



Engineering Sciences Section - 2016

D13 The Federal Bureau of Investigation's (FBI's) Misrepresentation of Hair Evidence: History, Response, and Remedy

Peter D. Barnett, BS, Forensic Analytical Sciences, 3777 Depot Road, Ste 403, Hayward, CA 94545*

After attending this presentation, attendees will understand a brief history of the problems with the use of hair as a means of personal identification. The FBI's response to a determination that such evidence has been misrepresented in court by FBI examiners and a possible solution to such misrepresentation of evidence generally will be proposed.

This presentation will impact the forensic science community by explaining how unreliable scientific evidence is introduced at trial and how methods to prevent such introductions can be devised. Frequently, the problem lies in the content of the testimony, not the underlying science. Restricting expert witness testimony to the opinions and conclusions stated in a written report prepared for review prior to the trial could prevent such "blind siding" testimony at trial.

Hair is a potentially valuable form of evidence: It is universally present in essentially all mammalian species. Shed hairs are physically robust and not easily degraded. Casual observation reveals a great deal of variation of hair from one individual to another. Hair is a complex material with a great variation in the characteristics of features that can be discerned by a microscopic examination. Forensic scientists hoped to exploit the complex variability of these characteristics to determine that a hair recovered from a crime scene was from a particular individual. They recognized, and stated in reports, that human hair is not an absolute means for human identification, or words to that effect.¹

With the advent of the ability to obtain genetic information from analysis of hair samples, it became apparent that there were instances in which a hair associated with a particular individual was not actually from that individual. As cases involving hair evidence were reviewed by various post-conviction organizations such as the Innocence Project, it was found not only that many reported hair associations were wrong, but the testimony presented to the juries vastly overstated the value of the evidence.² Misrepresentation of the value of hair evidence, by the FBI laboratory examiners and by other hair examiners, at least some of whom had been trained in the FBI laboratories, continued for 20 years.³

Potential problems in the FBI examination of hair evidence were described in 1981.⁴ When testimony of FBI hair examiners came to the attention of the criminalistics community, it was widely agreed that such testimony had no basis in fact and was severely misleading. Finally, in 2015, following a growing recognition of errors in the association of a hair with a particular individual, and the frequent gross representation of the value of hair evidence by FBI examiners, the FBI instituted an investigation by the Inspector General.⁵

The reasons that FBI, and other, examiners reached and expressed such erroneous conclusions are many and varied. That this evidence and accompanying testimony came to be presented in so many trials underscores the ineffectiveness of the legal system to deal with scientifically false or unreliable expert testimony.

Attempts to ensure that scientifically reliable testimony is presented in trials have relied mostly on the ability of judges to determine that the basic technology involved is scientifically valid.⁶ The admission of wrong, deceptive, or misleading opinions about hair evidence proves the deficiency in this approach. The problem is generally not the underlying technology; it is rather the overreaching expert testimony, aided and abetted by aggressive advocates. The courts explicitly permit this type of testimony.⁷ Often, the testimony is unanticipated by opposing counsel and therefore goes to the jury relatively unchallenged. The oversight of judges in this context is ineffective.

Judges may not be able to evaluate the validity of the science behind the opinion offered by a scientist but may be able to determine whether the opinions and conclusions expressed by a scientist in an oral presentation are the same as the opinions and conclusions expressed by that scientist in a written report prepared in advance of the trial and made available for review by other scientists.

Lawyers facing the use of scientific evidence in court should have the ability, responsibility, and funding to obtain the assistance of knowledgeable scientists to review the work of scientists retained by other parties. All scientific evidence in a case should be reported in scientifically acceptable, written reports. Reports should be prepared in a time and manner to allow other scientists to review and respond to those reports. Reports should be available to the jury and judges. Oral testimony from scientific witnesses, if allowed, should be strictly limited to those opinions and conclusions expressed explicitly in the report prepared by the scientist.



Engineering Sciences Section - 2016

Reference(s):

1. Deedrick, Douglas, *Forensic Science Communications*, 2(3), July 2000 <https://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/july2000/deedric1.htm/#Index%20%28Hairs%29> (accessed 7/27/2015).
 2. FBI Testimony on Microscopic Hair Analysis Contained Errors in at Least 90 Percent of Cases in Ongoing Review 26 of 28 FBI Analysts Provided Testimony or Reports with Errors. National Press Release, Washington, D.C. April 20, 2015. <https://www.fbi.gov/news/pressrel/press-releases/fbi-testimony-on-microscopic-hair-analysis-contained-errors-in-at-least-90-percent-of-cases-in-ongoing-review> (accessed 7/27/2015)
 3. Hsu S.S. FBI admits flaws in hair analysis over decades. *The Washington Post*. April 18, 2014. http://www.washingtonpost.com/local/crime/fbi-overstated-forensic-hair-matches-in-nearly-all-criminal-trials-for-decades/2015/04/18/39c8d8c6-e515-11e4-b510-962fcfab310_story.html (Accessed 7/27/2015)
 4. Barnett P.D., Blake E.B., Ogle R.R. The Role of the Defense Expert. Proceedings of the American Academy of Forensic Sciences, 33rd Annual Scientific Meeting, Los Angeles, CA. 1981.
 5. Department of Justice and FBI Joint Statement on Microscopic Hair Analysis. National Press Release. Washington, D.C. April 19, 2015 <https://www.fbi.gov/about-us/lab/scientific-analysis/fbi-doj-microscopic-hair-comparison-analysis-review> (Accessed 7/27/2015).
 6. *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993).
 7. *Kumho Tire Co., Ltd., et al. v. Carmichael et al.*, 526 U.S. 137 (1999).
-

Testimony, Scientific, Hair