2010 Alaska Bar Convention

The National Academy of Sciences Report on Forensic Science: A Critical Review of Forensic Evidence

Thursday, April 29, 2010

3:15 – 4:30 p.m.
Anchorage, Alaska

CLE #2010-700 (C06) 1.25 general CLE credits

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FACULTY

Adrienne Bachman is the Anchorage District Attorney. In her 23 years with the Department of Law, she has conducted over 140 trials in 13 cities or villages across Alaska, from the remote Pribilof island of Saint Paul to the southern logging community of Craig. She is one of the senior trial attorneys in the state of Alaska. In 2006 she was named Prosecutor of the Year by the Department of Law. Adrienne frequently serves as a faculty member at the National College of District Attorneys. She teaches on a variety of topics for law enforcement, victim advocacy groups and other agencies that work in areas related to trial advocacy, child abuse and sexual assault.

Ray R. Brown was admitted to the Alaska bar in 1982 following his graduation from Gonzaga University School of Law with honors. He has an undergraduate degree in accounting from the University of Texas at Arlington and completed the Trial Practice Institute of the National Criminal Defense College in 1991. Ray went to law school to become a trial lawyer and has been blessed with fulfilling that dream throughout his career.
Following his admission to the bar, Ray served as a senior felony trial attorney and later as the training director for the Alaska Public Defender Agency. He also served as an Assistant District Attorney with the State of Alaska Department of Law, Criminal Division where he prosecuted serious felonies. After leaving his criminal practice, Ray came to Dillon and Findley in 1992 and became a shareholder with the firm in 1994. Since coming to Dillon and Findley, Ray's practice has been limited to complex civil litigation and civil trial work as well as white-collar federal criminal defense. His main areas of civil practice include plaintiff's medical malpractice and serious injury or death cases.
Ray has tried to verdict in excess of 150 cases. He is an "AV" rated lawyer in Martindale-Hubbell and is listed in the Best Lawyers in America since 2003 and Alaska Super Lawyers since 2007. He is a past member of the Alaska Bar Association Board of Governors and is a frequent presenter at Trial Advocacy programs. He is a member of the Alaska Association for Justice and the American Association for Justice.

David Carter is a member of Hughes Gorski Seedorf Odsen & Tervooren, LLC. He has practiced with the Hughes law firm since graduating from the Boalt Hall School of Law in Berkeley in 1984. Mr. Carter's practice areas have focused around personal injury defense, uninsured/underinsured claims, insurance contract interpretation and coverage issues, and bad faith defense work. He has served as an arbitrator on uninsured/underinsured arbitration panels, and has represented a couple of personal injury plaintiffs over the years.

Bill Oberly is the Executive Director of the Alaska Innocence Project, a position he has held for just over two years. As the only full time person at AIP, Bill handles all aspects of the innocence work done by the Project from case work to education, legal reform to typing and emptying the trash. Bill also serves on a number of national committees dealing with innocence work.
Prior to AIP, Bill was a solo practitioner for eighteen years, with a general civil and criminal defense practice, and prior to that a founding member of the firm of Gorton & Oberly. He is a former President of the Alaska Trial Lawyers Association and has been involved in numerous civil and criminal trials where forensic science issues have played a part.
Bill is a graduate of Hastings College of the Law and the University of California, Irvine.

Steve Wells, after graduating form law school at California Western School of Law, Steve Wells moved to Nashville, Tennessee. He practiced there for several years, sharing space with Lionel Barrett, one of Tennessee's premiere criminal defense attorneys. In this time, he handled criminal cases throughout middle Tennessee, cases in State and Federal court.
After a while, though, the call of the wild places became too strong to ignore and he moved to Dillingham, Alaska, to be the public defender. The sole public defender for an area roughly the size of Ohio, he handled every type of case from commercial fishing cases to first-degree murder.
He left Dillingham to join the Office of Public Advocacy, Alaska's alternate defender agency, in their traveling attorney position. In this position, he traveled throughout the State of Alaska handling serious criminal cases. As a general rule, he represented clients charged with murder, sexual assault and sexual abuse of a minor, with an occasional charge of arson, robbery, kidnapping or first degree assault. His most famous case was *State v. Waterman*, in which he represented Rachelle Waterman, a 16 year old girl accused of conspiring with two men to kill her mother. Despite a taped statement by Ms. Waterman, the jury hung 10-2 for acquittal. After the trial, the court re-considered the motion to suppress her statement and, after suppressing her statement, dismissed the indictment against Ms. Waterman. The State appealed that decision and the Alaska Court of Appeals affirmed the motion to suppress.
In May, 2006, Mr. Wells left the Office of Public Advocacy to start his own office. He continues to represent clients in state and federal court. Recent court results include the dismissal of child pornography charges in a case involving several hundred images of child pornography, the suppression of the first Y-STR DNA test results in the State of Alaska, the suppression of over six pounds of marijuana, and the suppression of a large amount of methamphetamine and over $30,000.
Mr. Wells is a member of the Board of Directors for the National Association of Criminal Defense Lawyers (NACDL) and is the founding president of the Alaska Association of Criminal Defense Lawyers (AkACDL).

STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES

A PATH FORWARD

Committee on Identifying the Needs of the Forensic Science Community

Committee on Science, Technology, and Law
Policy and Global Affairs

Committee on Applied and Theoretical Statistics
Division on Engineering and Physical Sciences

NATIONAL RESEARCH COUNCIL
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THE NATIONAL ACADEMIES PRESS
Washington, D.C.
www.nap.edu

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The Senate Report sets forth the charge to the Forensic Science Committee, instructing it to:

1. assess the present and future resource needs of the forensic science community, to include State and local crime labs, medical examiners, and coroners;
2. make recommendations for maximizing the use of forensic technologies and techniques to solve crimes, investigate deaths, and protect the public;
3. identify potential scientific advances that may assist law enforcement in using forensic technologies and techniques to protect the public;
4. make recommendations for programs that will increase the number of qualified forensic scientists and medical examiners available to work in public crime laboratories;
5. disseminate best practices and guidelines concerning the collection and analysis of forensic evidence to help ensure quality and consistency in the use of forensic technologies and techniques to solve crimes, investigate deaths, and protect the public;
6. examine the role of the forensic community in the homeland security mission;
7. [examine] interoperability of Automated Fingerprint Information Systems [AFIS]; and
8. examine additional issues pertaining to forensic science as determined by the Committee.

The issues covered during the committee's hearings and deliberations included:

a. the fundamentals of the scientific method as applied to forensic practice—hypothesis generation and testing, falsifiability and replication, and peer review of scientific publications;
b. the assessment of forensic methods and technologies—the collection and analysis of forensic data; accuracy and error rates of forensic analyses; sources of potential bias and human error in interpretation by forensic experts; and proficiency testing of forensic experts;
c. infrastructure and needs for basic research and technology assessment in forensic science;
d. current training and education in forensic science;
e. the structure and operation of forensic science laboratories;
f. the structure and operation of the coroner and medical examiner systems;
g. budget, future needs, and priorities of the forensic science community and the coroner and medical examiner systems;
h. the accreditation, certification, and licensing of forensic science operations, medical death investigation systems, and scientists;
i. Scientific Working Groups (SWGs) and their practices;
j. forensic science practices—

   pattern/experience evidence

   - fingerprints (including the interoperability of AFIS)
   - firearms examination
   - toolmarks
   - bite marks
   - impressions (tires, footwear)
   - bloodstain pattern analysis
   - handwriting
   - hair

   analytical evidence

   - DNA
   - coatings (e.g., paint)
   - chemicals (including drugs)
   - materials (including fibers)
   - fluids
   - serology
   - fire and explosive analysis

digital evidence;

k. the effectiveness of coroner systems as compared with medical examiner systems;

l. the use of forensic evidence in criminal and civil litigation—
    - the collection and flow of evidence from crime scenes to courtrooms
    - the manner in which forensic practitioners testify in court
    - cases involving the misinterpretation of forensic evidence
    - the adversarial system in criminal and civil litigation
    - lawyers' use and misuse of forensic evidence
    - judges' handling of forensic evidence;

m. forensic practice and projects at various federal agencies, including NIST, the FBI, DHS, U.S. Secret Service, NIJ, DEA, and DOD;
n. forensic practice in state and local agencies;
o. nontraditional forensic service providers; and
p. the forensic science community in the United Kingdom.

Recommendation 1:

To promote the development of forensic science into a mature field of multidisciplinary research and practice, founded on the systematic collection and analysis of relevant data, Congress should establish and appropriate funds for an independent federal entity, the National Institute of Forensic Science (NIFS). NIFS should have a full-time administrator and an advisory board with expertise in research and education, the forensic science disciplines, physical and life sciences, forensic pathology, engineering, information technology, measurements and standards, testing and evaluation, law, national security, and public policy. NIFS should focus on:

a. **establishing and enforcing best practices for forensic science professionals and laboratories;**
b. **establishing standards for the mandatory accreditation of forensic science laboratories and the mandatory certification of forensic scientists and medical examiners/forensic pathologists—and identifying the entity/entities that will develop and implement accreditation and certification;**
c. **promoting scholarly, competitive peer-reviewed research and technical development in the forensic science disciplines and forensic medicine;**
d. **developing a strategy to improve forensic science research and educational programs, including forensic pathology;**
e. **establishing a strategy, based on accurate data on the forensic science community, for the efficient allocation of available funds to give strong support to forensic methodologies and practices in addition to DNA analysis;**
f. **funding state and local forensic science agencies, independent research projects, and educational programs as recommended in this report, with conditions that aim to advance the credibility and reliability of the forensic science disciplines;**
g. **overseeing education standards and the accreditation of forensic science programs in colleges and universities;**
h. **developing programs to improve understanding of the forensic science disciplines and their limitations within legal systems; and**
i. **assessing the development and introduction of new technologies in forensic investigations, including a comparison of new technologies with former ones.**

Recommendation 2:

The National Institute of Forensic Science (NIFS), after reviewing established standards such as ISO 17025, and in consultation with its advisory board, should

establish standard terminology to be used in reporting on and testifying about the results of forensic science investigations. Similarly, it should establish model laboratory reports for different forensic science disciplines and specify the minimum information that should be included. As part of the accreditation and certification processes, laboratories and forensic scientists should be required to utilize model laboratory reports when summarizing the results of their analyses.

Recommendation 3:

Research is needed to address issues of accuracy, reliability, and validity in the forensic science disciplines. The National Institute of Forensic Science (NIFS) should competitively fund peer-reviewed research in the following areas:

a. **Studies establishing the scientific bases demonstrating the validity of forensic methods.**
b. **The development and establishment of quantifiable measures of the reliability and accuracy of forensic analyses. Studies of the reliability and accuracy of forensic techniques should reflect actual practice on realisticcase scenarios, averaged across a representative sample of forensic scientists and laboratories. Studies also should establish the limits of reliability and accuracy that analytic methods can be expected to achieve as the conditions of forensic evidence vary. The research by which measures of reliability and accuracy are determined should be peer reviewed and published in respected scientific journals.**
c. **The development of quantifiable measures of uncertainty in the conclusions of forensic analyses.**
d. **Automated techniques capable of enhancing forensic technologies.**

Recommendation 4:

To improve the scientific bases of forensic science examinations and to maximize independence from or autonomy within the law enforcement community, Congress should authorize and appropriate incentive funds to the National Institute of Forensic Science (NIFS) for allocation to state and local jurisdictions for the purpose of removing all public forensic laboratories and facilities from the administrative control of law enforcement agencies or prosecutors' offices.

Recommendation 5:

The National Institute of Forensic Science (NIFS) should encourage research programs on human observer bias and sources of human error in forensic examinations. Such programs might include studies to determine the effects of contextual bias in forensic practice (e.g., studies to determine whether and to what extent the results of forensic analyses are influenced by knowledge regarding the background of the suspect and the investigator's theory of the case). In addition, research on sources of human error should be closely linked with research conducted to quantify and characterize the amount of error. Based on the results of these studies, and in consultation with its advisory board, NIFS should develop standard operating procedures (that will lay the foundation for model protocols) to minimize, to the greatest extent reasonably possible, potential bias and sources of human error in forensic practice. These standard operating procedures should apply to all forensic analyses that may be used in litigation.

Recommendation 6:

To facilitate the work of the National Institute of Forensic Science (NIFS), Congress should authorize and appropriate funds to NIFS to work with the National Institute of Standards and Technology (NIST), in conjunction with government laboratories, universities, and private laboratories, and in consultation with Scientific Working Groups, to develop tools for advancing measurement, validation, reliability, information sharing, and proficiency testing in forensic science and to establish protocols for forensic examinations, methods, and practices. Standards should reflect best practices and serve as accreditation tools for laboratories and as guides for the education, training, and certification of professionals. Upon completion of its work, NIST and its partners should report findings and recommendations to NIFS for further dissemination and implementation.

Recommendation 7:

Laboratory accreditation and individual certification of forensic science professionals should be mandatory, and all forensic science professionals should have access to a certification process. In determining appropriate standards for accreditation and certification, the National Institute of Forensic Science (NIFS) should take into account established and recognized international standards, such as those published by the International Organization for Standardization (ISO). No person (public or private) should be allowed to practice in a forensic science discipline or testify as a forensic science professional without certification. Certification requirements should include, at a minimum, written examinations, supervised practice, proficiency testing, continuing education, recertification procedures, adherence to a code of ethics, and effective disciplinary procedures. All laboratories and facilities (public or private) should be accredited, and all forensic science professionals should be certified, when eligible, within a time period established by NIFS.

Recommendation 8:

Forensic laboratories should establish routine quality assurance and quality control procedures to ensure the accuracy of forensic analyses and the work of forensic practitioners. Quality control procedures should be designed to identify mistakes, fraud, and bias; confirm the continued validity and reliability of standard operating procedures and protocols; ensure that best practices are being followed; and correct procedures and protocols that are found to need improvement.

Recommendation 9:

The National Institute of Forensic Science (NIFS), in consultation with its advisory board, should establish a national code of ethics for all forensic science disciplines and encourage individual societies to incorporate this national code as part of their professional code of ethics. Additionally, NIFS should explore mechanisms of enforcement for those forensic scientists who commit serious ethical violations. Such a code could be enforced through a certification process for forensic scientists.

Recommendation 10:

To attract students in the physical and life sciences to pursue graduate studies in multidisciplinary fields critical to forensic science practice, Congress should authorize and appropriate funds to the National Institute of Forensic Science (NIFS) to work with appropriate organizations and educational institutions to improve and develop graduate education programs designed to cut across organizational, programmatic, and disciplinary boundaries. To make these programs appealing to potential students, they must include attractive scholarship and fellowship offerings. Emphasis should be placed on developing and improving research methods and methodologies applicable to forensic science practice and on funding research programs to attract research universities and students in fields relevant to forensic science. NIFS should also support law school administrators and judicial education organizations in establishing continuing legal education programs for law students, practitioners, and judges.

Recommendation 11:

To improve medicolegal death investigation:

a. **Congress should authorize and appropriate incentive funds to the National Institute of Forensic Science (NIFS) for allocation to states and jurisdictions to establish medical examiner systems, with the goal of replacing and eventually eliminating existing coroner systems. Funds are needed to build regional medical examiner offices, secure necessary equipment, improve administration, and ensure the education, training, and staffing of medical examiner offices. Funding could also be used to help current medical**

examiner systems modernize their facilities to meet current Centers for Disease Control and Prevention-recommended autopsy safety requirements.

b. **Congress should appropriate resources to the National Institutes of Health (NIH) and NIFS, jointly, to support research, education, and training in forensic pathology. NIH, with NIFS participation, or NIFS in collaboration with content experts, should establish a study section to establish goals, to review and evaluate proposals in these areas, and to allocate funding for collaborative research to be conducted by medical examiner offices and medical universities. In addition, funding, in the form of medical student loan forgiveness and/or fellowship support, should be made available to pathology residents who choose forensic pathology as their specialty.**
c. **NIFS, in collaboration with NIH, the National Association of Medical Examiners, the American Board of Medicolegal Death Investigators, and other appropriate professional organizations, should establish a Scientific Working Group (SWG) for forensic pathology and medicolegal death investigation. The SWG should develop and promote standards for best practices, administration, staffing, education, training, and continuing education for competent death scene investigation and postmortem examinations. Best practices should include the utilization of new technologies such as laboratory testing for the molecular basis of diseases and the implementation of specialized imaging techniques.**
d. **All medical examiner offices should be accredited pursuant to NIFS-endorsed standards within a timeframe to be established by NIFS.**
e. **All federal funding should be restricted to accredited offices that meet NIFS-endorsed standards or that demonstrate significant and measurable progress in achieving accreditation within prescribed deadlines.**
f. **All medicolegal autopsies should be performed or supervised by a board certified forensic pathologist. This requirement should take effect within a timeframe to be established by NIFS, following consultation with governing state institutions.**

Recommendation 12:

Congress should authorize and appropriate funds for the National Institute of Forensic Science (NIFS) to launch a new broad-based effort to achieve nationwide fingerprint data interoperability. To that end, NIFS should convene a task force comprising relevant experts from the National Institute of Standards and Technology and the major law enforcement agencies (including representatives from the local, state, federal, and, perhaps, international levels) and industry, as appropriate, to develop:

a. **standards for representing and communicating image and minutiae data among Automated Fingerprint Identification Systems. Common data standards would facilitate the sharing of fingerprint data among law enforcement agencies at the local, state, federal, and even international levels,**

which could result in more solved crimes, fewer wrongful identifications, and greater efficiency with respect to fingerprint searches; and

b. **baseline standards—to be used with computer algorithms—to map, record, and recognize features in fingerprint images, and a research agenda for the continued improvement, refinement, and characterization of the accuracy of these algorithms (including quantification of error rates).**

Recommendation 13:

Congress should provide funding to the National Institute of Forensic Science (NIFS) to prepare, in conjunction with the Centers for Disease Control and Prevention and the Federal Bureau of Investigation, forensic scientists and crime scene investigators for their potential roles in managing and analyzing evidence from events that affect homeland security, so that maximum evidentiary value is preserved from these unusual circumstances and the safety of these personnel is guarded. This preparation also should include planning and preparedness (to include exercises) for the interoperability of local forensic personnel with federal counterterrorism organizations.