BS3 The Lawyers Always Win

Roderick T. Kennedy, JD, PO Box 7041, Albuquerque, NM 87194-7041; and Gil Sapir, JD, PO Box 6950, Chicago, IL 60680*

The goal of this presentation is to reinforce the nature of science as transparent and objective. The legal system will ultimately turn to recognized criteria based in the scientific method and academic science to judge the utility and validation of forensic science. Forensic science can profit from associations that will quantify and qualify the limits of forensic examinations. This argues that there is no valid basis to resist examination of forensic science practice by traditional science and legal scholars.

This presentation will impact the forensic science community by demonstrating that it is ultimately the law and law-trained persons who determine the criteria for admissibility of forensic science evidence in court.

In 1923, the *Frye* case judged a challenge to a nascent technology purporting to detect deception in a subject.[1] *Frye* held that evidence produced from novel techniques based in scientific supposition must be judged by the general acceptance of a relevant scientific community related to the technique in question to be admitted. Polygraphy was sidelined; "general acceptance by a relevant community" became a criterion for the admissibility of novel scientific evidence. Physiologists and psychologists were considered the relevant touchstone for "expert testimony deduced from the discovery, development, and experiments thus far made."[1] Polygraphy is still judged by these objective disciplines, but not so much the polygraphers themselves.[2] The law has a suspicion of self-referenced validation.

In 2009 and 2016, failures of forensic claims to validity and reliability in their theories, applications, and results caused two blue-ribbon commissions to review the state of forensic science, and various pattern-matching disciplines specifically.[3,4] In the latter, the President's Council of Advisors on Science and Technology (PCAST) identified two gaps for these disciplines: (1) the need for clarity regarding the scientific standards for the validity and reliability of forensic methods; and, (2) the need to evaluate specific forensic methods to determine whether they have been scientifically established to be valid and reliable. It cast these concepts as "foundational validity" and "validity as applied."[5]

Forensic practitioners criticized these reports as reflecting the views of persons from outside the practice of forensic science. Citing "unprecedented (and unrelenting) challenges from legal professionals, research academics, and the popular press" promotes an idea that only those who practice the particular discipline can establish or judge its validity, not statisticians or scientists from academia, and most particularly, not lawyers.[6] These critics do not recall that forensic science itself is a collection of applied disciplines whose goal is to explain case phenomena in ways relevant and helpful to a court. For years, forensic science escaped much critical evaluation because its genesis, practitioners, and proponents in court were, for the most part, on the same side. This changed in the 1990s when an academically validated and objective scientific technique — DNA analysis — was used not to convict, but to exonerate persons who had been wrongfully convicted. In half of those cases, false and overstated forensic opinions contributed to the injustice. At that point, the legal profession began looking to objective scientific evaluation of claims to legitimacy to which some more subjective (i.e., pattern-matching) disciplines of forensic science laid claim. Prosecutors paid attention to avoid reversals and defense attorneys to call "foul" on unsupported testimony.

Wrongful convictions are a stain on the judicial system, which is self-policing. In cases in which trust in forensic science has been shaken, the law looks to established scientific practice to evaluate and change it. The Los Alamos National Laboratories teaches judges that foremost, science is an open process in which theories and methods must be open to testing by any interested party. The manner in which statistics can validate investigative conclusions compels the use of likelihood ratios, and expressions of limitations on conclusions become requisite to expert testimony. Academic scientists, therefore, inform us as to what validity, repeatability, and reliable process is, and what should be used in the important work of administering justice.

The practice and fate of the forensic sciences is in the hands of lawyers, who are its end consumers, and who are awakening to the need to validate forensic specialties that have been shown susceptible to bias, subjectivity, and lack of enforceable standards for practice. Admissibility of forensic results is in the hands of judges, who look to statisticians, behavioral scientists, and academic disciplines to quantify and qualify validity and reliability of forensic techniques and results. For forensic scientists to keep their research cards close to the vest ignores the open nature of science and sacrifices collaboration with academic scientists to develop acceptable standards for the practice. Forensics' validity in court can be admitted as valid and reliable within its limits, so long as the limits are properly expressed.[7] A bunker mentality that closes out scrutiny and validation can only result in the march of the law going around the bunker.

Reference(s):

1. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).
2. National Research Council. 2003. *The Polygraph and Lie Detection*. Washington, DC: The National Academies Press. https://doi.org/10.17226/10420.
3. National Research Council. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press, 2009.
4. https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_ final.pdf (last accessed 7/31/17).
5. Id., Note 4 at x.
6. Chumbley, S., Zhang, S., Morris, M., Spotts, R. and Macziewski, C. (2017), Development of a Mobile Toolmark Characterization/Comparison System. *J Forensic Sci*, 62: 83–91.
7. E.g., *United States v. Monteiro*, 407 F. Supp. 2d 351 (D. Mass. 2006) (holding although tool mark analysis is sufficiently valid and reliable to be admissible, the expression of results was not in accord with standards and was excluded).

Law, Forensic Science, Admissibility

*Presenting Author