STATEMENT OF

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BEFORE THE

COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

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HEARING ON THE

NATIONAL ACADEMY OF SCIENCES REPORT:

STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD

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SEPTEMBER 9, 2009

Mr. Chairman and members of the Committee, thank you for inviting me to this hearing. While serving in the Army during the Vietnam War, I was assigned to the forensic medicine program at the Armed Forces Institute of Pathology (1972), located at Walter Reed Hospital. At the same time I received a masters degree in forensic science from George Washington University (1973). I then taught a course on scientific evidence at the Army JAG School in Charlottesville, Va. (1973-75). In my current position at Case Western Reserve University in Cleveland (1975 to present), scientific evidence has been my area of research interest for over three decades. (My law degrees (J.D. 1970; LL.M. 1975) are from the University of Virginia.)

The publication of the National Academy of Sciences' Report, *Strengthening Forensic Science in the United States: A Path Forward* (2009)[1] is one of the most important developments in forensic science since the creation of the first crime laboratory in this country in the 1920s. The Report is both comprehensive and insightful. Its findings are well-documented, and the need for a new approach — one rooted in science — as outlined in the Report, is critical. In sum, I believe this is an exceptional Report. The NAS Report's recommendations, if adopted, would benefit law enforcement and prosecutors in the long run. It would allow forensic science to develop a strong scientific basis and limit evidentiary challenges regarding the reliability of forensic evidence.

Importance of Forensic Evidence

I want to stress the importance of scientific evidence in the criminal process. It is often superior to other forms of proof. Forty years ago, the Supreme Court noted that "fingerprinting is an inherently more reliable and effective crime-solving tool than eyewitness identifications or confessions and is not subject to such abuses as the improper line-up and the 'third degree.'" Davis v. Mississippi, 394 U.S. 721, 727 (1969). More recently, the DNA exoneration cases have highlighted the problems with eyewitness identifications, jail informant testimony, and false confessions. *See Report of the ABA Criminal Justice Section's Ad Hoc Innocence Committee to Ensure the Integrity of the Criminal Process, Achieving Justice: Freeing the Innocent, Convicting the Guilty* (Paul C. Giannelli & Myrna Raeder eds. 2006). According to the Innocence Project, there are now over 240 exonerations.

However, the exoneration cases also exposed problems with scientific evidence. *See* Brandon L. Garrett & Peter J. Neufeld, *Invalid Forensic Science Testimony and Wrongful Convictions*, 95 Va. L. Rev. 1 (2009); Paul C. Giannelli, *Wrongful Convictions and Forensic Science: The Need to Regulate Crime Labs*, 86 N.C. L. Rev. 163 (2007).

I want to focus my remarks on what I believe is the crucial issue: the lack of empirical

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[1] In the interest of disclosure, I want to note that I made a presentation at one of the NAS Committee's meetings and served as one of the twenty or so reviewers for the report. With two other professors, I am currently preparing a chapter on forensic evidence for a reference manual on scientific evidence that will be published by the Federal Judicial Center in conjunction with the NAS.

research in some forensic identification disciplines and how to address this deficiency.

Lack of Empirical Research

According to the NAS Report: "Among existing forensic methods, only nuclear DNA analysis has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between an evidentiary sample and a specific individual or source." *Id.* at 100. Another passage reads: "[S]ome forensic science disciplines are supported by little rigorous systematic research to validate the discipline's basic premises and techniques. There is no evident reason why such research cannot be conducted." *Id.* at 22.

Common identification techniques — which rely on the examiner's subjective judgment — lack sufficient empirical support. For example, the Report commented:

- "Sufficient studies [on firearms identification] have not been done to understand the reliability and repeatability of the methods." *Id.* at 154;

- "The scientific basis for handwriting comparisons needs to be strengthened." *Id.* at 166;

- Research is needed "[t]o properly underpin the process of friction ridge [fingerprint] identification." *Id.* at 144;

- "[T]estimony linking microscopic hair analysis with particular defendants is highly unreliable." *Id.* at 161; and

- "There is no science on the reproducibility of the different methods of [bitemark] analysis that lead to conclusions about the probability of a match." *Id.* at 174.

Chapter 5 of the Report documents these conclusions in detail. My research is in accord. *See* Paul C. Giannelli & Edward J. Imwinkelried *Scientific Evidence* (4th ed. 2007).

Judicial Opinions

Similar concerns can be found in court decisions for more than a decade. After the Supreme Court's decision in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), some lower courts began to question how expert testimony was being presented at trial:

- "Testimony at the *Daubert* hearing indicated that some latent fingerprint examiners insist that there is no error rate associated with their activities . . . . This would be out-of-place under Rule 702 [governing admissibility of expert testimony]." United States v. Mitchell, 365 F.3d 215, 246 (3d Cir. 2004).

- "The more courts admit this type of toolmark evidence without requiring documentation,

proficiency testing, or evidence of reliability, the more sloppy practices will endure; we should require more." United States v. Green, 405 F. Supp. 2d 104, 109 (D. Mass. 2005).

- "The government has had ten years to comply with *Daubert*. It should not be given a pass in this case." United States v. Crisp, 324 F.3d 261, 272 (4th Cir. 2003) (fingerprint and handwriting case) (Michael, J., dissenting).

- The firearms identification "examiners testified to the effect that they could be 100 percent sure of a match. Because an examiner's bottom line opinion as to an identification is largely a subjective one, there is no reliable statistical or scientific methodology which will currently permit the expert to testify that it is a 'match' to an absolute certainty, or to an arbitrary degree of statistical certainty." United States v. Monteiro, 407 F. Supp. 2d 351, 372 (D. Mass. 2006).

- "Based on the *Daubert* hearings . . . , the Court very quickly concluded that whatever else ballistics identification analysis could be called, it could not fairly be called 'science.' . . . [T]he Government did not seriously contest the Court's conclusions that ballistics lacked the rigor of science and that, whatever else it might be, its methodology was too subjective to permit opinions to be stated to 'a reasonable degree of ballistic certainty.'" United States v. Glynn, 578 F. Supp. 2d 567, 570-71 (S.D. N.Y. 2008).

- "This court has been unsuccessful in its attempts to locate *any* indication that expert hair comparison testimony meets *any* of the requirements of *Daubert*." Williamson v. Reynolds, 904 F. Supp. 1529, 1558 (E.D. Okl. 1995), *aff'd*, 110 F.3d 1508 (10th Cir. 1997).

- "[F]orensic document examination, despite the existence of a certification program, professional journals and other trappings of science, cannot, after *Daubert*, be regarded as 'scientific . . . knowledge.'" United States v. Starzecpyzel, 880 F. Supp. 1027, 1038 (S.D.N.Y. 1995).

Moreover, within months of the NAS Report's release, Justice Scalia cited it, noting that "[s]erious deficiencies have been found in the forensic evidence used in criminal trials." Commonwealth v. Melendez-Diaz, 129 S. Ct. 2527, 2537 (2009).

Independent Scientific Research

However, the most thorough and well-reasoned reports in the field have come from *independent* scientific investigations:

- National Research Council, *On the Theory and Practice of Voice Identification* (National Academy Press 1979).

- National Research Council, *DNA Technology in Forensic Science* (National Academy Press 1992).

- National Research Council, *The Evaluation of Forensic DNA Evidence* (National Academy Press 1996).

- National Research Council, *The Polygraph and Lie Detection* (National Academy Press 2002).

- National Research Council, *Forensic Analysis: Weighing Bullet Lead Evidence* (National Academy Press 2004).[2]

- Office of Technology Assessment, U.S. Congress, *Genetic Witness: Forensic Uses of DNA Tests* (1990).

This independent scientific expertise is the reason that the FBI laboratory turned to the National Academy of Sciences when it sought review of voiceprints, DNA, and comparative bullet lead evidence. I assume that Congress asked the NAS to conduct the present study for the same reason.

National Institute of Forensic Sciences

The creation of a National Institute of Forensic Sciences (NIFS) — Recommendation 1 in the Report — is essential. An independent agency, steeped in the traditions of science, is required. In addition to independence and strong scientific credentials, a new entity should be dedicated *solely* to forensic science. It should not be encumbered with multiple missions. Once in place, NIFS could quickly focused on the agenda outlined in the NAS Report.

Moreover, NIFS would have the prestige to attract top scientists to the field and to influence universities to conduct peer-reviewed research and to establish rigorous educational programs. In contrast, an entity that is part of an agency in another department will not attract the requisite level of talent.

Finally, there are many talented, conscientious examiners working in crime laboratories throughout this country. These examiners need to be supported; they need funds for better equipment, advanced schooling, and continuing education. The underfunding of forensic science in this country has been chronic. In 1967, President Johnson's Crime Commission noted that "the great majority of police department laboratories have only minimal equipment and lack highly skilled personnel able to use the modern equipment now being developed." *President's Commission on Law Enforcement and Administration of Justice, The Challenge of Crime in a*

[2] In the interest of disclosure, I want to note that I served as one of the two lawyers on the NAS Committee that wrote this report. The important work, however, was done by the scientists on the committee.

Free Society 255 (1967). In 1974, President Nixon's Crime Commission commented: "Too many police crime laboratories have been set up on budgets that preclude the recruitment of qualified, professional personnel." *National Advisory Commission on Criminal Justice Standards and Goals, Report on Police* 304 (1974).

Forensic science has been a stepchild in the law enforcement community and an orphan in the scientific community. NIFS offers the best hope for placing forensic scientists on a par with other scientists. Its creation is essential. Recommendation 1 is the most important recommendation in the NAS Report.