

**IN THE SUPERIOR COURT OF THE
DISTRICT OF COLUMBIA**

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UNITED STATES, :

Plaintiff, :

v. :

Case No: F-516-01

KEVIN EDWARDS. :

Defendant. :
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AFFIDAVIT OF DR. JOHN E. ROLPH

DR. JOHN E. ROLPH, being duly sworn, and upon personal knowledge, deposes and says:

1. I am professor of statistics at the Marshall School of Business of the University of Southern California, where I also hold appointments in the mathematics department and the law school. Previously, I was statistician and head of the statistical research and consulting group at the RAND Corporation. I hold a Ph.D. in statistics from the University of California, Berkeley.

2. In February 2004, I was appointed as chair of the National Research Council's ("NRC") Committee on Assessing the Feasibility, Accuracy, and Technical Capability of a National Ballistics Database (hereafter the "Committee"). The NRC is the operating arm of the National Academy of Sciences (NAS) and the National Academy of Engineering. The NAS is a private non-profit membership corporation established under a charter granted to it by Congress. The Committee's final report, entitled *Ballistic Imaging* (National Research Council, 2008), was publicly released on March 5, 2008 (the "Report"). The Report expresses the consensus opinion of the twenty-one (21) appointed members who served on the committee, including myself.

3. Under the Statement of Task, the Committee was asked to:

(1) Assess the technical feasibility, through analysis of the uniqueness of ballistic images, the ability of imaging systems to capture unique characteristics and to parameterize them, the algorithmic and computational challenges of an imaging database, the reproducibility of ballistic impressions and the ability of imaging systems to extract reproducible information from ballistic impressions; (2) Assess the statistical probabilities that ballistics evidence presented would lead to a match with images captured in a database, whether and how the base rate can be estimated for those crimes that present bullet or casing evidence that do in fact come from a gun that produced a database entry, and the probabilities and consequences of false positives and false negatives; (3) Assess the operational utility of ballistics evidence in criminal investigations—that is the extent to which it is used or can be used to identify crime guns and suspects and to solve specific

crimes; and (4) Assess the sources of error in ballistics database matching (from examination, digitization, computer matching, chain of custody and documentation of tests, and expert confirmation), how they may be quantified, and how these errors interact.

4. As part of the Statement of Task, the Committee was also asked to provide advice on three basic policy options: (1) maintain the current National Integrated Ballistic Information Network (NIBIN) database of crime-related ballistic images as-is; (2) enhance the NIBIN system in various ways; or (3) pursue a national reference ballistic imaging database containing images from test-fires of all newly manufactured and imported firearms.

5. The admissibility of ballistics evidence in legal proceedings was explicitly ruled out of the Committee's charge by the original proposal between the study sponsor, National Institute of Justice, and the NRC and, accordingly, it is not mentioned in the Statement of Task. The Committee explicitly stated in the Report that "we do not in any way offer a determination of whether ballistics evidence should or should not be admissible in court proceedings." Report at 1-7.

6. The statement in the Report that the "validity of the fundamental assumptions of uniqueness and reproducibility of firearm-related toolmarks has not been fully demonstrated" (Report at 3-22) was not made in the context of assessing the admissibility of firearms-related evidence. Indeed, the Report states clearly that "*this study is neither a verdict on the uniqueness of firearm-related toolmarks generally nor an assessment of the validity of firearms identification as a discipline. Our charge is to focus on 'the uniqueness of ballistic images' – that is, on the uniqueness and reproducibility of the markings (toolmarks) left on cartridge cases and bullets as they are recorded or measured by various technologies ...*" Report at 1-5 (emphasis in the original).

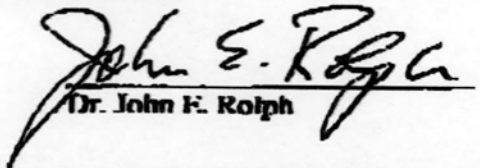
7. The Committee clearly recognized in the Report that "[t]he uniqueness of firearm-related toolmarks is a much broader question – and a very important one – but [that] it is not one that our committee was constituted to address" because "[a]t a minimum, assessing the general validity and uniqueness of toolmark evidence would require a much wider range of gun and ammunition selections and firing conditions than was supported in our experimentation through NIST." Report at 1-5.

8. While the Report acknowledges that "some readers may attempt to infer from [the Committee's] review a stance by this committee, for or against the validity of firearms identification generally" (Report at 1-5), the Committee made clear its conclusion that "it is possible to speak meaningfully about ballistic image database performance without first fully accepting or concluding the fundamental uniqueness of toolmarks." Report at 1-6.

9. The Committee noted that "[firearms] examiners tend to cast their assessments in bold absolutes, commonly asserting that a match can be made 'to the exclusion of all other firearms in the world.'" Report at 3-23. The Committee cautioned that "[s]uch comments cloak an inherently subjective assessment of a match with an extreme probability statement that has no firm grounding and unrealistically implies an error rate of zero." Report at 3-23.

10. The Committee's cautionary statement above is not a commentary on the admissibility of firearm-related toolmark evidence. In the Committee's view, "statements on toolmark matches (including legal testimony) should be supported by the work that was done in the laboratory, by the notes and documentation made by examiners, and by proficiency testing or established error rates for individual examiners in the field and in that particular laboratory." Report at 3-23 to 3-24.

11. This affidavit is not and should not be considered to be an official Report on the part of the National Academy of Sciences or the National Research Council.


Dr. John E. Rolph

Sworn to before me

this 23rd day of May 2008

