from Sacco's pistol."
- Trial Testimony: "My opinion is that it is consistent with being fired by that pistol."
- Joughin & Morgan, *The Legacy of Sacco & Vanzetti* 15 (1948).

Development of Crime Lab

- 1923 L.A. Crime Lab
 - August Vollmer; Berkeley Criminology Depart't
- 1930 L.A. Sheriff's Lab
- 1931 California State Lab
- 1929 Northwestern Law School
 - Calvin Goddard & John Henry Wigmore
 - 1938 Chicago Crime Lab
- 1933 F.B.I. Crime Lab

Crime Labs as Reform

- Frankfurter, *The Case of Sacco and Vanzetti* 30 (1927) (“What is the worth of identification testimony even when uncontradicted? The identification of strangers is proverbially untrustworthy.”).
- *Brown v. Mississippi* (U.S. 1936) (due process violated by beating a confession out of a suspect).

Spread of Crime Labs

- “Most laboratories owe their existence, not to progressive attitude on the part of police administrators, but because the police agencies inaugurating laboratory services were shamed into it by adverse publicity or the threat of it.”
 - Thornton, 11 *Lex et Scientia* 1, 23 (1975)

Developments: 1988-1993

- DNA Litigation
 - People v. Castro (1989)
- Daubert v. Merrell Dow Pharmaceuticals
 - Supreme Court's "junk science" decision
- Lab Abuse Cases
 - W. Virginia Crime Lab (Fred Zain) (1993)

DNA Admissibility “Wars”

- University science, not forensic science
- “Science culture”
 - written protocols
 - quality assurance/quality control
 - proficiency testing
- Open science vs. adversarial science

DNA Gold Standard

- What DNA “Fingerprinting” Can Teach the Law About the Rest of Forensic Science?
 - “forensic scientists, like scientists in all other fields, should subject their claims to methodologically rigorous empirical tests. The results of these tests should be published and debated.”
 - Saks & Koelher, 13 Cardozo L. Rev. 361 (1991)

Garrett, Judging Innocence, 108 Colum. L. Rev. 55 (2008)

- 200 DNA exoneration cases
- Eyewitness identifications: 79%
- Forensic evidence: 57%
- Informants testimony: 18%
- False confessions: 16%

Forensic Evidence

- Pre-DNA serology: 79 cases
- Hair comparison: 43
- Soil comparison: 5
- DNA analysis: 3
- Bite marks: 3
- Fingerprints: 2
- Dog scent ident.: 2
- Voiceprints, shoe prints, fibers: 1 each

Hair Comparisons

- “This court has been unsuccessful in its attempts to locate *any* indication that expert hair comparison testimony meets any of the requirements of *Daubert*.”
 - Williamson v. Reynolds, 904 F. Supp. 1529, 1558 (E.D. Okl. 1995) *rev'd on this issue*, 110 F.3d 1508, 1522-23 (10th Cir. 1997) (due process, not *Daubert*, standard applies in habeas proceedings)

Hair Comparison (cont.)

- Most courts still admit this evidence
- mtDNA evidence compared: Microscopic analysis wrong 12% of time
 - Houch & Budowle, *Correlation of Microscopic and Mitochondrial DNA Hair Comparisons*, 47 J. Forensic Sci. 964 (2002)

Bitemark Comparison

- State v. Krone, 897 P.2d 621 (Ariz. 1995)
 (“The bite marks were crucial to the State’s case because there was very little other evidence to suggest Krone’s guilt.”)
- Krone exonerated through DNA profiling
 - Hansen, The Uncertain Science of Evidence, ABA J. 49 (July 2005)

Bitemark (cont.)

- Expert concluded “that Burke's teeth matched the bite mark on the victim's left breast to a ‘reasonable degree of scientific certainty.’ ... DNA analysis showed that Burke was excluded as the source of male DNA found in the bite mark on the victim's left breast.”
 - *Burke v. Town Of Walpole*, 405 F.3d 66, 73 (1st Cir. 2005)

Kennedy Brewer

- State v. Brewer, 725 So. 2d 106 (Miss. 1998).
- Dewan, *Despite DNA Result, Prosecutor Retries a '92 Rape-Murder Case*, N.Y. Times, Sept. 6, 2007.
- Dewan, *New Suspect Is Arrested in Mississippi Killings in Which 2 Men Were Convicted*, N.Y. Times, Feb. 8, 2008.

Daubert: Liberal v. Strict

- “Given the Rules’ permissive backdrop”
- *Frye* an “austere standard”
- “The Rule’s basic standard of relevance ... is a liberal one.”
- “[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.”

But: “Gatekeeper” role

- “[I]n 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.” *Id.* at 588.

United States v. Bonds

- DNA admitted at trial under *Frye* test
- “We find that the DNA testimony easily meets the more liberal test set out by the Supreme Court in *Daubert*.”
 - 12 F.3d 540, 568 (6th Cir. 1993)

Polygraph Evidence

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- U.S. v. Posado (5th Cir. 1995) (per se rule of exclusion inconsistent with *Daubert*)
- *Galbreth & Crumby* (district courts 1995) (admit)
- State cases still reject

Later Supreme Court Cases

- *Joiner* (1997):
 - *Daubert* “somewhat broader” than *Frye*
- *Kumho* (1999):
 - *Daubert* extends to nonscientific evidence
- *Wisegram v. Marley Co.*, 528 U.S. 440 (2000)
 - *Daubert* sets an “exacting standard”

U.S. v. Horn

- “Under *Daubert*, ... it was expected that it would be easier to admit evidence that was the product of new science or technology. In practice, however, it often seems as though the opposite has occurred – application of *Daubert/Kumho Tire* analysis results in the exclusion of evidence that might otherwise have been admitted under *Frye*.”
 - 185 F. Supp. 2d 530 (D. Md. 2002) (HGN)

Admissibility Challenges

- Supreme Court in *Daubert* and *Kumho* “is plainly inviting a reexamination even of ‘generally accepted’ venerable, technical fields.”
 - U.S. v. Hines, 55 F. Supp. 2d 62, 67 (D. Mass. 1999)
- “Courts are now confronting challenges to testimony ... whose admissibility had long been settled.”
 - U.S. v. Hidalgo, 229 F. Supp. 2d 961, 966 (D. Ariz. 2002)

Rand Institute: Civil Cases

- “[S]ince *Daubert*, judges have examined the reliability of expert evidence more closely and have found more evidence unreliable as a result.”
 - Dixon & Gill, 8 Psychol., Pub. Pol’y & L. 251 (2002)

Study of Criminal Cases

- “*Daubert* decision did not impact on the admission rates of expert testimony at either the trial or appellate court levels.”
 - Groscup et al., 8 Psychol., Pub. Pol’y & L. 339, 364 (2002)

Forensic Sci. Community

- “The *Daubert* Standard goes a step further than *Frye* and requires the forensic scientists to prove that the evidence is fundamentally scientifically reliable, not just generally accepted by his/her peers in the discipline.”
 - Jones, President’s Editorial, 47 J. Forensic Sci. 437 (2002)

Handwriting Comparisons

- “Because the principle of uniqueness is without empirical support, we conclude that a document examiner will not be permitted to testify that the maker of a known document is the maker of the questioned document. Nor will a document examiner be able to testify as to identity in terms of probabilities.”
 - U.S. v. Hidalgo, 229 F. Supp. 2d 961, 967 (D. Ariz. 2002)

Fingerprints

- U.S. v. Llera Plaza, 188 F. Supp. 2d 549, 558 (E.D. Pa. 2002) (excluding and then admitting)
- State v. Rose, KO6-545 Cir. Ct. Baltimore, Md. 2007) (excluded fingerprint evidence under *Frye* standard).

Firearms Identifications

- Schwartz, A Systemic Challenge to the Reliability and Admissibility of Firearms and Toolmark Identification, 6 Colum. Science & Tech. L. Rev. (2005)
- U.S. v. Monteiro, 407 F. Supp. 2d 351 (D. Mass. 2006)

Cartridge Case Ident. (cont.)

- “O’Shea declared that this match could be made ‘to the exclusion of every other firearm in the world.’ . . . That conclusion, needless to say, is extraordinary, particularly given O’Shea’s data and methods.”
- Admitting similarities, but not conclusion
 - U.S. v. Green, 405 F. Supp. 2d 104 (D. Mass. 2005)

United States v. Williams

- 506 F.3d 151, 161 (2d Cir. 2007)
(upholding the admissibility of firearms identification evidence)
- “We do not wish this opinion to be taken as saying that any proffered ballistic expert should be routinely admitted.”

United States v. Williams

- “*Daubert* did make plain that Rule 702 embodies a more liberal standard of admissibility for expert opinions than did *Frye* But this shift . . . did not abrogate the district court's gatekeeping function. Nor did it ‘grandfather’ or protect from *Daubert* scrutiny evidence that had previously been admitted under *Frye*.”)

Strict v. Lax Approaches

- “The choice is not between easy *Frye* and difficult *Daubert*, it is between strict and lax scrutiny.”
 - Redmayne, *Expert Evidence and Criminal Justice* 113 (2001)

Daubert: Strict v. Lax

- U.S. v. Crisp, 324 F.3d 261 (4th Cir. 2003)
 - Admitting handwriting comparison (lax)
 - Admitting fingerprint identification (lax)
- “The government has had ten years to comply with *Daubert*. It should not be given a pass in this case.” (strict)
 - Id. at 272 (Michael, J., dissenting)

Lee v. Martinez (lax *Daubert*)

- Admitting polygraph evidence under *Daubert*
- “This liberal approach [*Daubert*] to the admission of evidence is consistent with the intent of the drafters of the Federal Rules of Evidence.”
 - 96 P.3d 291, 297 (N.M. 2004)

Ramirez v. State (strict *Frye*)

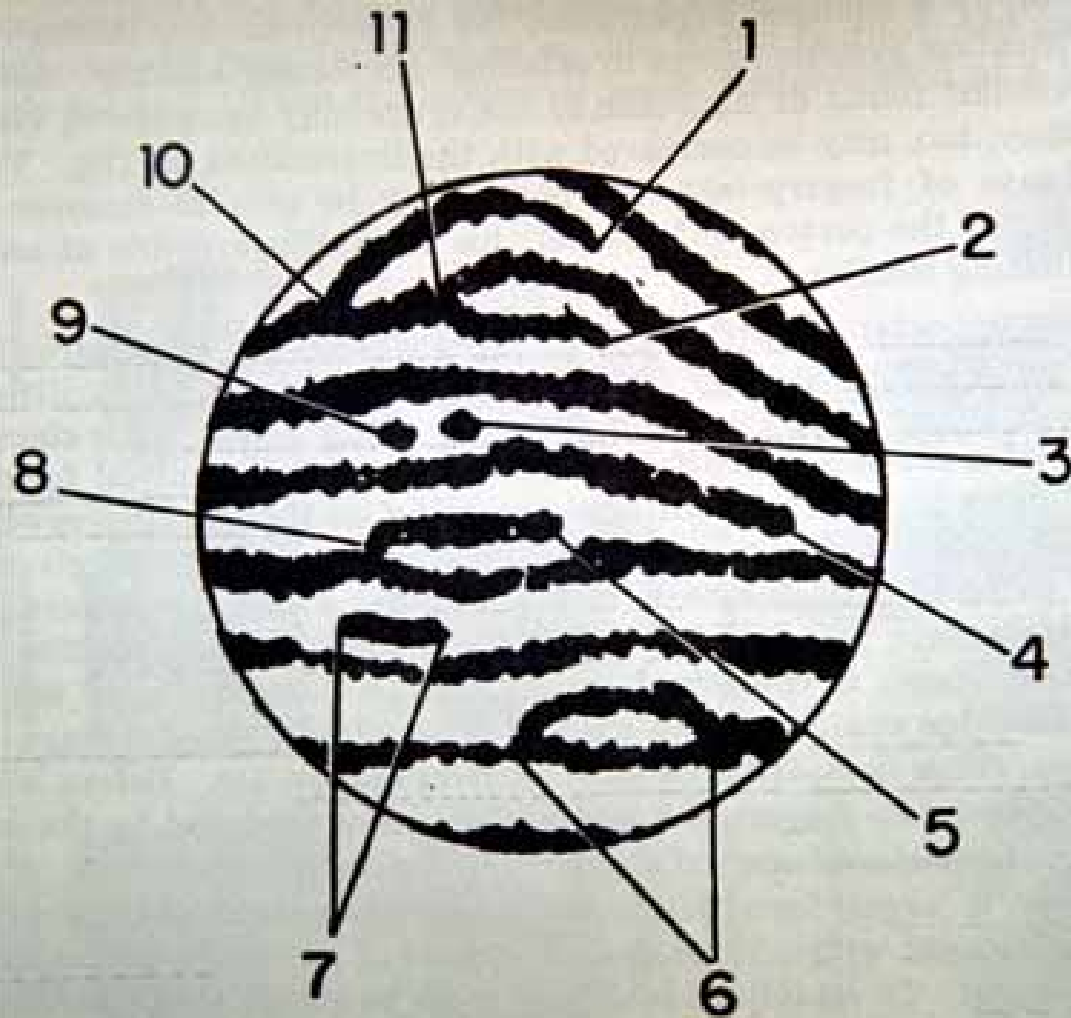
- “In order to preserve the integrity of the criminal justice system in Florida, particularly in the face of **rising nationwide criticism of forensic evidence** in general, our state courts ... must apply the *Frye* test in a prudent manner to cull scientific fiction and junk science from fact. Any doubt as to admissibility ... should be resolved in a manner that minimizes the chance of a wrongful conviction, especially in a **capital case.**” 810 So. 2d 836, 853 (Fla. 2001)

People v. Davis (lax *Frye*)

- Admitting “lip print” evidence under *Frye*
- QD expert “testified that lip print comparison is an accepted method of scientific identification in the forensic science community . . . He is unaware of any dissent in the field regarding the methodology used to make a positive identification of a lip print.”
 - 710 N.E.2d 1251 (Ill. Ct. App. 1999)

Current Issues

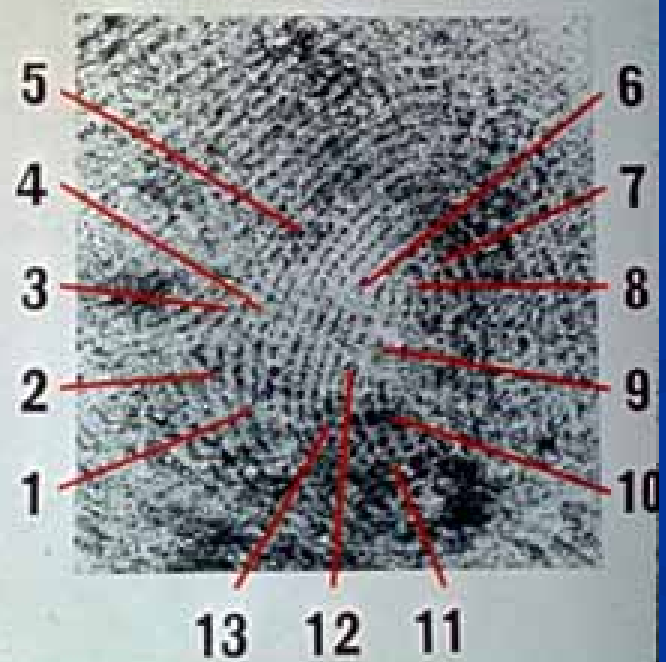
- Empirical support for forensic techniques:
 - Saks & Koehler, The Individualization Fallacy in Forensic Science Evidence, 61 Vand. L. Rev. 199 (2008).
- Regulation of crime labs:
 - Giannelli, Wrongful Convictions and Forensic Science: The Need for Regulation, 86 N.C. L. Rev. 163 (2007).

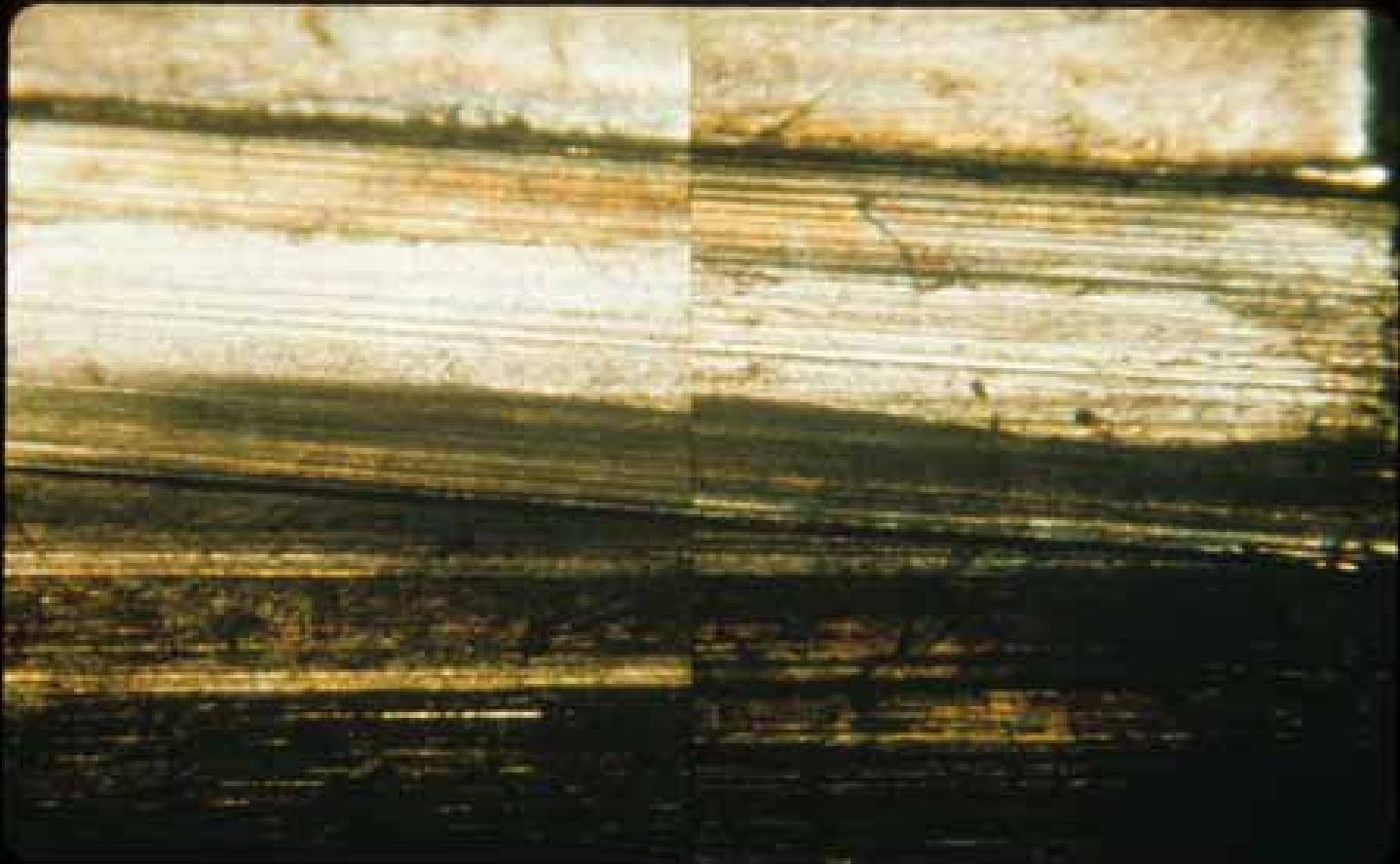


RECORD



LATENT





Rule 702 Requirements:

- (1) Subject matter requirement: Is this topic a proper subject for expert testimony?
- (2) Qualifications requirement: Is this witness qualified in this subject matter?

Subject Matter Requirement

<u>Experimental</u>	<u>Expertise</u>	<u>Lay Knowledge</u>
inadmissible	admissible	inadmissible
	A	B
E.g., polygraph	E.g., DNA	E.g., x-rays

Subject Matter Tests

<u>Experimental</u>	<u>Expertise</u>	<u>Lay Knowledge</u>
<ol style="list-style-type: none">1. <i>Frye</i> test2. <i>Daubert</i> test3. Relevancy test4. Other tests	A B	<ol style="list-style-type: none">1. “beyond ken” (common law)2. “assist” jury (Rule 702)