INVALID FORENSIC SCIENCE TESTIMONY AND WRONGFUL CONVICTIONS

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This is the first study to explore the forensic science testimony by prosecution experts in the trials of innocent persons, all convicted of serious crimes, who were later exonerated by post-conviction DNA testing. Trial transcripts were sought for all 156 exonerates identified as having trial testimony by forensic analysts, of which 137 were located and reviewed. These trials most commonly included testimony concerning serological analysis and microscopic hair comparison, but some in-

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cluded bite mark, shoe print, soil, fiber, and fingerprint comparisons, and several included DNA testing. This study found that in the bulk of these trials of innocent defendants—82 cases or 60%—forensic analysts called by the prosecution provided invalid testimony at trial—that is, testimony with conclusions misstating empirical data or wholly unsupported by empirical data. This was not the testimony of a mere handful of analysts: this set of trials included invalid testimony by 72 forensic analysts called by the prosecution and employed by 52 laboratories, practices, or hospitals from 25 states. Unfortunately, the adversarial process largely failed to police this invalid testimony. Defense counsel rarely cross-examined analysts concerning invalid testimony and rarely obtained experts of their own. In the few cases in which invalid forensic science was challenged, judges seldom provided relief. This evidence supports efforts to create scientific oversight mechanisms for reviewing forensic testimony and to develop clear scientific standards for written reports and testimony. The scientific community can through an official government entity promulgate standards to ensure the valid presentation of forensic science in criminal cases and thus the integrity and fairness of the criminal process.

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Invalid Forensic Science Testimony

Chicago Tribune later reported, "The discrediting of Rawson’s testimony in the Krone case is one of numerous instances in which leading practitioners of bite-mark comparison have erred."225

E. Additional Forensic Techniques

I. Shoe Print Analysis

Three cases in the study set involved shoe print testimony. Two of the cases involved shoe prints that either excluded the defendant or were non-probative. The third is the case of Charles Fain.

State of Idaho v. Charles I. Fain

In Charles Fain’s case, Robert B. Hallett of the FBI testified that the make of the shoe print was consistent with Fain’s, and that “[i]t was possible that this shoe made this impression.”226 Not satisfied with his initial cautious conclusion, Hallett added that, although it was a common type of boat shoe sole, the wear patterns on the shoe individualized the print:

Q. Okay, you also, if I understand correctly, that you said if another shoe made the impression, it would have to have the same characteristics as the actual left shoe that we have here?

A. That’s correct, sir.

Q. What are those characteristics?

A. The same size, the same design, and having general wear in exactly the same locations.

Q. Now, did you indicate that the wear characteristics are put there by a gait of a particular individual?

A. You would have to have the same characteristic walk as the individual who owned those shoes.

Indeed, Hallett also testified so as to imply that other examiners might have reached even stronger conclusions:

I found, therefore, that the shoe which made this impression, and this left shoe had sustained wear in the same area. To a—a shoe print examiner, this would indicate that the individual who walked with these shoes has the same walking gait.

Some examiners believe, I have not quite gone that far myself, but that could be a positive identifying characteristic. They believe we all walk differently.

That wear corresponded exactly. 227

This practitioner suggested that the effect of gait on the sole of a shoe is unique. No data supports such an opinion. Adding a clever embellishment, he testifies that other examiners would go even further to say that wear patterns on shoes “correspond[][] exactly.” Unfortunately, that is the case: other examiners may indeed go further in their testimony, on the recommendation of the Scientific Working Group on Shoeprint and Tire Tread Evidence (“SWGTREAD”), which offers the guideline that an examiner can find an “[i]dentification (definite conclusion of identity).” 228 The guideline explains that “this is the highest degree of association expressed in footwear and tire impression examinations. This opinion means that the particular shoe or tire made the impression to the exclusion of all other shoes or tires.” 229 No scientific criteria are provided regarding when an expert may render any of those conclusions. 230

2. Fingerprint Analysis

Fingerprint comparisons were conducted in 14 exonerees’ cases. 231 Trial transcripts were located for 13 of these cases. Two in-
6. Conclusion that Evidence Originated from Defendant

The sixth and final type of invalid testimony, present in 6 cases, claimed that the evidence did in fact come from the defendant and was unique to the defendant, despite no empirical data permitting such conclusions. For example, in Ray Krone’s case, the analyst testified that the bite marks did in fact come from Krone’s teeth, telling the jury, “that tooth caused that injury.”48 In two other cases the forensic odontologists (forensic dentists) were unequivocal that the defendants’ teeth made the bite marks on the victim.49 Forensic disciplines involving impression evidence, such as bite mark and shoe print comparison, have not developed any objective criteria at all by which to judge assertions about the likelihood that crime scene evidence came from a particular defendant.50 Nor do any empirical data exist to support a claim that a bite mark is uniquely identifiable as belonging to a particular person.

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These six types of invalid testimony may occur in other disciplines not reviewed here, and conversely, additional types of invalid forensic testimony may occur in cases not in the study set. As noted at the outset, this study cannot speak to questions concerning how often invalid forensic science testimony occurs in other types of more typical criminal cases. The study set is limited not only to DNA exonerees, but also to trials resulting chiefly in rape or rape and murder convictions in the 1980s. Perhaps such cases involving felonies in contentious cases that proceeded to trial were more likely to involve pressures on the state to overstate the evidence, including forensic evidence, making these cases unrepresentative of more common and less serious crimes. On the other hand, perhaps such cases did not involve such pressure to overstate forensic evidence. Perhaps there would be little pressure to overstate forensic evidence if the defense did not meaningfully contest forensic evidence. If so, these cases might be representative of a more

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48 See infra Section II.D.
49 See infra Section II.D.