FORENSIC SCIENCE ERROR MANAGEMENT

INTERNATIONAL FORENSICS SYMPOSIUM

JULY 20-24, 2015 • WASHINGTON, DC

Welcoming Remarks

Dr. Willie E. May

Under Secretary of Commerce for Standards and Technology

Director, National Institute of Standards and Technology

Co-Chair, National Commission on Forensic Science

Forensics Science In the News:

The Washington Post

National accreditation board suspends all DNA testing at D.C. crime lab

the Atlantic

CSI is a Lie

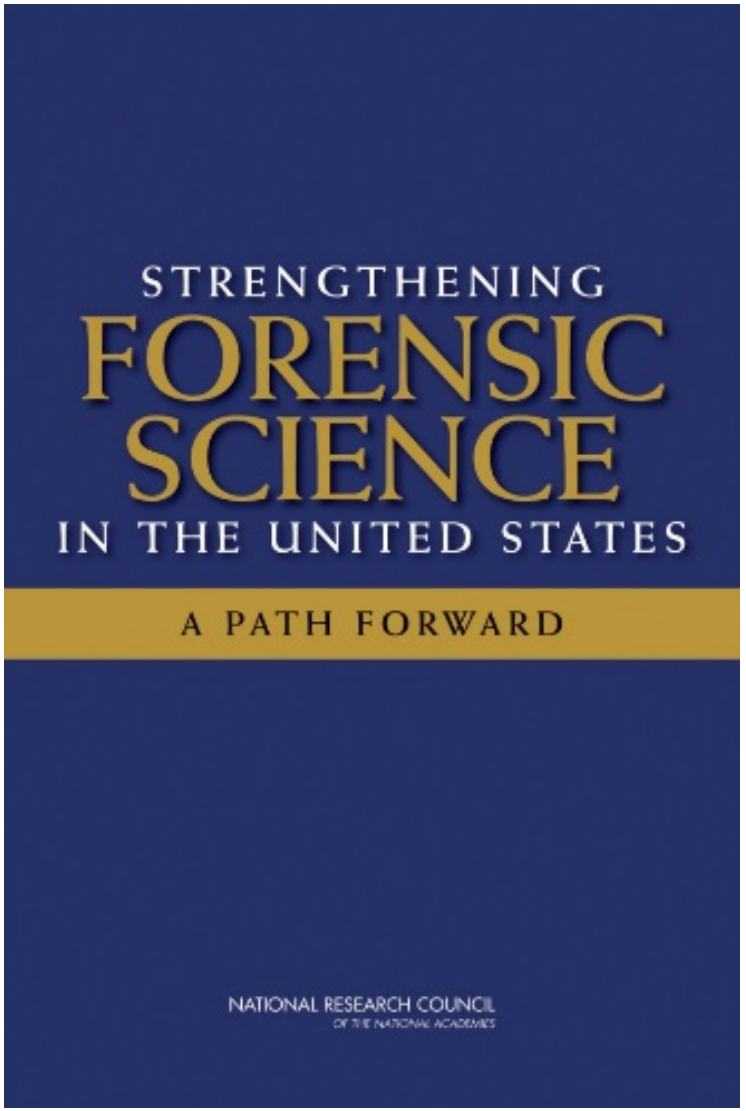
The New York Times

Fix the Flaws in Forensic Science

Landmark Academy Report

The U.S. National Research Council of the National Academies issued a major report on forensic science in Feb. 2009.

"With the exception of nuclear DNA analysis, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source."

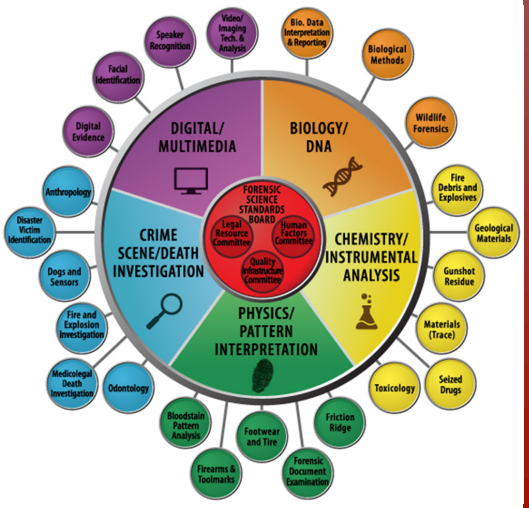


Organization of Scientific Area Committees (OSAC)

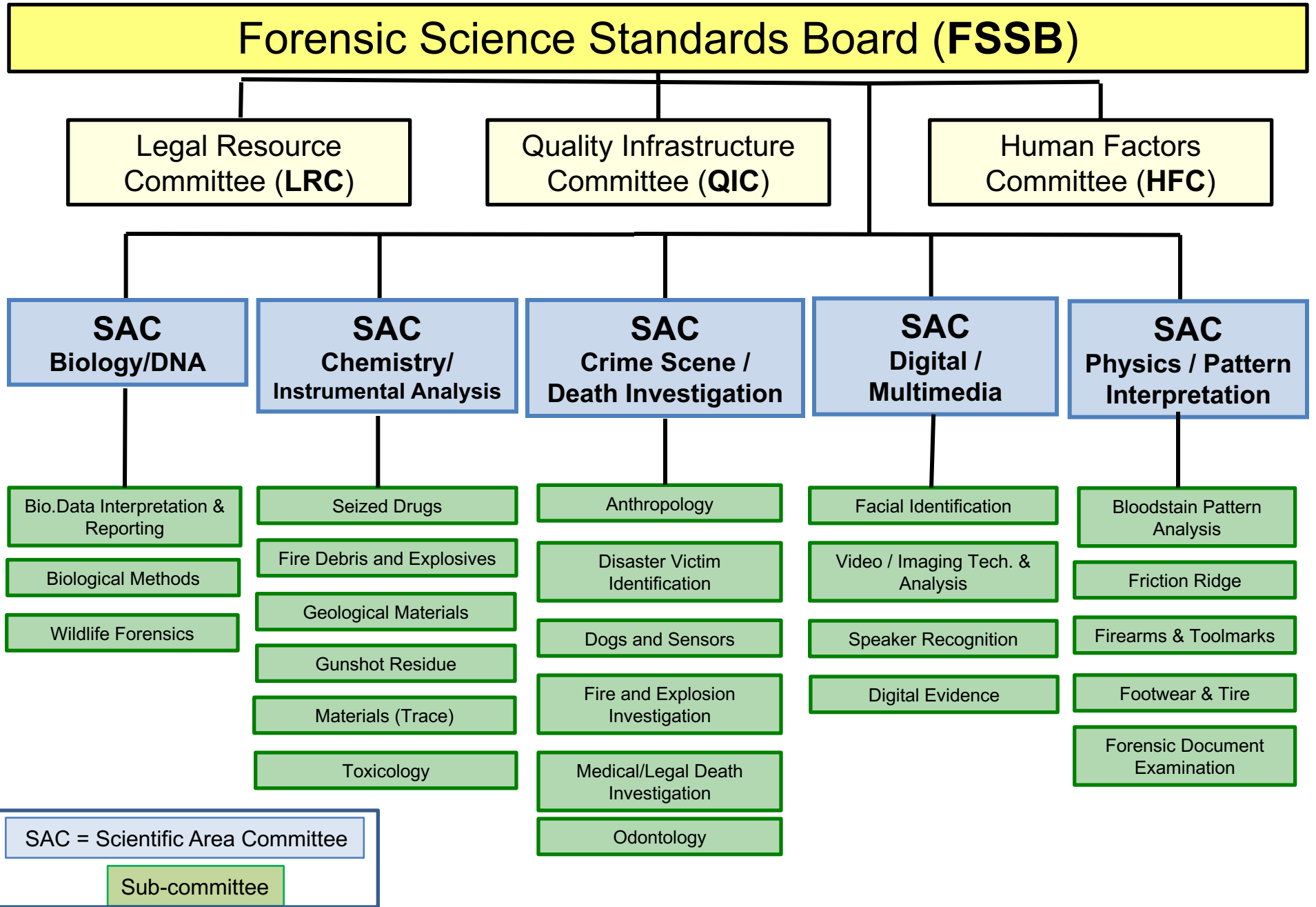
- The 2009 NAS Report criticized the 21 Scientific Working Groups advising the forensics jurisprudence community as being “too highly fragmented with very different structures and outputs” …. the resulting standards were not enforceable or developed in an open and transparent manner.

- DOJ and NIST responded with MOU in February 2013 with creation of a new entity:
  - the Organization of Scientific Area Committees (OSAC)

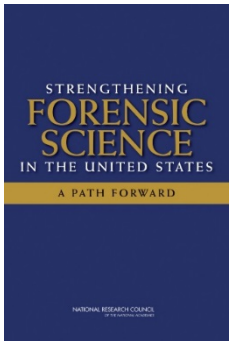
- OSAC provides a **unified structure for development of open, voluntary consensus-based forensic science standards** catalogued in a:
  - **Designed Registry of Approved Standards** to allow Accreditation Bodies to enforce standards nationwide.



Organization of Scientific Area Committees (OSAC)



Helping to Strengthen the "Science" in Forensic Science



In response to the Forensics Report by National Academies in Feb. 2009.

NIST committed to work with the U.S. Department of Justice to strengthen the **science** that underpins the forensic evidence used in the criminal justice system – thereby providing greater transparency, rigor, and confidence in U.S. Jurisprudence by:

- **Building out and supporting the Organization of Scientific Area Committees Organization**
- **Co-Chairing the National Commission on Forensic Science (with DoJ) to**:
  - help improve the reliability of forensic science data/information and to develop policy recommendations for the U.S. Attorney General.
  - be comprised of forensic science practitioners, academic researchers, prosecutors, defense attorneys, judges, and other relevant stakeholders
- **Conducting laboratory-based research to…**
  - **Validate select existing forensic science methods and guidance**
  - **Develop and critically evaluate new methods**

NIST: Mission and Major Programs

Courtesy HDR Architecture, Inc./Steve Hall © Hedrich Blessing

Mission: To **promote innovation and industrial competitiveness** by advancing measurement science, standards, and technology in ways that **enhance economic security and improve quality of life**

Major Programs:

- **Research Labs:** measurement science, standards, technology
- **Manufacturing support:**
  - assistance to smaller manufacturers
  - bridging gaps between research and commercialization
- **Performance Excellence:**
  - helping organizations optimize operations and maximize results

1901 2015

NIST in 1901:

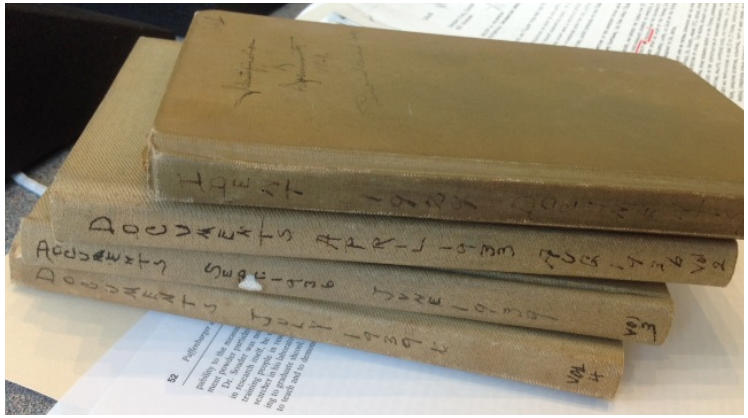
- Maintaining custody and dissemination of national standards of measurement
- Supporting industrial revolution
- Enhancing fire and transportation safety

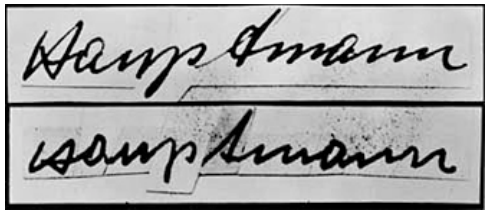
NIST today:

- a key player on Innovation Team
- go-to agency for measurements, standards, and technology
- Addressing critical national needs:
  - Advanced Communications
  - Advanced Manufacturing
  - Advanced Materials
  - Cyber-Physical Systems
  - Cybersecurity
  - Disaster Resilience
  - **Forensic Science**
  - Healthcare
  - Quantum Science

NIST History in Forensic Science

- **Wilmer Souder** – one of nation's first forensic science experts
- Helped establish FBI crime lab in 1932
- Testified in Lindbergh baby kidnapping trial in 1935
- Served as a federal expert in hundreds of handwriting, typewriter, and ballistic cases from 1920's to 1950s.

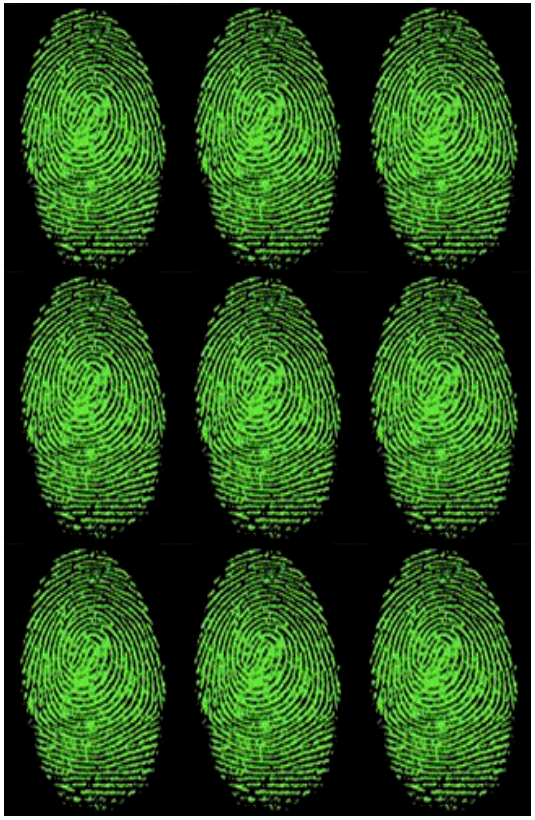




History of Forensics at NIST

Late 1960s:

The FBI turned to NBS for scientific and technical support for its first computerized scanning equipment to read and record fingerprint characteristics.



History of Forensics at NIST

1971: The National Bureau of Standards established a Law Enforcement Standards Laboratory to provide coordinated efforts to support and advance standards and technology used by law enforcement officers and agencies.

This evolved into the NIST Office of Law Enforcement Standards (OLES) whose mission is

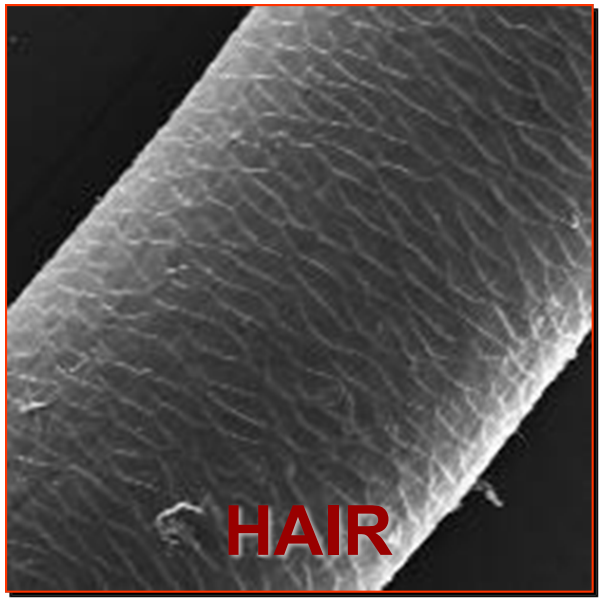
"to help criminal justice, public safety, emergency responder, and homeland security agencies make informed procurement, deployment, training and operating decisions by developing performance standards, measurement tools, operating procedures and equipment guidelines".

History of Forensics at NIST

Continuing in the 1980's:

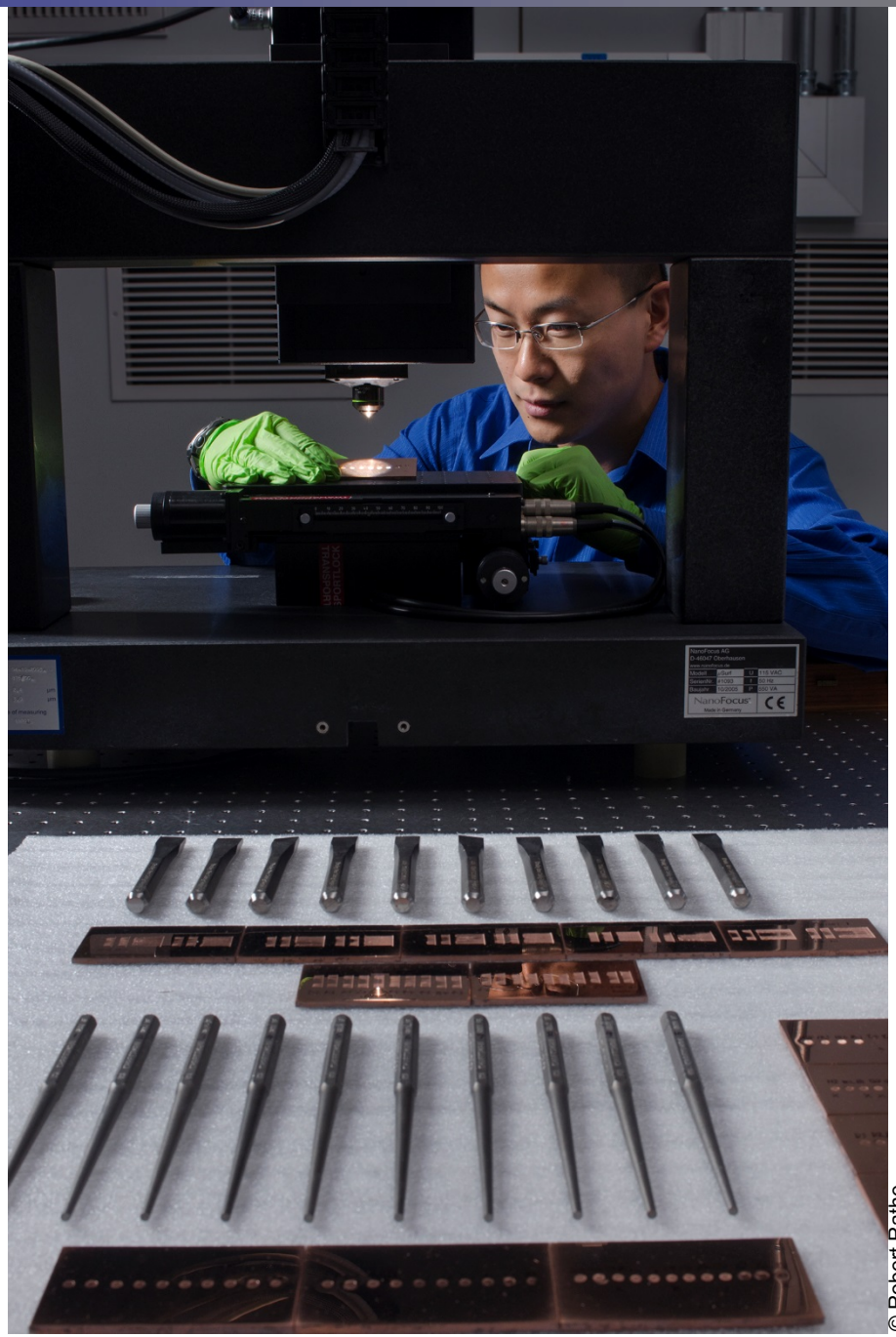
- NBS publishes the *Fire Investigation Handbook* as "a reference tool designed to be used by the beginning or the experienced fire investigator.

- The National Bureau of Standards participates on the International Committee on Forensic Hair Comparisons to advance forensic hair comparison as a science.



Forensics Research at NIST

- computer forensics
- fire investigations
- drug detection
- hair analysis
- drunk driving testing
- biometrics (fingerprints and handwriting analysis)
- firearms/ballistics/gunshot residues
- standards for body armor, nonlethal weapons
- explosives detection technologies
- sports integrity/fairness
- genetics and DNA-based identification



NIST Forensic Science Center of Excellence

Led by:

- Iowa State University
- Carnegie Mellon University
- University of Virginia
- University of California, Irvine

Focused on probabilistic and statistical foundations for:

- firearm, toolmark, dental and other pattern analysis, and
- computer, video, audio and other digital evidence analyses.

Also charged with providing training for:

- judges
- prosecutors
- defense attorneys
- other relevant stakeholders

NIST is committed to strengthen the science that underpins the forensic evidence used in the criminal justice system.

But it will require the efforts of all stakeholders to provide the needed greater transparency, rigor, and confidence in U.S. Jurisprudence.