

Fall 2016

IT'S EVIDENT

Official Quarterly Newsletter of the
National Clearinghouse for Science, Technology, and the Law

From the Director's Desk... Carol Henderson

It's hard to believe that we are embracing the fall season and quickly approaching the close of 2016. Here are some highlights:

Presentations:

In June, I attended the International Academy of Legal Medicine Symposium in Venice, Italy where I presented "The Crime Scene to Courtroom Litigation Initiative: Forensic Training for Capital Litigators." I

was also able to visit The University of Padua, founded in 1222, where I saw Galileo's Chair, viewed the first autopsy suite, and visited an extraordinary library with publications from the 1500s and an amazing medical museum with specimens from the 1800s.

I was recently in New Zealand, attending the ANZFSS Symposium September 18-24 where I presented my Keynote address "Judicial and Legal Education in the Forensic Sciences: The Latest Progress Made on the Path Forward." I was awarded the Best Oral Presentation in Education and Training. The President's Council of Advisors on Science and Technology released its report on forensic science in criminal court on September 20th and it was the topic of many plenary groups. Stay tuned for a possible future webinar on the topic.



In late October, I will head to London to teach in Stetson Law's Autumn in London program. My short course "Scientific Evidence and Expert Testimony: A US-UK Comparison" will bring together many of my UK colleagues to provide the students with the UK perspective from physicians, forensic scientists and lawyers.

NCSTL Database:

Total visitor count: 1,418,350

Total number of records: 143,155



NCSTL Support

As always, we appreciate the support of law students who dedicate their time to curating content and working for the National Clearinghouse for Science, Technology, and the Law. We have 20 students performing research for pro bono credit at Stetson Law so far for the fall semester.

Grant Activity

In 2015, the Bureau of Justice Assistance provided NCSTL with a \$400,000 grant to support the Capital Case Litigation Initiative. NCSTL is in the process of producing a total of eight webinars and two in-person training symposia for the "Crime Scene to Courtroom Forensics Training for Capital Litigators". The first three webinars, Crime Scene Essentials on March 2, Crime Lab Essentials on May 24, and Forensic Pathology Essentials on October 13 were very successful. There were more than 650 live and on-demand participants. To view the webinars visit www.ncstl.org and visit the Education & Training tab.

East Coast Symposia

NCSTL held the first ever East Coast Symposia in St. Petersburg Beach on July 11 and 12. Topics included Forensic Science 101; Forensic Report Wording and Statistics; Digital Forensic Technologies; Challenging Evidence – methodologies and development of optimal strategies; Forensic Science Research; Forensics after the NAS report; Discovery Material; Expert Witness; and Preparing for Trial.

East Coast Symposia speakers included the following professionals:

- Diana Botluk is a Reference Librarian and Associate Professor at Barry University Law Library in Orlando. Previously, she was the Director of Research at the National Clearinghouse for Science, Technology and the Law at Stetson University College of Law. A legal information professional for over 20 years, Ms. Botluk is also the author of *The Legal List: Research on the Internet*, a book published annually by West Group.
- Jules Epstein is a Professor of Law and Director of Advocacy Programs at Temple University Beasley School of Law. Professor Epstein remains of counsel at the firm of Kairys, Rudovsky, Messing & Feinberg, LLP, where he continues to handle capital cases at the appellate and post-conviction stages. Professor Epstein has taught death penalty law nationally to both judges and attorneys. He is part of the faculty for the National Judicial College teaching courses in advanced evidence and capital case law. Additionally, he has published and served as an expert witness in the area of eyewitness testimony. Professor Epstein was co-editor of *Scientific Evidence Review: Admissibility and the Use of Expert Evidence in the Courtroom*, Monograph No. 9 (ABA Books, 2013) and *The Future of Evidence* (ABA Books, 2011).

East Coast Symposia Continued

- Dr. James Ongley is president of a forensic science consulting practice. He was a medical examiner in Broward Florida (1983- 1990). Dr.Ongley was the second lab manager for the Broward Sheriff's Office Crime lab from 2004-2014 following his 14-year career as a Broward County public defender. During his tenure, the BSO Lab was the first Sheriff's Crime Lab in the United States to become internationally recognized. He has testified as a medical examiner in death penalty cases and represented defendants in death penalty cases. He is an adjunct professor on the subjects of crime scene investigation and crime lab management at NOVA Southeastern University. He was also President of the Florida Association of Crime Lab Directors.

- Christine Funk is a private consultant in the field of forensic science and the law. Ms. Funk's areas of consulting include pretrial forensic file review and post-conviction appellate or habeas review for criminal cases. Ms. Funk was involved with the Innocence Project of Minnesota from 2003 to 2013 as a member, board member, and consultant regarding forensic DNA issues in cases involving Innocence Project clients. She was also a member of the Minnesota Forensic Laboratory Advisory Board, the Technical Working Group on DNA for Defense Attorneys, and White House Sub-Committee to the Sub-Committee on Forensic Science: Education Ethics and Terminology Inter-agency Working Group. Currently, she serves on the Legal Resource Committee for the Organization of Scientific Area Committees. Ms. Funk has authored and co-authored books, chapters and scholarly articles in the field of forensic science and the law.

- Kenneth Melson is Professorial Lecturer in Law at The George Washington University Law School teaching both law and forensic science courses. In 1986 Mr. Melson became the First Assistant United States Attorney. In 2007, Attorney General Gonzales appointed Mr. Melson as the Director of the Executive Office for the U.S. Attorneys. Mr. Melson was then nominated by President Obama and served as the Acting Director of the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) from 2009-2011. He then served as the Senior Advisor on Forensic Science in the Office of Legal Policy at the U.S. Department of Justice. Currently, Mr. Melson works for the Office of Inspector General for the U.S. Postal Service on misconduct and corruption investigations. Mr. Melson was Co-Chair of the Subcommittee on Forensic Science for the Committee on Science of the National Science and Technology Council within the Executive Office of the President. Additionally, he is a past President of the American Academy of Forensic Sciences (AAFS), as well as former Chair of the Council of Scientific Society Presidents.





East Coast Symposia

- Matt Redle has been the elected County & Prosecuting Attorney in Sheridan County, Wyoming since 1987. In the past, Mr. Redle served as Vice-President of the National District Attorneys Association (NDAA). He has also been a member of the National District Attorneys Association DNA Legal Advisory Group since 1995. In September 2009, Mr. Redle testified before the United States Senate Committee in a hearing entitled "Strengthening Forensic Science in the United States."
- Josh Brunty works as an Assistant Professor at Marshall University in the Integrated Science & Technology and Forensic Science Departments. Professor Brunty teaches in the areas of digital forensics and information assurance and focuses his research in digital forensics, mobile device forensics, network forensics, and image and video forensics.
- Mark Rasch is a Principal Client Partner for Verizon Enterprise Solutions, in charge of strategy and messaging for global security solutions. He is also the principal at Rasch Technology and Cyberlaw, where he offers litigation, consulting and counseling services in the area of cyber law.
- Julie Sikorsky is currently the manager of the Forensic Biology Unit at the Palm Beach County Sheriff's Office in West Palm Beach, Florida. Prior to becoming a manager, Julie was a full-time caseworker analyst for over ten years. She has actively worked hundreds of forensic DNA cases and regularly offers expert witness testimony
- Max Houck is Vice President and Director of Forensic and Intelligence Services, LLC, providing expertise and consulting in forensic science, intelligence analysis, management, and anti-money laundering (2011- present). Dr. Houck is one of the most-published authors in forensic science. He is the founder and co-editor of the journal Forensic Science Policy and Management, as well as co-author of Fundamentals of Forensic Science, a major textbook.
- Associate Dean Stephanie Vaughan is currently the Associate Dean for Student Engagement, and has been Associate Director of the Center for Excellence in Advocacy; Interim Director of International Programs, Resident Director of Overseas Programs; Director of the Tampa Law Center, Co-Director of Legal Research and Writing; and the Moot Court Advisor.

Publications:

"Jurisprudence" Chapter in Past Presidents Future Science: Hot Leads in Contemporary Forensic Research Wiley Publishing. Forthcoming late 2016/early 2017.

"Sleuthing Scientific Evidence Information on the Internet" with Diana Botluk. Accepted for publication, Northwestern University Journal of Criminal Law and Criminology. Will appear in 106.4 Symposium Issue, Nov/Dec 2016.

"Scientific Web Resources for Judges" with Diana Botluk. Published Feb. 18, 2016 in the Judicial Edge, The National Judicial College's monthly email newsletter with a subscriber base of 12,000 judges and judicial personnel. <http://www.judges.org/news/the-judicial-edge>.

Professional Associations:

I continue to be involved with the American Academy of Forensic Sciences. On February 22-26, I attended the annual meeting in Las Vegas, Nevada. My involvement with AAFS includes membership on the Past Presidents Council; Amicus Brief Committee; International Affairs Committee; Forensic Sciences Foundation Think Tank (tasked with making presentations regarding developments in technology which impact the forensic science community); Academy Cup Committee; Early Career Achievement Award Selection Committee; Software Archive Committee. I also serve as a liaison between AAFS and ABA.

With regard to my ABA participation, I organized the teleconference ABA teleconference "Solitary Confinement: The Court, the Constitution and Current Concerns" held on March 28, 2016 with Dr. Eric Drogin, for the ABA Science & Technology Law Section. I serve as Co-Chair for the Life & Physical Sciences Division, Science & Technology Law Section. Recently, I was appointed Deputy Editor-in-Chief of the Sci Tech Lawyer Editorial Board. I also am a member of the ABA Museum and Arts Law Committee (MALC) and the ABA Criminal Justice Section and a member of the Forensic Science Committee of the Judicial Division.

Other Professional Service:

The Chartered Society of Forensic Sciences, United Kingdom
International Forensic Research Institute Advisory Board Florida International University
National Judicial College Scientific Evidence Course Faculty

Thank you for your support of our mission to educate capital litigators and professionalism in the areas of science, technology, and law. We look forward to continuing to provide exceptional training opportunities. I also want to thank our guest editor Jennifer Bate for putting together this edition of "It's Evident". Jennifer is a former research assistant of mine who is completing her Master's in Mass Communication and Social Media at the University of Florida.

All the best,
Carol





What is 'business as usual' forensic science?

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ABSTRACT

People could well be in fatigue mode when the NRC report (1) is mentioned now. However, it was a significant wake-up call for the USA and the rest of the world (2). On reflection, the NRC report was a critique of what was widely considered 'business as usual' practices for forensic science service provision in 2009. The question is, is 'business as usual' 2009 the correct approach in 2016? The answer is obviously no. There is still much work to be done in ensuring the validity of test methods and quality management practices as identified in the NRC report. However, in addition to rectifying the past we simultaneously need to embrace the future.

The legal dictionary (thefreedictionary.com/Forensic+Science) defines forensic science as "The application of scientific knowledge and methodology to legal problems and criminal investigations." However, 'business as usual' forensic science usually has a single discipline, single case, silo approach and a focus on a single end-user; the courts. Of the crimes committed, a minimal number reach the point of a suspect being arrested and the case going to court (3). And yet, this is the space 'business as usual' forensic science predominantly plays in. What role are we playing in the policing and security space? The vast majority of police and security organisations will have crime disruption and crime prevention as key strategies. Forensic science has the potential to play a significant part in these pursuits but traditionally does not play that role. Because of the lack of resources and the lack of time we default to the court focus. For the purposes of crime disruption and crime prevention, law enforcement organisations require results in hours and days rather than weeks and months the latter of which is the de rigueur time frame for forensic science. For forensic science to reach its full potential hours and days must become the new business as usual.

DISCUSSION

Specialisation

'Business as usual' forensic science is conducted in areas of specialisation. There are two in particular; discipline specialisation and end-user specialisation.

Discipline Specialisation

There is no doubt that inter-discipline specialisation is required. Stoney and Stoney highlighted this with respect to the evolution of trace evidence analysis from simple particles and microscopic examination to complex particles and examination using highly sophisticated instrumentation. They reported that forensic scientists are specialising in paint or glass or fibres, for example.

"Today, the expertise required for a generalist practitioner in trace evidence analysis is daunting. The materials that can be encountered are innumerable and the corresponding methods of analysis are complex" (4).

The situation is similar with DNA analysis and interpretation.

However, intra-discipline specialisation or the so-called silo approach also exists in forensic science. A relevant question is what should a multi-disciplinary forensic science laboratory look like in the future, particularly on the inside? It should not necessarily be a series of discipline specific laboratories separated by corridors, walls and stairs although in some instances (e.g. DNA and recovery of trace material), isolation is required. A forensic science laboratory of the future should include large spaces where scientists from different disciplines can congregate to discuss particular cases and multiple, smaller break-out rooms to be used for similar purposes.

End-User Specialisation

'Business as usual' forensic science has a single case focus and an emphasis on the courts. This is historic and it is essential for forensic science to continue to play a role in this space. The NRC report highlighted the need for change if forensic science is to meet the expectations and requirements of the criminal justice system, including the courts. The nucleus of that change involves quality management and ensuring that existing disciplines are underpinned by science. DNA was used as the 'gold standard' in this respect

Organisations/groups such as the National Institute of Standards and Technology (NIST) and the President's Council of Advisors on Science and Technology - Forensic Evidence in the USA and The Leverhulme Research Centre in Scotland, UK (and there are others) are conducting what might be termed reflective research in order to address the issues raised in the NRC report. This is obviously important and necessary research. However, it is essentially focused on the courts as the end-users of forensic science.

In the author's view and the view of an increasing number of academics and forensic scientists, specialisation while necessary in some instances, is a barrier to forensic science reaching its full potential. Therefore, in addition to the reflective research for the 'as is', there is a requirement for simultaneous research and progression to forensic science providing services in the policing and security space in addition to the courts.

Generalisation

Dictionary . com (www.dictionary.com/browse/generalist) defines a general-ist as "a person whose knowledge, aptitudes, and skills are applied to a field as a whole or to a variety of different fields (opposed to specialist)." In addition to specialists within forensic science, there are benefits to be had through a return to a more generalist approach. Such an approach will provide for a greater overview of individual cases but also provide for a multi-case approach, vital for forensic intelligence and crime disruption and prevention.

Forensic Intelligence

The use of intelligence has been long-practised by military forces:

"Now the reason the enlightened prince and the wise general conquer the enemy wherever they move and their achievements surpass those of ordinary men is foreknowledge." (5)

Criminal intelligence is also well established in policing. Forensic intelligence is a relatively new concept but it has a significant role to play in the overall criminal intelligence picture. So what is forensic intelligence?

"The fundamental principle of forensic intelligence is that, instead of treating each case individually with the aim of assisting the court (i.e. evidential focus), a multi-case focus and more holistic approach based on the study of crime phenomenon is followed."

And:

"Forensic intelligence refers to several treatments of data. As a concept it refers to the structured assimilation of forensic case data within a cross-referenced and indexed data set. This data set should be subjected to rigorous qualitative and quantitative analysis to identify meaningful patterns of criminal enterprise." (6)

Finally, in this attempt to identify forensic intelligence, Morelato states that:

"At its essence intelligence is the result of a process that aims at transforming raw data into a form more suitable for making decisions. The aim is to add value to information collected by analysing it in a timely fashion" (7)

The emphasis is on the evaluation of raw data from different sources (i.e. different forensic disciplines) in a timely fashion. In order for it to be useful, intelligence should be provided to police within hours/days rather than weeks/months the latter of which is often the current turnaround time for forensic science case work (8). Because of the traditionally long turnaround times, the default position for forensic science is to provide evidential information (courts) rather than investigative information and

intelligence and it is a barrier to the crime disruption and crime prevention role.

What has changed to allow forensic science to engage in the provision of intelligence? Examples include the maturation of national DNA, fingerprint and palm print databases, a multi-case focus and the collection of additional information from the crime scene (e.g. modus operandi, time of day and types of goods stolen), 'taking the laboratory to the scene', advanced use of technology reducing turnaround times, triage and the embedding of crime analysts within forensic science facilities.

Taking the Laboratory to the Scene

This concept has been part of the forensic science conversation for a number of years, largely driven by technology such as 'lab on a chip'. In the view of the author, the outcome has never matched the hype. Obviously the more that can be done at the scene in terms of analysis the more likely reduced turnaround times will be achieved. However, Roux et al identify the fact that the mix of crime scene investigation skills and science to underpin the decision making and problem solving process is not yet at a point where taking the laboratory to the scene is as robust as it should be.

"...most crucial decisions made at the scene will impact on the relevance, quality and quantity of traces generated by the offenders and made available to further processes. Nevertheless, despite the significant discretionary decision process enjoyed by crime scene examiners, crime scene investigation is often seen as a simple mechanical process...Integrating crime scene management within the scientific scrutiny has been identified as a way to move forward." (9)

Technology and Reduced Turnaround Times

A clear example of this is the capture and processing of fingerprints within Queensland Police, Australia. All prints are captured at the scene by digital photography. Lifts are taken from difficult surfaces (e.g. curved surfaces) and then photographed. The photographs are transferred to the laboratory electronically through ruggedised notebook computers and comparisons and database checks are performed on-screen within a central facility. The State of Queensland has a surface area of 1.853 million km² and a population of 4.8 million. The use of technology as described has resulted in a turnaround time for fingerprint examination of less than or equal to 24 hours. Obviously, this function meets the timeliness required for intelligence.

Triage

'Triage' and 'rapid lab' are terms and activities introduced to a number of forensic science facilities in Australia, and no doubt other countries. Again, the emphasis here is on timeliness.





Triage teams are multi-disciplinary and have a multi-case agenda with respect to being constantly aware of any case-to-case links. For individual cases, the team will begin by identifying the questions that need to be asked and then answered (if possible) by the forensic examination.

Therefore, the examination is appropriately targeted and carried out in the context of the different disciplines that will be involved (e.g. DNA, fingerprints, gunshot residue and glass). The examination may occur under the supervision of a 'Maestro', who is a forensic scientist with broad, long-term experience. (10)

In this situation, each item is examined once for all traces: one set of photographs, one set of diagrams, one set of notes and one case file. This is in contrast to the usual practice of practitioners from each discipline examining the items at different times in isolation of each other and each taking photographs, each producing diagrams and each making notes. The time implications are obvious and the fragmented approach counterproductive.

Any traces recovered from examined items are sent to the different disciplines for analysis, but there is a targeted, holistic approach to the case and multi-case awareness from the beginning of the process.

Members of the triage team and Maestro's can be rotated through the unit at appropriate intervals so that in time, the laboratory is staffed by people with a much broader and general overview of forensic science. This has real benefits in terms of succession planning within the facility with potential managers having a rounded knowledge and experience of the broad scope of forensic science.

SUMMARY

If forensic science is to meet its full potential then 'business as usual' has to change. The table below (11) outlines two choices for business as usual: the first column essentially depicts forensic science as it is, marking time. The second column depicts forensic science moving forward.

TABLE 1

Business as Usual ↔	Business as Usual →
Single case focus	Multi-case focus
Court oriented	Court/policing /security oriented
Specialisation	Generalization/triage/ (specialisation)
Weeks and months	Hours and days
Information	Information and intelligence
Ownership	Partnership
Established system	Evolving system

It is essential for 'business as usual' circa 2009, that the 'reflective' research identified by the NRC report is completed and those organisations/groups named above who are undertaking this research are to be congratulated and encouraged. Moving forward with 'business as usual' circa 2016 and beyond will involve organisational and cultural change (12) and thinking differently about the use of available resources.

While Table 1 depicts two choices for 'business as usual', there is really only one and so 'business as usual' forensic science has to be redefined to reflect the circa 2016 and beyond option.

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