



Task Number: 2016-009

Article Title: Comment on ‘Scientific validation of fingerprint evidence under Daubert’

Origin: Law, Probability and Risk. 2008; 7: 119-126

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### Article’s Subject Matter:

Author’s review of an article called ‘Scientific Validation of Fingerprint Evidence Under Daubert’ written by Lyn and Ralph HABER / Law, Probability and Risk, 2008; 7: 87-109. Whereas the Habers’ article suggests methods to test the validity of the ACE-V method, Cole states that two crucial constituencies remain unconvinced it is necessary – the courts and fingerprint examiners themselves.

### Key Points in Article

- The article is a review of a Haber article on the scientific evidence needed to document the validity of ACE-V. In the article, the Habers state:
  - Fingerprint practitioners have testified that the error rate of ACE-V is zero
  - A method is valid when using it produces conclusions that agree with ground truth
  - A published error rate would inform the court on the amount of confidence that it could place on a fingerprint conclusion
  - ACE-V needs to be specifically described and documented
  - There should be standardized training and demonstrated proficiency in using the ACE-V method
  - Experiments need to be conducted to determine the validity of ACE-V
- The author states being incredulous as to truthfulness of the Haber article until he realized it was talking about ACE-V, a “forensic technique that has demonstrated an astonishing ability to defy one’s expectations of both science and law”
  - ACE-V is an acronym, not a methodology (ZABELL, 2005)
  - ACE-V more closely resembles a routine procedure, process, protocol or method
- No evidence ACE-V in widespread use in the US, although acknowledges there are claims it is used universally in Canada
- Proponents of ACE-V state it is not a new way of analyzing latent print evidence, but it is a new way of explaining the process for external observers
- As a result, benefits from respect paid to a century of fingerprint testimony as well as cloaking itself in modern scientific terminology
- ACE-V is not a new methodology, but rather an attempt to survive scrutiny under the US Supreme Court decision on Daubert



- Although David ASHBAUGH used the ACE-V structure in his 1999 book, he did not use the acronym
  - The timing of the use of ACE-V is suspicious
  - ACE-V in relation to latent print individualization appeared in court at the Daubert hearing rather than in literature
- The legal system has accepted ACE-V at face value and in the Haber article they also take ACE-V at face value, although outlining steps necessary to validate ACE-V
  - Crucial legal and scientific question is the validity or accuracy of the technique
  - Habers detail the steps necessary to demonstrate validity of ACE-V and the absence of any such evidence
  - Numerous scholars have attested the same thing, that ACE-V has not been validated (HABER & HABER, 2003; STONEY, 1997; FAIGMAN, 2002; STARRS, 1999; COLE, 2006, LAWSON, 2003, BERGER, 2005; MNOOKIN, 2001; SAKS, 1998; SIEGEL et al., 2006; KENNEDY, 2003; MORIARTY, 2004; SAKS & KOEHLER, 2005)
  - Only dissenting scholar MOENSSENS, 2003
- Two crucial constituencies remain unconvinced of the point; latent print examiners and the courts
  - In regard to the courts, the author feels that the courts do not believe latent print individualization has been validated, but also believes that it doesn't matter
  - In regard to latent print examiners, the author feels that examiners do not concern themselves with validating ACE-V because they know it is of no concern to the courts
- Question asked of why scientists and scholars see the validation issue so differently from latent print examiners
  - Theorizes the difference arises from role ambiguity which is the role latent print examiners play in the scientific enterprise
  - Since the human examiners do the visual comparisons rather than using measurements from scientific instruments, the brain is the scientific instrument that is being tested
  - Problem is that Habers see themselves as the experimenter and latent print examiners as research subjects, while examiners see themselves as the experimenter and the Habers as irritating interlopers
  - Latent print examiners in role of experimenters do not see individualization needing to be validated, but instead that whose scientific claim must be defended
- Courts have ignored and actively excluded research scientists by restricting the group considered to be the relevant scientific community to those who actively practice latent print analysis on the question of validation of various claims
  - Relevant scientific community narrowly defined as those who practice the technique (Commonwealth v Patterson, 2005)



- Conclusion is that until court's attitude changes, the result is that latent print examiners are discouraged from validating the claims they make in testimony as any validation research will result in diminishing the strength of their claims
  - The author feels the courts hold scholarly work and opinion in contempt

### Fallacies and or Issues

- In Canada, ACE-V is widely used as it is taught at the Canadian Police College and the Ontario Police College.
- In 'Quantitative-Qualitative Friction Ridge Analysis', Ashbaugh refers to a structured and systematic guide (p108) for comparison of latent prints and identifies four parts; Analysis, Comparison, Evaluation, and Verification which are the exact components of ACE-V. In the following pages (109-148) Ashbaugh describes the components of ACE-V as they are described today. Furthermore on page 196 in referring to methodology of Palmar Flexion Crease Identification, Ashbaugh refers to the ACE-V formula (Analysis, Comparison, Evaluation, and Verification) that were addressed in depth in the book when dealing with friction ridges in latent prints.
- At the time of the article (2007), Cole was correct in questioning an error rate of zero and the fact that no validation studies on latent print examination had been done.
- This was confirmed by the release of the NAS report in 2009 which on p 142 stated; "Although there is limited information about the accuracy and reliability of friction ridge analyses, claims that these analyses have zero error rates are not scientifically plausible."
- Since Cole's article, there have been several studies on the validity of ACE-V and latent print individualization error rates
  - GUTOWSKI (2006) ACE-V performed examinations from proficiency testing
    - False positive 0.0%
    - False negative 0.0%
  - LANGENBURG (2009) ACE & ACE-V
    - False positive <1%
    - False negative 2.2%
  - LANGENBURG (2012) ACE only
    - False positive 2.2%
    - False negative 6%
  - ULERY et al. (2011) ACE only
    - False positives 0.1%
    - False negatives 7.5%
  - TANGEN et al. (2011) error rate study of experts vs novices / ACE only
    - Expert false positive 0.68% and false negative 7.88%
    - Novice false positive 55.18% and false negative 25.45%
  - Miami-Dade (2014)
    - ACE false positive 3.0% and false negative 7.5%
    - ACE-V false positive 0.0% and false negative 2.9%