

The CACNews

News of the California Association of Criminalists • Fourth Quarter 2015



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**chris
Coleman**



CAC President

Ok, so we know what science is and that we use the scientific method to validate it. But what about forensic science? Forensic science is just the application of science to answer questions for a court of law.

Science 101 & Forensic Science

I hope everyone has had a great summer! It always seems to go by very quickly; at least that is what my kids tell me when gearing up for another year of school. While picking up some school supplies with my kids the other day, we ran into some of their friends doing the same. I started talking with the father of one of my son's classmates and he asked what I do for a living. He was a salesman and was really intrigued with our line of work. He asked very specific questions about forensic science and criminalistics and what we do and how we go about our jobs.

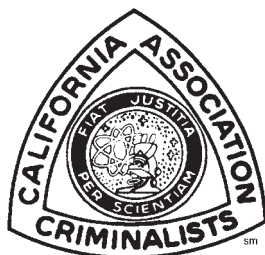
It got me thinking about how we describe our work and the profession in general. I have heard many different descriptions of forensic science, some good and some not so good. I thought it would be appropriate to go over and define what it is that we do, as well as the foundation for forensic science in terms that a jury or lay person might easily understand. Having a good definition is a huge benefit when testifying in court!

First I thought I would tackle science itself. Science is interesting because we all sort of know what it means, but often times have difficulty articulating it for a lay person. Science is basically an orderly body of knowledge with facts that are clearly enunciated. Or put another way, a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws. This systematic knowledge of the world is gained through observation and experimentation and can be tested and the results predicted. As criminalists we are typically dealing with what is often termed "natural science." Natural sciences encompass both physical science and life science and the processes of both are observable in nature. Physical science deals with inanimate matter or with energy, such as astronomy, chemistry, and physics. Life science deals with living organisms, their life processes and interrelationships, such as biology, medicine, and ecology. Natural sciences should not be confused with social sciences, like economics, history, political science, psychology, and sociology; which are studies of society and of the relationship of individual members within that society, or forms of social activity. Though there are aspects of social science in forensic science, I will limit my message to the natural sciences that are prevalent in criminalistics.

The observation and experimentation that brings about science is called the scientific method. Scientific method is a technique of research for investigating phenomena and acquiring new scientific knowledge. It all starts with an observation of some phenomena. This observation leads to a question about that particular phenomenon. From the question we formulate a hypothesis to answer the question we posed. A scientific hypothesis is just a proposed explanation that can be tested. We design experiments and carry them out to test the hypothesis and gather data. This data can be used to refine and modify our experiments. Experiments are orderly tests carried out to verify or refute a hypothesis. An important thing about our hypothesis is that it can be falsified, or found to be in error. We can then modify our experiments and continue to test our hypothesis. Our experiments should be empirical, meaning they can be observed or have measurable qualities. Once we have thoroughly tested our hypothesis and are unable to falsify it, we can develop a theory of why the original observation took place. After this theory has been repeatedly tested by other scientists

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FOURTH QUARTER 2015



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The deadlines for submissions are: December 1, March 1, June 1 and September 1.

The CACNews

www.cacnews.org



Clarke House

Clarke House, Harrogate, the home of the Forensic Science Society. A watercolour by Carol Rudram, presented to the CAC by the (then) FSS President Brian Caddy, at the CAC/FSS Third Joint Meeting in 2000.

Photo by Jean Fukaye-Mochizuki. Back cover design by J.H. Cabral.

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Steve Schliebe Retires

Steven Schliebe, the first person to be featured on a CAC-News cover, has retired after forty-two years in forensic science.

Steve began his career with the Los Angeles Sheriff's Department Crime Laboratory in January 1973 after graduating from Cal. State University, Long Beach with a Bachelor of Science degree in criminalistics. During his first year he was assigned to the Narcotics Section. In 1974, he was transferred to the very first LASD satellite laboratory in a small room at the Hermosa Beach Police Department. His duties during this assignment included drug and blood alcohol analysis.

In 1975, he was transferred back to the main laboratory and was assigned to the Physical Section. The end of



Steve Schliebe in the Spring, 1993 issue.

1975 marked a significant point in the history of the Scientific Services Bureau. The advent of electrophoresis into the forensic arena allowed the bureau to create a separate Serology Section. Steve was one of five people assigned to the newly-formed unit.

In 1978, Steve was one of ten people chosen nation-wide to evaluate the Blood Analysis System (BAS) using electrophoresis to type enzymes in blood and semen. The system was designed by Brian Wraxall, who went on to form SERI (Serological Research Institute).

Steve worked in both the Serology and Physical Section until 1985. He left the Sheriff's Dept. and joined Carol Hunter Rhodes who had opened a private forensic laboratory, the California Laboratory of Forensic Science, in 1983. During his nine years at Cal Lab, Steve worked on several notable cases. He had the honor and privilege of working on the Randy Kraft defense team with Bob Ogle, Chuck Morton, Brian Wraxall, and Gary Harmor. Carol and Steve also were hired to work

on the Bill Suff serial murder case involving at least 14 victims and several thousand pieces of evidence.

Steve returned to the LASD Scientific Services Bureau in 1994 and was assigned to the Trace Evidence Section (formerly the Physical Section). The last 21 years of his career were dedicated to analyzing paint samples, comparing hairs and fibers, conducting footwear and tire comparisons, and performing bloodstain pattern analysis.



Everyone Loves a CAC Shirt

Mey sent this to us from our Leeds Forensics vendor Jake Kurth. It's a photo of his cat "wearing" a CAC shirt. Purrfect fit!

CAC Sponsored Exhibit at the 2015 IAI Centennial Museum

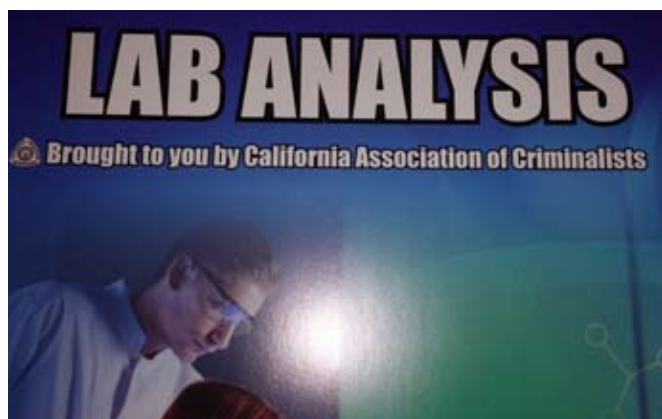
The International Association celebrated its centennial anniversary while holding its annual training conference in Sacramento, California during the first week of August this year. Conference attendance shattered all previous records with approximately two thousand people attending. John Walsh of America's Most Wanted fame gave the keynote address. What set this year's conference apart was the presence of the centennial museum. This museum traced the beginnings for the IAI starting in 1915 to the present with photographs of each past president and images of significant documents during their terms adorning brick facade walls that separated the exhibit areas. Each of the forensic disciplines sponsored by their respective subcommittees included latent prints, tire and footwear examination, forensic art, bloodstain pattern analysis, firearms and toolmarks, forensic podiatry, forensic anthropology, forensic odontology, crime scene, photography, and forensic laboratory analysis presented exhibits. As one walked the corridors of time, one would encounter one of these exhibits.

The exhibit representing forensic laboratory analysis would have had special appeal to CAC members because it portrayed images and a video provided by the CAC. In fact, a title banner bearing the CAC logo gave prominent credit to the CAC. The exhibit consisted of a single wall with a back-

ground of generic laboratory analyses combined with photographs of different laboratory techniques, instrumentation and evidence. Two monitors set at the top of either end of the exhibit ran continuous video loops of a *CSI*: trailer representing present day criminalistics and in the other Dr. Paul Kirk starring as himself in a 1960s production of "Science in Action." A small bench was set in front of the exhibit so that people could sit and watch the video presentations. The overall effect of the museum and its exhibits was quite astounding.

As chair of the IAI Forensic Laboratory subcommittee, I wish to thank former Historical Committee Chair, now Editorial Secretary Meiling Robinson and the publisher of the *CAC News*, John Houde, for their contributions toward the success of this project.

—Gregory E. Laskowski
Photo credit S. Laskowski



chris Coleman

(a science expert) and found to not be falsified, it may become a scientific law!

Now while all this sounds quite complicated, it can actually be quite simple. Take for instance a light bulb. You turn on the light switch but the bulb does not come on. That is your observation. Your question is why didn't the bulb light up? So you decide to formulate a hypothesis that the fuse for that circuit is blown. You check the fuse box and find everything is ok. You falsified your original hypothesis, so you modify it and decide to test whether the light bulb is burned out. Your experiment is to replace the light bulb with a new one and try again. You screw the new light bulb in and flip the switch and the light goes on! You proved your hypothesis. That's the scientific method in its simplest form, something we may do several times a day without even thinking about it.

Ok, so we know what science is and that we use the scientific method to validate it. But what about forensic science? Forensic science is just the application of science to answer questions for a court of law. There are numerous fields of forensic science. Most of us work in the criminalistics field of forensic science. Criminalistics is the scientific study and evaluation of physical evidence from crime scenes. I often describe my job as a criminalist as having three interrelated parts. First, I respond to a crime scene to locate, preserve, package, and collect physical evidence to take back to the lab. Second, back at the lab I analyze the physical evidence to answer some question. I do this using science and the scientific method. Third, I come to court to testify and educate the court on what I did and what the physical evidence means. So you could say, that as well as being scientists, we also have to be teachers to convey the information we have gathered and determined through our experiments.

My aptitude for science and teaching came from my father, Jerry Coleman. He taught chemistry, physics, and math for 37 years and had a short 5 year stint as the quality control chemist at the C&H Sugar factory in town before he retired for the last time. When I was young he used to allow me to "experiment" in the lab at the school when he had to go in on weekends to grade papers or put lesson plans together. Sometimes he would try out the experiments he was planning on doing in advance, and I was right there, his little helper. He instilled in me a spirit of exploration and discovery and learning by doing and trying things. He was the one who taught me what the scientific method was all about. He loved experimenting and exploring, and had a knack for taking a very difficult topic and breaking it down into easy to understand pieces. He was also a masterful story teller. We had many great adventures over the years. He passed away in 2012, but I know he is still watching me. He was always excited that I was a forensic scientist, and he helped point several of his students in that direction over the years and a few of them are now in the field. What more can I say about the most awesome science field there is! Take care everyone and be safe.

Chris

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Could Your Lab Be Next?

A Sentinel Event in the Profession of Forensic Science

We said that when we had something to say, we would be back for a guest POL. A recent issue has caught our attention and we have something—actually a lot—to say. We had our first opportunity in a long while to meet for an actual lunch on our home turf—sadly no adult beverage—to discuss the latest forensic goings-on in our nation’s capital. In an ironically timely fashion we headed a couple of weeks after that to the NIST-sponsored *International Symposium on Forensic Science Error Management*—which just happened to take place in Washington D.C. During that week we had the opportunity to speak directly with both interested

tation from ANAB/FQS. Director Houck and attorney Funk implemented important innovations, pursuant to both the letter and spirit of the legislation, to assure the independence and transparency of the laboratory. They developed new lines of communication between the laboratory and the groups it served, including police, prosecutors and defense lawyers; for example, they effected the legislative decree that prosecution and defense be given equal access to laboratory and case information. Houck and Funk also terminated a policy that had previously allowed prosecutors direct access to analysts while they were engaged in their analysis, thus insulating the analyst from potential

bias prior to finalizing and issuing a report. During a National Commission on Forensic Science meeting the week of April, 2015, John Hollway¹, a prominent expert on error-management speaking to the commissioners, publicly commended Houck’s novel procedure for “root cause analysis” as a model for others to follow. Ironically, this occurred on the very day that Houck was forced to resign following a recent series of events involving the U.S. Attorney’s Office and the DFS laboratory.

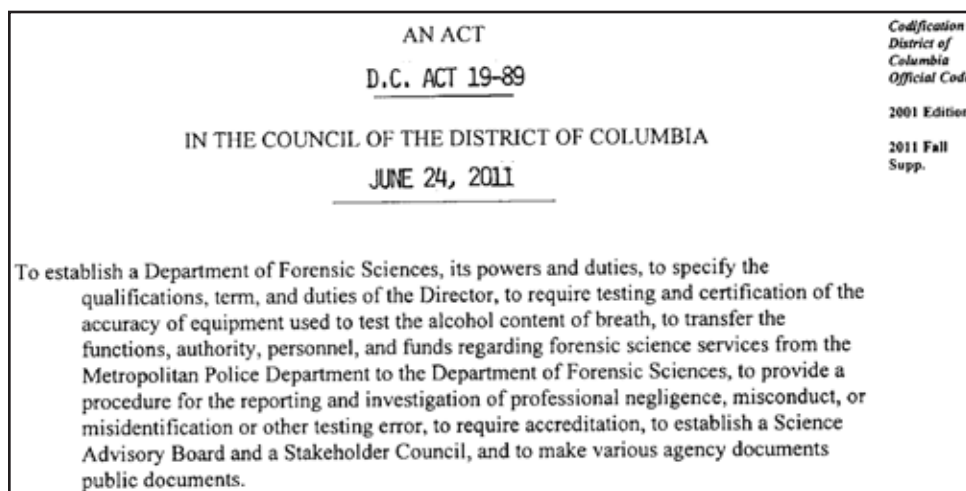
The events, their genesis,

and their resolution remain vague and opaque to this day. The more people with whom we spoke and the more documents and stories we read, the more questions were generated. To help with a coherent presentation, we’ll list the chronology of events, identifying areas about which questions remain along the way. This chronology is largely supported by documents publicly available on the DFS “open gov” web site [dfs.dc.gov/page/open-government-and-foia-dfs], as well as by news media reports. While it is lengthy, we recommend that the interested reader work their way through the chronology of events, where we have also inserted a few comments (in bold). Our main commentary resumes at the end of the timeline, such as it stands today, August 31, 2015.

Dec 18 2009

A strong recommendation of the NAS report, published in 2009, was that forensic labs establish independence from law enforcement. On the heels of this report, Phil Mendelson,

¹Director of the Quattrone Center for the Fair Administration of Justice, Pennsylvania University School of Law.



and involved parties – in the process scoring some nice dinners, including adult beverages.

Many of you may have been following the ongoing story about the Washington D.C. crime laboratory. The District of Columbia was an early adopter of the 2009 NRC recommendation that crime labs be separated, institutionally, from law enforcement control. In 2011 the City Council passed an act that established the Department of Forensic Sciences as an independent city agency. The Bill transferred “... functions, authority, personnel, and funds from the Metropolitan Police Department to the new Department of Forensic Sciences...” and created “... rights of an accused person to forensic results or investigation...” The Department of Forensic Sciences Act also established a Forensic Science Advisory Board.

Dr. Max Houck, a former FBI trace evidence analyst and educator, was hired as the director of Department of Forensic Services (DFS); among his new hires was Christine Funk, a nationally-recognized defense attorney with a specific expertise in DNA, as the lab’s general counsel. The laboratory began operation in October 2012 and quickly obtained accredi-

Chairperson of the D.C. Committee on Public Safety and the Judiciary announces a public oversight hearing on the State of the Construction and Development of the Consolidated Forensic Laboratory (CFL), envisioned as just such an entity.

Nov 15 2010

As work continues on planning an independent forensic laboratory, Mendelson announces a second public oversight hearing on the State of the Construction and Development of the CFL.

Jun 24 2011

The Washington D.C. City Council passes an Act that establishes the Department of Forensic Sciences (DFS) as an independent city agency. (Bill 19.5, Department of Forensic Sciences Act of 2011) Among other things, the Act requires that a Science Advisory Board (SAB) and Stakeholder Council be established, that agency documents be made public, and that a procedure for the reporting and investigation of professional negligence, misconduct, or misidentification or other testing error be established.

Aug 13 2012

Vincent C. Gray, then mayor of the District of Columbia, appoints Dr. Max Houck as *Interim* Director of the DFS. The appointed director serves at the pleasure of the Mayor.

Dec 31 2012

Mayor Gray removes the interim from Houck's title, and he is appointed Director of the DFS.

May 2013

ANAB/FQS performs a pre-assessment review of the DFS quality manuals and standard operating procedures using the ISO/IEC 17025:2005 standard. Although several non-conformities and concerns are mentioned, they do not include any items specific to forensic biology or DNA.

Sept 16-18, 2013

Report on Conformance with ISO/IEC 17025:2005 accreditation assessment conducted by John G. Wegel, Jr., Patricia Bencivenga, Robyn Quinn, Domingo Villarreal, Gregory Scala of ANAB/FQS. The assessment was conducted by "...inspection of facilities; review of policies, procedures, and records; and by staff interviews." The audit mentions corrective actions from a previous external audit of the biology unit that had not yet been addressed; we are unable to find the specific details to which this refers, and so are unable to evaluate its impact on this incident. Validation studies relevant to the forensic biology unit are assessed; the only complaint was that a contamination assessment was not included. The audit mentions that there is no path for a corrective action to be initiated by a staff member. The only comment regarding forensic biology protocols was that the DNA reports did not include a statement of eligibility for CODIS entry. Otherwise, no forensic biology or DNA protocols are mentioned, regarding interpretation of DNA mixtures or otherwise.

We are curious to learn more about the apparently unresolved corrective actions pre-dating the restructuring of the laboratory. For example, did any of them have to do with mixture interpretation?

Oct 31 2013

A FQS accreditation certificate is issued, specifying that the DFS "meets the requirements of international standard ISO/IEC 17025:2005 and the FBI QAS while demonstrating technical competence in the fields of Forensic Testing." The scope of accreditation includes Forensic Biology and DNA Testing.

Nov 26 2013

Mayor Gray appoints members of the SAB.

Mar 12 2014

Max Houck provides an inaugural performance overview to the DFS counsel at an oversight hearing. The conclusion to his testimony:

The Department of Forensic Sciences represents a watershed moment for not only the District but the entire forensic industry. This agency's creation has sent ripples of constructive discussion through the forensic and scientific community about our scientific independence, our melding of forensic and public health services, and the progressive view on having DFS as a "science-first" organization. Agencies around the US and the globe are paying attention to our origins and our progress as an example of how to provide critical forensic and public health services.

It is worth keeping these thoughts in mind as you work your way through the rest of this chronology.

Apr 18 2014

The inaugural SAB meeting is held (postponed from March due to inclement weather).

May 2014

Dr. Bruce Budowle is hired by the United States Attorney's Office (USAO) to review the DFS DNA work in *U.S. v. Tavon Barber*. Dr. Budowle disagrees with the interpretation and statistics reported by the lab using a Combined Probability of Inclusion (CPI). Dr. Budowle prepares his own statistics and testifies at the trial.

If the specifics of Dr. Budowle's calculations were provided to either the defense (via legal discovery) or the lab (as would be appropriate), we are not aware of the documents and have not been able to review them.

Jul 11 2014

All SAB members are reappointed by Mayor Gray.

Jul 18 2014

A regularly scheduled SAB meeting is held.

Sep 2014

Keith L. Alexander of the *Washington Post* reports that an outside expert [now known to be Dr. Budowle] was requested by the USAO to review DNA evidence in the upcoming case of Tavon Barber. According to the article: *"The expert found errors in the interpretation of six pieces of evidence analyzed by the Department of Forensic Sciences, according to the U.S. attorney's office. The biggest mistake involved the analysis of DNA found on the stolen car's gearshift, prosecutors said. D.C. analysts looking at the evidence found that the car owner's DNA could have been on the gearshift and said the chance that a randomly selected person had the same genetic traits was 1 in 3,290. The outside experts said the more accurate finding was 1 in 9."*

Proceedings

In another case, Alexander reports that:

"One pending case that got conflicting results is that of George Cocroft, who is accused of a 2012 sexual assault. The District lab concluded that Cocroft's DNA could have been at the scene and said that the chance of finding a random person with similar genetic traits was 1 in 318. But when prosecutors had an outside DNA expert perform a different calculation, which they say was consistent with the lab's protocols, the odds shifted to 1 in 900 million."

We are not aware of disclosure of the specific calculations offered by Dr. Budowle in these cases to either the DFS or to the defense. Nor are we aware of any particular expert review of the Budowle calculations.

Oct 7 2014

A regularly scheduled SAB meeting is held, at which the USAO shares Dr. Budowle's concerns about DFS mixture calculations. Significantly, the USAO does not formally claim an "error" which would automatically trigger an investigation and certain reports by the SAB and DFS. Nevertheless, the SAB convenes a 4 member subcommittee to investigate. The subcommittee is comprised of: Dr. Charlotte Word, Dr. Michael Coble, Dr. Sandy Zabell and Dr. Clifton Bishop, all nationally recognized authorities on forensic DNA analysis and forensic DNA statistics. Presciently, Board Member Dr. Jay Siegel inquired about the November 4th election for mayor in the District of Columbia and its impact on the appointment of public safety and justice leadership.

Oct 17 2014

Email communication to Dr. Houck from Michael Ambrosino of the USAO. This email is documented as an appendix to the 11-19-2014 DFS "Report on CPI." Mr. Ambrosino references

"... the 4 disclosures that have been made in connection with this case to defense counsel outlining Dr. Budowle's review of the work done by DFS and areas where Dr. Budowle reached different interpretations of potential allele dropout regarding mixture calculations and interpretation of major contributors at some loci." And "... Power Point prepared by Dr. Budowle discussing the issues that have arisen."

Significantly, these disclosures are not available on the DFS "open gov" web site [dfs.dc.gov/page/open-government-and-foia-dfs] where many other documents and testimony transcripts are listed.

Further Mr. Ambrosino states

"To date, DFS has responded by taking the position that it has a protocol in place and followed that protocol. However, Dr. Budowle's evaluation of the evidence raises the concern that DFS did not follow its own protocol. To be clear, the problem identified by Dr. Budowle is not with the protocol itself, but with the application of the protocol. To date, no one from DFS has explained whether the agency agrees or disagrees with the particular analysis conducted on each of the items of evidence in this case. I am requesting that DFS take such a position."

From the available documents, it is unclear to us if any further response was provided, or whether DFS had sufficient information on which to base an informed response to Mr. Ambrosino. We have no further documentation of any further dialogue regarding these issues as events quickly spiraled downward over the subsequent months.

Oct 23, 2014

Members of the SAB whose terms would otherwise expire are reappointed by Mayor Gray.

Oct-Nov 2014

Dr. Budowle and USAO begin reviewing pending DFS cases in which mixture statistics have been calculated and they expand their concerns regarding DFS interpretation and statistics in DNA mixtures. They discuss these concerns via phone calls with DFS DNA unit chief Jennifer Zeffer and two SAB members. At some later date Dr. Budowle delivers a "telephonic PowerPoint" presentation illustrating issues that he and the USAO had identified regarding DFS mixture interpretation practices. During this time period, DFS performed a "non-exhaustive" review of 27 DNA cases, 7 of which involved DNA mixtures, 3 of which included DNA mixture statistics. Of the 2 for which DFS had produced a CPI calculation, one was modified by DFS after its own review. This review was deemed insufficient by Dr. Budowle and led him to review of additional pending cases. Dr. Budowle identified additional issues and recommended yet a more comprehensive review.

Nov 4 2014

A conference call was held on 11-4-2014 between Dr. Budowle, USAO personnel, members of the SAB, and DFS personnel. According to the 11-19-2014 DFS-authored "Report on CPI," Dr. Budowle acknowledges that variation exists regarding interpretation of alleles and allele sharing across the forensic science community. He notes that variation in interpretation is "somewhat acceptable." Additionally, he notes that variation in interpretations may occur within a laboratory system. Having reviewed the Unit's protocol, Budowle states, "In my opinion, the [Unit's] protocols are scientifically sound." His concerns revolve around the Unit "not taking into consideration additive effects" of shared alleles and "at times, [the lab is] applying CPI without considering allele drop out." Further, during the call, Dr. Budowle observed that the Unit was performing the CPI calculation correctly.

Nov 5 2014

The SAB subcommittee issues 12 recommendations based on their review of the DFS protocols, and taking into consideration Budowle's power point and SWGDAM Guidelines. The document is found as an appendix to the 11-19-2014 DFS "Report on investigation regarding general concerns about DNA mixture interpretation"

Nov 19 2014

The DFS issues a "Report on CPI" which addresses some of the concerns raised by the USAO at the 10-7-2014 SAB meeting.

Nov 19 2014

DFS issues a "Report on investigation regarding general concerns about DNA mixture interpretation" DFS reports that, *"The issue was presented to the DFS Science Advisory Board (SAB) on 7 OCT 2014. The SAB Chair assigned a group of 4 individuals on the SAB with experience in forensic biology and statistics to review the Unit's protocols. The SAB reviewed the DNA mixture interpretation protocols and found them to be adequate but offered a list of 12 recommendations to enhance the existing protocols." And that "All of the recommendations from the SAB will be incorporated into DFS protocols that are estimated to be in place by end of January 2015."*

Dec 11 2014

Disclosure in *U.S. v. Delavain Bowman* that AUSA Michael Ambrosino is involved in a romantic relationship with Andrea Borchardt-Gardner, a supervisor of forensic casework at Bode labs.

Although the starting date is unclear, the USAO is apparently also sending contract casework to Bode Labs.

Dec 2014

The USAO convenes a Panel comprising Dr. Budowle, Dr. Fred Bieber, and Ms. Lisa Brewer (previous DFS DNA unit chief) to review pending and prior cases in which DNA mixture statistics were reported. The cases are selected by the USAO. Cases are initially screened by Dr. Budowle and issues that he identifies are referred to the whole Panel. The panel was asked to assess what measures needed to be implemented before the USAO can resume using DFS for DNA testing.

Dec 30, 2014

The USAO Panel issues preliminary findings to the Public Defense Service (PDS), citing 4 cases (Carcroft, Hicks, Roble, Dixon) and 5 thematic issues relating to mixture interpretation and mixture statistics calculation.

Jan 22, 2015

DFS first made aware of USAO Panel findings when PDS provides a copy of the findings it received on December 30.

Jan 22, 2015

USAO begins sending casework to the Verdugo Regional Crime Laboratory, a government crime lab in California. Ms. Brewer, director of the Verdugo lab, resigns from the USAO Panel due to a "potential for conflict of interest." This occurs only a few weeks after the Panel is convened.

To us, the conflict of interest appears actual, not just potential. If she resigned knowing that cases were to be sent out (as inferred from the quote from the panel's report), then a clear conflict existed. We are not privy to the specifics, including when discussions first took place, the dialogue that led to the resulting decision, whether the laboratory took payment for services, etc. We leave it to professional ethicists to opine on the particulars.

Jan 27 2015

DFS conducts multi-day retraining of analysts on mixture issues, mixture calcu-

District of Columbia



Department of Forensic Sciences

SCIENCE ADVISORY BOARD

April 26, 2015

The Honorable Muriel Bowser
Mayor
District of Columbia
1350 Pennsylvania Avenue, NW
Washington, D.C. 20004-3003

Dear Mayor Bowser:

I am writing to you today in my capacity as chairman of the Science Advisory Board (SAB) that was established in accordance with the enabling legislation that created the D.C. Department of Forensic Sciences. As you know, the nine-member SAB includes five scientists with expertise in scientific research and methodology who have published in peer-reviewed scientific journals, including a statistician and an expert in quality assurance, as well as four forensic scientists.

Among our responsibilities are periodically reviewing the Department's program standards and protocols, reviewing allegations of negligence, misconduct, misidentification or other testing errors, and advising the DFS Director, the Mayor, and the Council on matters relating to forensic science.

At our October 7, 2014 meeting, the SAB was addressed by Assistant US Attorney Michael Ambrosino who expressed some concerns with the methods used by the DFS to interpret complex DNA mixtures. I specifically asked AUSA Ambrosino if this was an official allegation of testing error, and Mr. Ambrosino indicated that this was not an allegation. However, after discussion, the Board determined that we should look into the concerns under § 5-1501.12.(1) and (2). The four members of the SAB with extensive experience in this area - Dr. Clifton Bishop, Dr. Michael Coble, Dr. Charlotte Word, and Dr. Sandy Zabell - reviewed the laboratory's procedures and made recommendations for improving the interpretation of DNA mixtures. Revisions of the Standard Operating Procedures were made by the DFS, training of analysts was conducted, and the laboratory is now in the final stages of implementing the recommended improvements.

The SAB held a regularly scheduled meeting on Friday, April 24, 2015, in the course of which we were presented with copies of two reports -- one prepared at the behest of the United States Attorneys' Office and a second report prepared by the ANSI-ASQ National Accreditation Board (ANAB). It is our understanding that both of these reports were undertaken with the goal of assessing and improving the DFS's practices and procedures, particularly with respect to the interpretation of complex DNA mixtures. It goes without saying that the latter is no simple matter. Within the scientific community, there is, to date, no single, universally accepted set of best practices in this, and many other areas.

As you and the DFS staff review the two reports, my colleagues and I urge you not to rush to judgment. The SAB will carefully review and evaluate the reports' findings and recommendations over the next few weeks. If we deem it advisable, we will reach out to the principal investigators involved in preparation of the ANAB audit report.

Particularly at a time when throughout the United States, serious questions are being raised about the quality of forensic science, it is imperative that all of us -- scientists, the police, prosecutors, the defense bar, elected officials, and the community at large -- commit ourselves to the development of rigorous, high quality, unimpeachable standards for this most promising field of inquiry. This is the course we are on in concert with the DFS scientists, and many other forensic scientists across the country and beyond.

If you have any questions for the Board, please feel free to contact me at (443) 798-0861 or ilitofsky@comcast.net.

Sincerely,

Irvin B. Litofsky
Chairman
Science Advisory Board

Proceedings

lations, and new protocols. SAB members Dr. Charlotte Word and Dr. Mike Coble conduct some of the retraining. Dr. Bieber teleconferenced in for some of the training.

Jan 27 2015

DFS performs an in-depth review of the issues and related cases raised by Panel findings.

Jan 29 2015

Max Houck is reappointed by the newly elected Mayor, Muriel Bowser.

Jan 29 2015

DFS issues "Report on investigation regarding DNA interpretation issues at the Department of Forensic Sciences" in which they state that,

"The general finding of the review were ultimately seen as a difference of opinion between experts in regards to all five of the noted issues. The arguments and criticisms raised in the USAO report were not found to be persuasive. In all cases, it was seen that the Unit personnel issuing the reports adhered to the Unit's DNA mixture interpretation guidelines that were in place at the time the work was performed on the cases."

Feb 3 2015

The USAO submits a formal complaint to Mayor's office.

Feb 4 2015

DFS enacts new protocols on Statistical Calculation (FBS22).

Feb 12, 2015

DFS enacts new protocols on Report Wording (FBS23) and Interpretation (FBS21).

Feb 19-20, 2015

The remaining USAO Panel members (Dr. Bieber and Dr. Budowle) conduct on-site visit to DFS, interviewing analysts and management. The USAO report states that

"Despite a number of attempts by the Panel during the on-site visit to learn about the scientific bases of upper management's position, and if there were any differences in opinion regarding the specific cases, those who were interviewed declined to engage in any discussion other than to state that the DFS position taken was an "agency position."

Note that this audit was conducted during the week that AAFS was held in Orlando, when most of the management and supervisory staff had been scheduled long in advance to be out of the office attending the meeting. Requests to change the dates of the audit to a time when senior staff and management would be on-site were denied. Thus the interviews of the panel were largely of bench-level analysts who did not write protocols or make policy. Note additionally that the DFS had issued new protocols on 1/29/2015 and was still in the process of implementing the protocols and training analysts. Thus the USAO performed their site visit during a time of transition.

Feb 25 2015

USAO Panel teleconference interview with Dr. Houck, Ms. Funk, DFS Deputy Director Dr. Maguire, and Quality Assurance Manager Ms. Tontarsky, who were not on site during the earlier visit (due to their attendance at the AAFS meeting).

Mar 5 2015

Keith L. Alexander of the *Washington Post* reports that the USAO has stopped sending cases to the DFS after they discovered interpretational errors. The report does not mention the outside lab(s) to which work is now being sent. [see Jan 22 2015] He reports that, "In one federal case, prosecutors said, the D.C. lab concluded that a defendant's DNA could have been on the magazine of a gun seized as evidence. But an expert who reviewed the data said the lab should have interpreted the results to mean that the defendant was not the source of the DNA."

We are curious about this report as the allegation of false inclusion never appears again in any of the documents that we reviewed. The name of the case is not mentioned.

Mar 9 2015

ANAB on-site multi-day audit of the DFS lab. This audit was initiated by the D.C. Mayor's office.

We are aware of an allegation that the ANAB audit team met with representatives from the USAO office and/or their appointed panel during this audit. Further allegations submit that representatives from PDS and DFS were excluded from this meeting.

Mar 12 2015

Dr. Houck testifies at a D.C. Council Performance Oversight Hearing that "no national standards" on mixture statistics exist, but welcomes the audit initiated by the Mayor.

Apr 22 2015

The USAO appointed Panel issues its "Report on DFS mixtures."

Apr 23 2015

The USAO Panel issues an updated summary disclosure of DFS mixture interpretation, now citing 20 cases in which the Panel found an issue.

Apr 24 2015

ANAB issues its report for DFS on mixture interpretation, stating that casework shall be suspended until all non-conformities are resolved.

Apr 24 2015

SAB meeting at which it decides to reconvene the subcommittee on mixture interpretation to review the USAO Panel Report and ANAB Report.

Apr 26 2015

The SAB sends a letter to the Mayor stating it is reviewing the USAO Panel Audit Report and ANAB Audit Report, and urging no rush to judgment.

"As you and the DFS staff review the two reports, my colleagues and I urge you not to rush to judgment. The SAB will carefully review and evaluate the reports' findings and recommendations over the next few weeks. If we deem it advisable, we will reach out to the principal investigators involved in preparation of the ANAB audit report."

Apr 30 2015

DNA Unit Chief Jennifer Zeffer, DFS lab director Dr.

Christopher Maguire, and Laboratory Legal Counsel Christine Funk are summarily fired by Mayor Bowser. Dr. Max Houck is allowed to resign.

May 1 2015

Dr. Jenifer Smith (retired FBI DNA laboratory, Professor of Practice at Penn State) is contracted by the District as a consultant to oversee the implementation of new rules and procedures at the DNA lab as part of the effort to resume DNA testing.

May 7 2015

Robert Mitchell, current medical examiner, is appointed interim director of DFS by Mayor Bowser.

May 27 2015

Dr. Jay Siegel, Board member, resigns in a letter of protest addressed to Mayor Bowser.

Jun 16, 2015

A regularly scheduled SAB meeting is held. Agenda includes discussion of the various issues that have been raised over the preceding months. The minutes are not yet publicly available.

Jul 16, 2015

Keith L. Alexander of the *Washington Post* report that Jenifer Smith is appointed by Mayor Bower as new director of the DFS.

Our review of the preceding events have engendered confusion, concern, and consternation. How is it that this laboratory, the first real experiment in laboratory independence from the long arm of law enforcement, failed so fast and so miserably? Did the laboratory fail, did management fail or did the experiment in independence fail? No question exists that the laboratory protocols for interpreting complex mixtures were not optimal. However, we assert that if all U.S. forensic DNA laboratories were held to the same standard to which the D.C. DFS lab was held, few would be left standing. While we are first in line to complain of poor mixture interpretation, is this sufficient reason to fire senior management (including legal counsel) and shut down an entire laboratory? At this time, an entire discipline is careening through a sea-change in both philosophy and approaches to this issue. Would your laboratory survive application of the criteria used here to dismiss a staff?

Every forensic scientist (in any discipline) has an interest in thinking about the following questions. Is there a single

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27 May 2015

Mayor Murial Bowser
John A. Wilson Building
1350 Pennsylvania Ave. , NW
Washington, DC 20004

RE: Science Advisory Board, DC Division of Forensic Science

Dear Mayor Bowser:

I have been a member of the DFS Scientific Advisory Board since its inception approximately 18 months ago. Although I am not currently a resident of DC, I spent my first 30 years there and I have three degrees from The George Washington University, including a PhD in Chemistry. I received the Distinguished Alumni Scholar from GWU in 2009. I have been a practicing forensic scientist and educator for close to 40 years. I am a Distinguished Member of the American Academy of Forensic Sciences.

One of the main reasons that I agreed to join this Board was to help foster a rare concept in forensic science – a forensic science laboratory that was independent of law enforcement. Such a laboratory would presumably be insulated from control and political influence that are rampant in the public forensic science system in the U.S. I also joined the Board because this entity has the charge of not only providing scientific advice to the DCL but also the Office of the Mayor and the DC City Council.

Recent events that culminated in the hasty and in my view, unwarranted dismissal of the administration of the DFS has given me great pause and concern. The only scientific issue of merit in this process was the protocols used in the interpretation of the level of significance of contributors to certain DNA mixtures. It is well known in the forensic science community that there are no standards for the statistical interpretation of such mixtures. The DNA unit of the DC Forensic Science Laboratory was using methods that represent a consensus among many forensic science DNA units nationwide. The Panel convened by the DC US Attorney's Office had a different opinion about the protocols that should be used by the laboratory. On the advice of the Scientific Advisory Board, the Laboratory changed some of its protocols and SOPs in the area of DNA mixtures. The laboratory made several requests of the USAO to furnish it with the protocols that are used by the Panel, but was unsuccessful. At its meeting of April 24, 2015, the Scientific Advisory Board began to prepare a letter to the USAO to furnish this and other information so that the Board could examine the merits of the Panel report.

During the latter stages of that same meeting, the report of the independent 3rd party, who was commissioned by your office to evaluate the DNA unit, issued its report to you. The Board received the report late in the afternoon of its meeting on April 24. The Board had no chance to evaluate this report during that meeting or in the few days after.

Just a few days later, without consultation with the Board, you proceeded to fire the senior administration of the Laboratory. The Board had no chance to review the issues raised in the two reports and to perform its statutory duties of advising the Laboratory, your office and the City Council. The District of Columbia has an extensive and well-deserved reputation for political interference in a wide variety of its activities and processes. I hoped that this would not be the case with the DFS when I joined the Board. My hopes were misplaced. The actions you and I believe the USAO have taken in this matter were clearly not based on scientific considerations since the Scientific Advisory Board had no chance to provide advice BEFORE you took such drastic actions. I cannot continue to serve as a member of the Science Advisory Board and I hereby resign, effective immediately.

Sincerely,



Jay A. Siegel

standard for interpretation of complex mixtures?² Does every analyst in your laboratory interpret profiles in exactly the same way? The NIST 13 mixture study demonstrates beyond any doubt that there remains wide variation in mixture interpretation, both between and within labs. (1-6) The demonstrated variation is so extreme that different analysts crossed the line from “inclusion” to “exclusion” of the same reference sample from the same mixture profile in a case, the details of which were published in 2013 (7). The lab had excluded an alternate defendant using suspect CPI-type calculations; we performed a probabilistic-flavored likelihood ratio and produced strong evidence in favor of the hypothesis that the alternate defendant was part of the mixture. The lab subsequently re-calculated several different binary-type statistics, ultimately coming to the same inference as we did. No audit ensued, and no one suggested that the laboratory be shut down as it struggled to update its statistical approach and learn from its mistakes. We frequently see suspect interpretation of complex DNA profiles in our day to day review of casework across the country. Some of the issues are of the sort named by the audit teams criticizing the DFS, some are different. It is an unfortunate by-product of our judicial system that we can't give specifics – that pesky confidentiality issue for a retained expert keeps us from so doing. But the NIST 2013 mixture study well illustrates and summarizes the problems. They are pervasive and rampant. Importantly, they don't engender firing of upper management, or result in the shutting down of these labs.

Every DNA analyst in the country knows that the calculations to determine the weight of evidence for complex DNA mixtures are in a state of upheaval. The last few years have brought the long-overdue realization that the field must move to probabilistic genotyping solutions. Almost every conference and workshop in recent memory has focused on this issue – the questions, the challenges, the solutions. No question exists that we have a very difficult problem to solve. The two of us participated just this week in two 1-day symposia sponsored by the CAC (one in the North, one in the South). Laboratories are starting to move forward with various probabilistic genotyping solutions, but significant challenges remain in all aspect of the work. Should these laboratories be shut down if their first try is not perfect? This sort of knee-jerk reaction does not exactly encourage scientific progress.

Both the USAO panel as well as the ANAB audit team carefully and repeatedly chanted a mantra of “the protocols were fine, the analysts didn't follow them.” Think for a moment about accreditation requirements. No requirement exists that a lab follow particular protocols, or even good, correct or valid protocols. The checkbox requires that the analyst *follow the protocols set out by the lab*. That was the only way the audit teams(s) could comment on the situation as auditors have no power, and accreditation does not require, that the protocols be good, correct or valid – that checkbox does not exist. Interesting, no?

And who decides? Bruce Budowle's name is well known –but should he be the single arbiter or main driving force of what is “right?” Everyone needs to be reviewed; questions remain about his own work on these cases and examples. It appears that at the outset of his consultative work, he was using his own protocol in reviewing the four DFS cases for the

² If you're a fingerprint examiner, insert “complex overlapping fingerprints on a difficult substrate;” if a firearms examiner, insert “cartridge cases chambered and ejected more than once;” etc. You get the idea; no discipline is immune from these challenges.

USAO; what protocols was he using? Did DFS ever get full disclosure of the actual thought process and calculations? Did defense receive full discovery? Did any other expert review the work of Dr. Budowle to determine if they agreed with his work, and if it represented the optimal approach to the evidence? The group(s) led by Dr. Budowle were far too narrow and far too insular to be granted the power to shut down a lab because they disagreed with how interpretation protocols were being implemented.

We have been unable to find documentation of the actual calculations or protocols used by Dr. Budowle to generate alternate statistics in the cases that he criticized. According to the resignation letter of Dr. Jay Siegel, “*The laboratory made several requests of the USAO to furnish it with the protocols that are used by the Panel, but was unsuccessful. At its meeting of April 24, 2015, the Scientific Advisory Board began to prepare a letter to the USAO to furnish this and other information so that the Board could examine the merits of the Panel report.*” This is simply untenable. The USAO continually criticized DFS for failing to respond to their criticisms. How is it possible to respond to a blank or moving target?

The following constitute the USAO panel's (in the end Budowle and Bieber) recommendations: 1. Additional training and qualifying exams for DNA analysts; 2. Internal quality improvement program; 3. Improvements in technical review; 4. Validation of analytical thresholds; 5. Policy on minimum number of loci for DNA mixture statistics; 6. Audit of past cases; 7. Training and continuing education for upper management.

What lab would not benefit from these extremely general recommendations? Are any being shut down because they need improvement in these areas?

An important question that needs answering: Do ANAB and ASCLD/LAB have the same standards for pulling a lab's accreditation? Many public forensic laboratories are accredited by ASCLD/LAB rather than ANAB; are these labs remaining open simply because the standards are different?

We challenge ANAB to represent that all other laboratories operating under their accreditation show NONE of the issues named as the reason for shutting down the D.C. DFS labs. It is impossible to believe that all of these other labs have perfect protocols, perfect implementation of the protocols, all of their analysts interpret every profile exactly the same way, each and every time, no communication issues ever exist, and it is never necessary to review, learn, optimize, change, move forward. Lest the reader be misled by the word perfect in the previous sentence, we can be clearer; it is our belief that if the criteria outlined by ANAB in its report is applied to every lab in the country, few, perhaps none, would pass.

The rather hasty departure in the middle of the USAO panel's review of Lisa Brewer, so that she could accept USAO casework at her regional lab in Verdugo, California, generates a slew of questions. These questions are compounded by the fact that Ms. Brewer was previously the technical lead at the D.C. Metropolitan Police Department Laboratory, and hence had written the protocols used by that laboratory. Had the protocols even changed in any substantive manner previous to the 2015 updates by the DFS, or was Ms. Brewer reviewing her own protocols? What protocols were in place in her lab in Verdugo – were they substantially different than those she was criticizing? Did anyone check? If so, who? When? Would she have been able to generate statistics for complex mixtures? (we are not aware that the Verdugo lab had implemented

probabilistic genotyping at the time this occurred) Was/is she being paid to perform this casework? Why was the Verdugo lab performing casework for the USAO when the USAO already had a historical and ongoing professional relationship with Bode Laboratories? When did discussions to send casework to a lab in California take place between Ms. Brewer and the USAO, in particular relative to her decision to resign from the panel? Any which way you cut it, a conflict exists; only the particulars determine the depth and breadth of the conflict.

Generally, the question exists as to why analytical casework had to be farmed out when the stated issue was with the interpretation protocols. Why could DFS not continue to generate results, and Dr. Budowle or some other expert of their choice provide statistics until DFS implemented its updated protocols and trained its analysts on them? Paying an outside lab to analyze physical evidence is extremely costly; paying a consultant to simply calculate statistics would have been a much simpler and certainly more cost-effective temporary solution.

As for Mr. Ambrosino and his girlfriend at Bode Technologies, that is just B-movie sordid—but perhaps standard practice in D.C. politics.

An issue of particular concern is the complete and utter disregard for the role of the Scientific Advisory Board, specifically put in place by the legislation to review and arbitrate issues and complaints, exactly of the sort proffered by the USAO and Budowle. Although the SAB attempted mightily to perform their function, in the end, they too, were summarily disregarded. The USAO panel and ANAB reports were provided to the SAB in the afternoon of its regularly scheduled meeting on April 24. The Board had no chance to evaluate these reports during that meeting or in the few succeeding days. By April 30, without consulting the board, and with total disregard for the letter from the SAB urging “no rush to judgment,” the entire senior administration of the laboratory was fired or “allowed” to resign. The board had no chance to review the issues raised in the two reports and to perform its statutory duties of advising the laboratory, the Mayor’s office and the City Council.

We have come to agree with the additional sentiment expressed by Dr. Jay Siegel in his resignation letter to Mayor Bowser³: *“The District of Columbia has an extensive and well-deserved reputation for political interference in a wide variety of its activities and processes. I hoped that this would not be the case with the DFS when I joined the Board. My hopes were misplaced. The actions you and I believe the USAO have taken in this matter were clearly not based on scientific considerations since the Scientific Advisory Board had no chance to provide advice BEFORE you took such drastic actions.”*

We also can’t help but note that Christine Funk, the lab’s legal counsel was among the group fired by Mayor Bowser. Wait, what? How does firing the legal counsel solve DNA interpretation issues? Professor William Thompson, in his May 8, 2015 editorial to the *Washington Post* (8), writes: *“That the lab’s legal counsel was among those sacked suggests that the firings were about more than interpretation of DNA tests. If misinterpretation is the real problem, why was firing the laboratory’s legal counsel the solution? Were the complaints about DNA interpretation an excuse to strike back at a laboratory management that had denied them some of the prerogatives that laboratories have traditionally granted to prosecutors – a way to bring an independent laboratory back under law enforcement control?”* We find no compelling argument against the position of Professor Thompson.

Dr. Thompson further writes: *“In any event, this sends a strong message to laboratory directors nationwide who come into conflict with local prosecutors. The message is be afraid, be very afraid. That, in itself, is a serious setback for efforts to protect the scientific independence of crime laboratories”*

Friends, we have laid out a timeline of events; if the events scare you, they should. This is a watershed moment for the profession of forensic science, a sentinel event, if you will. Forensic science requires and deserves answers to the questions raised by the proceedings in our nation’s capital. This inquiry is far too important to be left to a politically motivated government agency. The forensic science community must respond, and respond strongly. We simply cannot allow our profession to be strong-armed by politics as usual.

We hope to do our part to further the inquiry; we are in this for the long haul. If and when we learn anything new, you will read it here. We tried to retire ... really we did ...

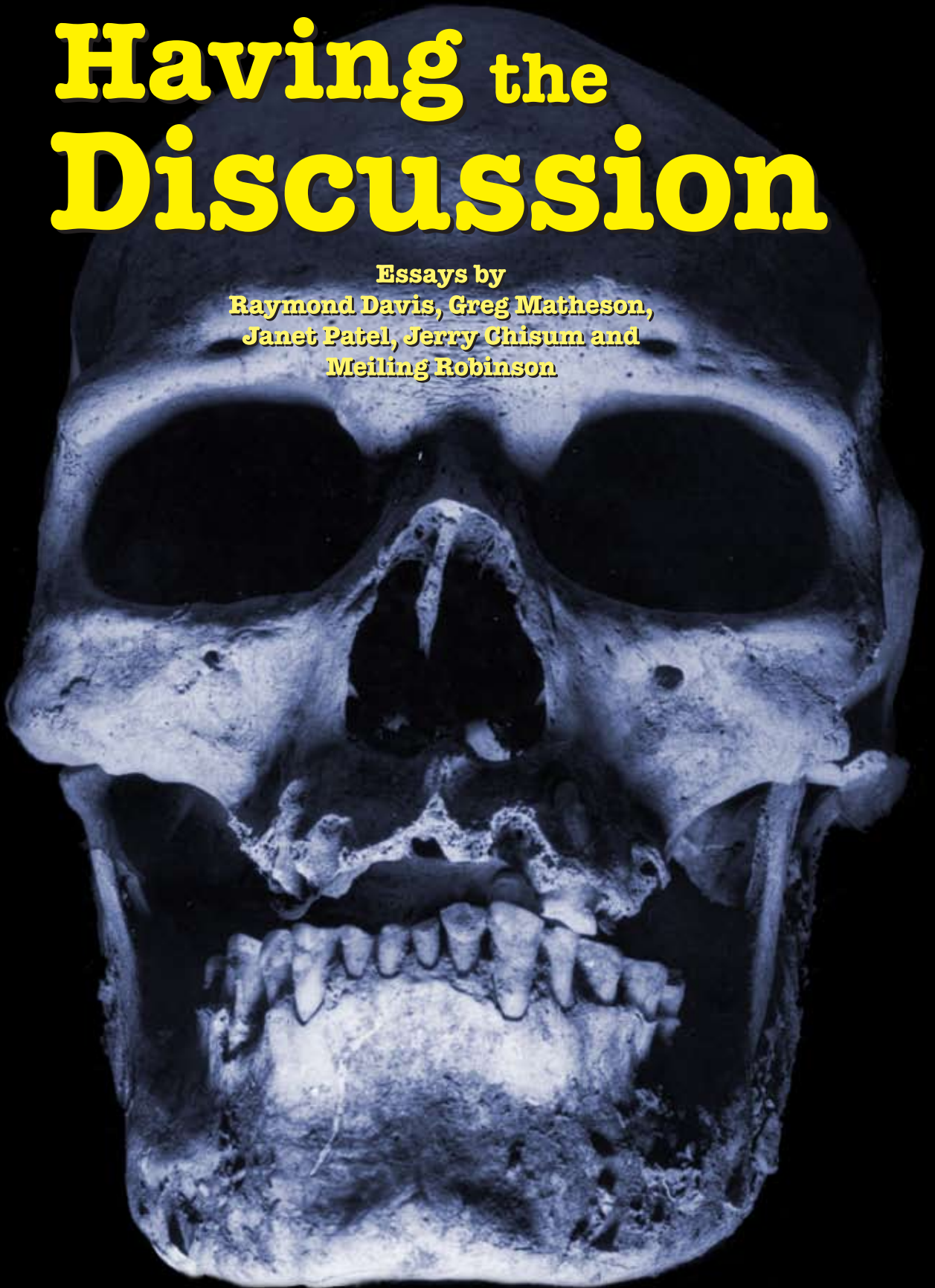
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³ See the sidebar for a reproduction of the entire letter.

Having the Discussion

Essays by
Raymond Davis, Greg Matheson,
Janet Patel, Jerry Chisum and
Meiling Robinson



PTSD: Criminalist?

By Raymond Davis

I'm still haunted by vivid memories of burned, shot and mutilated bodies, both old and young alike decades after my last crime scene investigation. Headline news about our returning veterans suffering from PTSD prompted me to wonder if I and many others might be experiencing some form of PTSD, Post-traumatic Stress Disorder, albeit second hand. I went online and found information worth passing along. This disorder is not just found in veterans returning from war but also with firefighters and police officers; the next largest group experiencing this disorder. By definition, PTSD is initiated by any traumatic event that continues to intrude on our memories through words, sounds or situations that act as triggers of the trauma. National disasters, car crashes, homicides, assaults, rapes are some of the events that can initiate PTSD.

An article in Time magazine (April 9, 2015) stated, "PTSD can be traced back to antiquity. It was called "soldiers heart" during the Civil War, and morphed into "shell shock" in the First World War from the relentless artillery shells exploding on the battle field and then "battle fatigue" during the Second World War. It became "operational exhaustion" during the Korea war and PTSD only after the Viet Nam War."

The article also mentions that not all people are vulnerable to PTSD depending on a number of factors that will affect one person and not another.

I know several criminalists who've been deeply troubled by their experiences enough to be excused from attending future crime scenes due to the trauma they faced. Each one, I believe made the right call. I wonder how many criminalists and CSI personnel want to be excused from this duty. Most say nothing hoping the nightmares will fade from memory.

A friend of mine related a story of discovering the charred remains of a small child he removed from a fireplace. How does one deal with that shocking event? If you believe the answer is to just tuck it away in some remote part of your mind never to be retrieved again, I want to disabuse you of that notion. Our military veterans are using the same strategy without any success. It's no wonder so many of them have returned home troubled by their war time experiences. Many have taken their lives causing a national crisis. We are not equipped nor are we prepared to witness the destruction of the human body. I still have a clear recollection of a young man who was struck in the face three times with a broad-axe. I've never been able to erase that picture from my mind since I first saw it in 1975.

Of the approximated 75 crime scenes I've worked in my career, the ones involving children were the most difficult to process both in terms of the crime scene and its emotional impact. These children were innocent victims incapable of placing themselves in harm's way. There is nothing more shocking to the senses than to witness the lifeless, broken body of a child lying on the autopsy table. My first triple homicide involved a mother who killed her two small boys and her husband with a shotgun before setting their home on fire. Authorities found her wandering through the neighborhood dressed in her nightgown muttering something about alien voices. She was later determined to be insane but I have never forgotten that stomach churning autopsy to this day.

In addition to working the crime scene, a criminalist may be requested to attend the autopsy of a person brutally beaten, stabbed, shot and/or mutilated. In time, you can

begin to imagine the depth of the depravity some criminalists have faced in their careers. You just don't go home after one of these events and ask your spouse, "What's for dinner, honey?" I've never shared these experiences with my wife not wishing to inflict upon her these unforgettable images. So, like many others, I've kept silent hiding the awful images in some remote part of my brain hoping they'd stay locked away. Unfortunately, I lost the peace of mind I had known prior to starting my career.

And, the nightmare doesn't end at the crime scene. Imagine the types of evidence that gets submitted to the laboratory: Bullets with human tissue attached, bullet and knife defects in shirts and pants, blood soaked clothing, bedding, rape kits and the list goes on. No matter how hard I tried, I couldn't examine the evidence apart from its source.

I still have a clear recollection of a young man who was struck in the face three times with a broad-axe. I've never been able to erase that picture from my mind since I first saw it in 1975.

My first encounter with dead bodies occurred while in the military when I served as a death investigation officer for the brigade. One case involved two men who died in a truck accident, their vehicle sailing over a cliff on a treacherous road and the other deaths involved a homicide/suicide. Although I didn't have to attend the crime scene or autopsies, it was still shocking to view photographs of the deceased and to read the investigative reports. Little did I realize at that time but a casual comment would put me on a career path to the crime lab.

The autopsy without question has the greatest visceral effect on our senses and emotions. Not only does the sight of the victim bring a shocking response but also the sounds and smells generated during the autopsy. Once you've taken a whiff of necrotic tissue you'll never forget that peculiar odor again. It's probably the same disgusting stench that attracts flies from miles away.

Currently, many criminalists are not called to conduct crime scene investigations or attend autopsies as a result of police departments taking on that responsibility. The Phoenix Police Department Crime lab has a fabulous crime scene unit staffed with a well-trained cadre of CSI personnel who only work crime scenes. The evidence they collect is turned over to the criminalist who seldom if ever visit the crime scene. Some argue that the best use of a criminalist's time is for them to analyze/examine physical evidence instead of spending precious time at the scene. Others argue, and I'm one of them, of

please turn to page 23

The Dark Side of Forensic Science

By Greg Matheson

Forensic Science is an amazing profession. As a forensic scientist you get to work on interesting and unique experiments. The work is mainly practical but can involve research into new analytical concepts and the development and application of new procedures. The work helps society in general by identifying the guilty and the innocent. And, thanks to entertainment with a forensic science focus our profession has become popular. Its popularity has brought science to the masses in new and interesting ways, inspiring young people to look at a career in science in ways they previously did not consider. By our nature, humans enjoy solving puzzles and criminal acts in the form of mystery novels have been popular with readers for centuries. Scientists working in crime labs have acquired celebrity status ranging from being nationally known to simply being more interesting to family and friends. As a student interested in science, why wouldn't you want to choose forensic science for your lifelong career? Unfortunately, there is a darker side to forensic science that is not mentioned in college brochures or rarely included in coursework to prepare a student for what their career will bring to their life.

The darker side is that all of the work a forensic scientist deals with centers on some form of suffering inflicted on real people in their real lives by other real people. From sim-

With very few exceptions, every crime scene processed and every case worked represents a situation where someone has experienced a negative event in their life that will significantly impact them and the many people around them.

ply having a prized possession stolen to having a life taken in the worst possible ways a depraved mind can imagine, all of the casework deals with human misery. With very few exceptions, every crime scene processed and every case worked represents a situation where someone has experienced a negative event in their life that will significantly impact them and the many people around them. Your work assignment or whether crime scene processing is part of your regular work will determine the level by which humanities' miseries will impose itself on your work day. Also, your own psychology and personality will determine how much your interactions with human suffering will affect you and impact your life.

I am going to share with you my personal experiences, my observations, and how my laboratory deployed people to

work crime scenes and cases. I recognize many laboratories, based on their size and parent agencies policies deploy their staff differently so the scientists' experiences may differ from those in the LAPD crime lab, but the overall concept is the same. I am in no way a psychologist or psychiatrist so I will not discuss the issue from that perspective. However, I do have over 33 years of experience as a criminalist. I have worked or attended several hundred crime scenes in my career and the majority of my casework experience is in serology working sexual assault and homicide cases. As a supervisor and manager I have interacted with many forensic scientists and witnessed the broad range of emotions and lack of emotion they experienced as it relates to working in a field focused on the dark side of humanity. The one thing I observed throughout the years is people respond and react differently to this aspect of their career. As with personal grief, people react differently and should not be judged for the way they need to react and

As with personal grief, people react differently and should not be judged for the way they need to react and deal with the difficult aspects of their career.

deal with the difficult aspects of their career. The one thing that is definite in my observations is we, as a profession need, to recognize that there are negative aspects of our work and it is not only OK, but necessary, to discuss the issue.

Processing crime scenes is the most obvious and "in your face" example of our exposure to human misery. The most common scene requiring the presence and expertise of a forensic scientist is a homicide. At the LAPD, due to its size and frequency of crime scenes, staff are sent into the field with a specialized role at the scene. Criminalists analyze the scene, identify possible evidence important to the reconstruction of events, collect the evidence, and process it for storage. They may or may not analyze the evidence in the laboratory. Photographers (a different civil service classification) take the photographs. They will do it based on their own knowledge and experience and at the direction of the criminalist and investigators. Latent print people (a different civil service class) search for latent fingerprints based on their own knowledge and experience and at the direction of the criminalist and investigators. In smaller agencies, the same person may perform part or all of these tasks.

Processing a homicide scene most frequently means getting up close and personal with someone who has had their life taken from them by violent means. Everyone working the scene must at some point examine or document that one piece of evidence that used to be a living human being. For me, the hardest part, emotionally, of processing a crime scene was the time from when I received the call to respond until after completing the "walk through" with the detective. Not knowing what I was going to see when I arrived at the scene always created a level of anxiety that was rarely repeated at any other time in my career. After going through the crime scene, get-

Not knowing what I was going to see when I arrived at the scene always created a level of anxiety that was rarely repeated at any other time in my career.

ting a handle on what was there and determining what I had to work with allowed me to switch into professional/non personal mode. The body became just one other piece of evidence and was no longer human. Homicides scenes I have processed have run the gamut from individuals who had died with no obvious signs of cause of death, to the severely mutilated, to a four body multiple that had been discovered after three days in an apartment with the heat turned on high.

When asked, I can (almost) honestly tell people I don't believe my psyche has been negatively impacted by what I have seen. I say this because I don't have dreams about them and don't feel I personalize what has happened to them could happen to me. However, being totally honest, I think every homicide I worked can be visualized in my memory, though many other experiences in my life can't be recalled with the same clarity. So, they were definitely imprinted. Also, I have never had the misfortune to work a scene with a dead child. I'm not sure my protective shell could hold up to that experience. Finally, I was successful at almost never having to handle the body. I'm not sure why tactile interaction is worse than visual, but it is to me. There was usually someone junior to me in a blue uniform who was assigned that task. For me, the hardest crime scenes were those where I could not totally separate the dead body from once being a human. There were a couple of crime scenes where family members were still present somewhere near the location and their vocal misery didn't allow any of us to forget they had loved ones who would suffer this event the rest of their lives. Also, LAPD criminalists are not required to go to the medical examiner's office to witness autopsies. Except for maybe sheer volume (with homicide rates ranging from the current average of about 350 a year to 1992 figures when there was over 1200), I feel my experiences processing crimes scenes was relatively easier than criminalists in other jurisdictions and therefore might have made it easier for me psychologically.

As previously mentioned, we had photographers to take our crime scene pictures. I firmly believe that within the LAPD our photographers were exposed to more potentially damaging experiences than any other member of the department. They are the only class of employee who respond to all of the homicides. While at the homicides they are expected to take very detailed pictures of the scene and the body. Where I would maybe collect a hair or fiber or swab a spot of skin to collect a body fluid, they had to get face to face with the victim, they had to focus on every hole, slash, cut, burn or other indignity imposed on the body. All of this exposure to death and mayhem had an impact on our photographers that created issues effecting both professional and personal lives. It took the department too long to recognize the impact and try working with people who needed their help.

Not going to crime scenes does not immunize a criminalist from being impacted by the constant reminder of crime in the world. Being inundated on every workday with examples of someone doing something society says they aren't supposed to do has to impact your outlook on life and our fellow man. That impact can be expressed in a variety of ways and needs to be recognized and understood by our profession. The impact on me is that though I am not overly anxious about being the victim of a crime, I am hypersensitive to security. I drive my family nuts with making sure doors are kept locked, valuables out of sight, being aware of surroundings and generally trying to not put myself in the position of being a victim. I have been told on many occasions that my "sensitivity to security" is excessive, but after knowing what people can and do to each other, how else should I feel? Yes, it does have an effect.

How do we deal with our level of exposure to crime and its consequences? Hopefully everyone in the field has figured out a way that works for them, and if not, has determined they should find another profession. One of the ways we used to deal with what we saw was through what is called "gallows humor." Rather than admit seeing the destruction of a human life by another person disturbed us and discussing our feelings, we would turn to humor and joke about it. This is no different than how many people in other professions deal with what they see. An example from my lab was when one of the criminalists came back from a scene involving a young woman who was executed in her vehicle. The criminalist, who happened to be single, when asked about the scene said she was really good looking and would have been a 10 if it weren't for the hole in her head. Again, I don't know if this was a proper way to deal with things, but it is what we did. Unfortunately, it can be seen (and rightly so) as being disrespectful of the victim and their family. The practice of relieving stress through gallows humor in the field was ordered stopped with the advent of high powered directional microphones in the hands of reporters.

Unfortunately, many people deal with the stress by not dealing with it. They think they set up a wall, but the effect is still there. Some self medicate with drugs and/or alcohol. Some take it home so it negatively affects their family. Like so many things dealing with mental issues, there was a stigma to seek professional help. Luckily, I have witnessed some positive movement toward accepting help. Within the LAPD, we are lucky to have a whole behavioral science section with several mental health professionals. Employees can seek help, cost free, for guidance in dealing with stresses created on the job. Professional organizations should recognize the need for help in this area and start offering presentations and workshops teaching people how to keep their personal and professional lives from being negatively impacted by their job.

Forensic science is only one of many professions that deal with death, destruction, disasters and mayhem. It's time our professional organizations and agencies see the importance of dealing with a person's mind and not just their policies and procedures.

Balancing Act

By Meiling Robinson, CAC Editorial Secretary

There we were at the *Vino Volo* at the Oakland airport waiting for our flights back to Los Angeles. Among the shuffle and flow of travelers, Kirsten Fraser, Jamie Daughe-tee and I were chatting with our flights of reds and whites, having a moment to debrief and reflect. We had just finished up at the CAC Board meeting and decided to beeline to the airport in hopes of catching an earlier flight. No such luck, we had hours before our departure and it was unanimously decided that the *Vino Volo* was the perfect place to unwind and kill time. The three of us in that setting suddenly felt nostalgic as the experience reminded us, albeit a much less refined version, of “The Proceedings of Lunch.” We entertained ourselves with the notion that perhaps we too could have our own similar but simpler column entitled “The Ladies Who Vine.” A column where we would literally vent (or whine) about the frustrations we face in our profession or our lives in general or both. But alas, we knew, even in our wine-induced relaxation, that we were merely “blowing off steam” as it were. Needless to say, the hours passed with much mirth.

In this 4th quarter of the *CACNews* I feel that it is worth taking some time to reflect on the year, as well as contemplate the future since the New Year is fast approaching. I shared the *Vino Volo* anecdote to illustrate a very vital part of life—emotional expression. Often times, there are moments where we need to discuss and share in our common experiences. It’s healthy and emotionally cathartic to reflect and express our feelings to an empathetic group. In our field, it’s often necessary to share our experiences working crime scenes. This serves a two-fold purpose; debriefing the scene by reviewing the evidence items which were recovered and purging our memories of the macabre scene and possibly the emotional stress experienced. For criminalists who respond to crime scenes, working under such unique and challenging conditions is almost second nature. Little, if any, thought is given to how or if we are affected or changed in some way from these experiences.

This year, I transitioned from working as a DNA analyst, mostly handling swabs, to working full time solely responding to crime scenes. To be honest, it felt like a natural progression or extension of my knowledge and abilities as a criminalist. I just didn’t think about the transition from an emotional mind set. I’m not sure if that’s because I’m inherently not the kind of person to approach situations with that way of thinking or whether it was simply because it was my job and I knew what the work would entail. Perhaps, it was little bit of both which shaped how I felt going in. What was clear to me was that I felt mentally prepared. How I knew this, I cannot say exactly, but I can surmise that it has a lot to do with the underlying experiences which shaped and continue to shape who I am. All of it has to do with context. Almost eight years working in a crime lab, reading case histories, working with evidence and before that years and years of education geared towards working as a criminalist. There were never any false pretenses surrounding what my work could and would entail. That is not to say, that we cannot feel real feelings regarding the things we encounter in the course of our work. The unique nature of a career in forensics is that exposure to scenes of violence is inevitable and an expected part of the job, hence unresolved effects of secondary trauma have the potential to accumulate over the course of one’s career.

Most of us who work in the field usually at some point in our career get asked, “how do you deal with seeing the things you see?” My answer, like so many others, is an unsatisfying, “I don’t know” sometimes qualified with “I’m just able to do the work” or “I compartmentalize it and focus on the task at hand.” Compartmentalize—this notion that we can separate our work from our personal lives. The perfect solution to how we “deal” with this. I don’t honestly believe anyone is really convinced that this separation is, in itself, a perfect or whole permanent solution, but it is a widely recognized defense mechanism and coping strategy. What we’re acknowledging is that as criminalists we often employ this coping strategy as an effective short-term solution which enables us to perform our duties at a crime scene without allowing ourselves to become overwhelmed by the circumstances. At the crux of this is that no one explicitly taught this to me. I just knew how to compartmentalize, and furthermore I *knew* that I could do it—it was almost innate.

Compartmentalize—A Pejorative Word

Is compartmentalizing my experiences at crime scenes a bad thing? Is it inherently unnatural that I am, for the most part, successful at keeping my thoughts and memories from violent scenes neatly tucked away into an imaginary “work” mental pile, separate from my identity? I certainly would hope not, but often times a person’s first reaction to me is to shrink away in disgust at the thought that I could be so oddly cold and unaffected by such things. I’ve had this unfortunate experience with my mother and many others close to me. “I couldn’t do it,” they say admiringly, but I also sense hints of repulsion. I believe their aversion is healthy, and it’s grounding to have a support system that reminds me that a crime scene is not a normal state that one should be tolerating with ease. It is imperative to safeguard my mind by compartmentalizing. The simple fact that I need to employ a coping strategy, is testament to the mental funambulism that is sometimes required to be a criminalist. But despite the necessity for it, compartmentalization is sometimes regarded as an action tantamount to denial. This notion that compartmentalizing is a refusal to address all the emotions that one feels—repressing all the unleashed evils known to man and stuffing them back into Pandora’s Box. This “Criminalist’s Box” is a mental Rolodex of crime scenes, locked away never intended to be opened—a criminalist’s burden and source of shame. In this analogy, compartmentalization is perceived as a burden since it represents accumulated emotional baggage, which we keep hidden or boxed away from our family and friends. Feelings of shame can emerge from the fear of being perceived as overly sensitive or unfit to perform one’s duties, therefore a predilection to refuse to talk about our experiences develops. This further exacerbates the belief that compartmentalizing is a burden on the individual, and therefore a negative coping strategy.

Sometimes criminalists simply just don’t feel lasting effects. As Jerry Chisum put it, “it’s OK not to feel bad” about our experiences.¹ For the most part, I simply don’t feel permanently affected by any of the violent images that surround me at a crime scene. My perspective of the scene and my role at the scene completely outweigh any emotional thoughts that may ordinarily overwhelm a “normal” citizen. I’m there to serve a very specific purpose and my obligation to duty, I believe, is perhaps shielding me from experiencing any personal emotional stress. The crime scene to me is impersonal; an unfortunate event that has occurred outside of me, therefore I

This “Criminalist’s Box” is a mental Rolodex of crime scenes, locked away never intended to be opened—a criminalist’s burden and source of shame.

tend not to internalize it. Of course, I experience the normal feelings of compassion and sympathy for those whose lives it did effect, but I don’t experience any serious lasting effects or intrusions in my own life as a result of the work. I believe this to be the case for many of us, as it is a necessary part of the job and many who seek a career in forensics are already either inherently emotionally resilient, or have developed it to be better prepared for the occupational stress.

Whether I’m consciously doing so or not at a crime scene, I’m compartmentalizing. It allows me to remain acutely focused on processing the scene over long periods of times. I am not naïve to the fact that not all crime scenes are the same. There may come a day when short-term compartmentalizing won’t be enough to stave off the disturbing aspects of the crime scene from being integrated into my life. To compartmentalize does not mean closing yourself off from feeling any emotions, it’s just a means of temporarily not addressing the mental discomfort experienced. Emotions that are not acknowledged and experienced can build up over time. Shutting down is not a healthy option and neither is withdrawing from others when things get emotionally difficult. By debriefing and discussing the experience you can reflect and make adjustments to your personal care strategies to address any residual second-hand trauma. It’s easier to express yourself emotionally when you realize that no one expects you to bear the burden of the criminalist’s Pandora’s Box. It’s okay to ask for support, and those who try to understand themselves and cultivate self-awareness, will be better prepared to cope with emotional stress. I’m fortunate to have a good social support system among my coworkers. I trust that if I needed to express my emotions regarding how a particular crime scene may have affected me, I could. I haven’t had to do this, but it’s reassuring to know that the members of my unit would listen.

The Veins of Life²

Regardless of whatever coping strategies are used to work through the short-term emotional stress that may occur by being at a crime scene, one must also consider the possible long-term ramifications, if any. Are there long-term effects as a result of our exposure to these traumatic tableaux? I don’t think there is an easy answer to this question, only more questions. In thinking about this, I think there may also be a tendency to attempt to label the lasting memories and collective feelings we endure as Posttraumatic Stress Disorder (PTSD). Symptoms of PTSD may include flashbacks, nightmares and severe anxiety, as well as uncontrollable thoughts about the event.³ Perhaps a violent crime scene can trigger some of these symptoms, and maybe through long-term repeated exposure, it’s possible for one to develop PTSD. But we must also keep in mind that many people who go through traumatic events can have difficulty adjusting and coping for a while, but it doesn’t mean they have PTSD³. Trauma is defined in the DSM-IV-TR as exposure to a traumatic event that compromises the physical integrity or life of an individual and produces intense

fear.⁴ By definition, we as criminalists, are not experiencing trauma. Rather we may be experiencing second-hand trauma, a concept referred to as vicarious traumatization (VT), which is more commonly associated with counselors working with trauma survivors.⁵

Vicarious trauma is the process of change that happens because you care about other people who have been hurt, and feel committed or responsible to help them. Over time this process can lead to changes in your psychological, physical, and spiritual well-being.⁶ It is cumulative and the process of change is on-going. Symptoms can be similar to those exhibited with PTSD, including hyperarousal symptoms such as nightmares, difficulty concentrating and repeated thoughts or images regarding traumatic events.⁶ A common warning sign of VT is changes in beliefs related to major psychological needs, such as beliefs regarding safety, control, trust, esteem, and intimacy.⁶ The most familiar of these to criminalists are changes regarding safety. For example, changes in how vulnerable you believe you, and others that you care about, are to harm. These beliefs can influence your thoughts, which results in worrying more about safety issues. As result this change in belief begins to influence your actions, such as being more protective of your children.

The best way to combat VT is to understand the risk factors and prevent it in the first place. It has been established that the amount of mental stress you carry can have a detrimental impact on your health. How often are we worrying about things that have yet to come, and how often do we beat ourselves up for mistakes that we’ve made in the past? The answer is too much. In general, we are inundated with and overloaded with stressors, both self-imposed and circumstantial. All of this mental stress we carry makes us vulnerable and undermines our mental foundation such that we are emotionally unable to withstand the experiences that may cause secondary trauma. I’ve found that through acceptance and adjusting my perspective I can overcome the feelings of stress, mental exhaustion and hypersensitivity. “The past and the future take away most of our time, most of our time- these two sprites eating into our veins of life. So forget the past, forget the future, live in the living present.”² Remember that you are not your thoughts. We cannot allow ourselves to dwell on the terrible images encountered from crime scenes of the past, nor can we let our thoughts influenced by these experiences effect how we live in the future. Living in the present, is living in acceptance. By accepting that our career field holds potential risk factors for developing vicarious trauma, we give ourselves the ability to address it by coping with it and transforming it.

Dig the Well Before You Are Thirsty

As the adage goes, it’s wise to invest now to prepare for the future. So how do we “dig the well” regarding our emotional health. Just because our work exposes us to unusually stressful situations that involve traumatic or disturbing circumstances, does not necessarily mean that we are doomed to experience symptoms of posttraumatic stress disorder or vicarious traumatization. I would argue that it really depends on a particular individual’s emotional resilience. Emotional resilience refers to one’s ability to adapt to stressful situations or crises⁷. Emotional resilience is acquired over time and one can develop and strengthen traits of resilience. These characteristics that emotionally resilient people tend to possess include: emotional awareness, optimism, a sense of humor, a social support network, and perspective.⁷ I strongly believe

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that by developing these aspects in one's own life, one can develop the strength required to manage situations that can cause emotional stress with greater ease. Some additional effective techniques from a variety of sources include:

1. Engage in emotional expression: Papazoglou and Manzella offer possible ways and exercises designed to help trainees more effectively deal with their expected exposure to potentially traumatizing experiences.⁸ The authors encourage more immediate processing of thoughts and feelings so that there is a lower likelihood of unresolved trauma accumulating over time. One way of processing and coping with this trauma is journal writing. Additionally, sometimes peer support rather than receiving mental health services is preferred due to the perceived stigma of seeking help from a mental health professional. The mere action of discussing experiences can be cathartic and promote feelings of relaxation and mental clarity.

2. Make sure you are maintaining proper boundaries: Setting healthy boundaries in your personal and working relationships is an important part of stress management. Whether this means taking more time outside of work to engage in enjoyable and restorative activities, balancing the amount of more challenging tasks with less challenging tasks, resisting the urge to work arduous and mentally challenging hours without a break, or merely saying "no" when feeling over-worked and stressed out. We need to set as many boundaries as needed to protect ourselves from emotional harm and to avoid "burn-out."

3. Reduce the stress in your life: Added stress in other areas of your life can make you more vulnerable to vicarious trauma.⁶ Life is sometimes difficult with varying circumstances competing for our time and attention. At times it can be overwhelming to balance all of the sources of stress in our lives. As a result, we spend less time taking care of ourselves and spend more time on our attempts to address these stressors and regain control. It's vital to nurture ourselves and maintain a healthy lifestyle so that we're mentally and physically capable of coping with and resisting stress. Although we cannot avoid all stressful situations, we can try to eliminate a good number of stressors and avoid unnecessary stress by altering the situation, adapting, and accepting the things we can't change.⁹

4. Practice the ABC's: Three important themes in an effective action plan for vicarious trauma are Awareness, Balance, and Connection.⁶

- Awareness is an essential first step in figuring out what you are experiencing and what you can do to take care of yourself. To reflect and identify what the potential risk factors that you're being exposed to and to honestly assess how you are responding. The practice of awareness is to "live in the living present" by being aware of what you are doing while you're doing it.
- Balance your personal needs with the demands of your work.
- Connecting meaningfully with people like you and with people who care about you to. The best social support system requires connecting with personal and professional communities.

I'm not a psychologist and I want to emphasize that what I'm sharing with you is from my perspective as a criminalist and things that I have researched regarding mental health that work well for me. I am solely promoting a dialogue among our community to encourage us to openly address this issue that is so seldom discussed.

In retrospect, during my physical training to become competent at working at crime scenes, there probably should have been some formal conversation regarding how working in the midst of a crime scene could affect me mentally. Regardless of whether or not I thought I needed it, it's nice to have reassurance that however I would feel was perfectly normal. And although, this was not formally communicated to me, I do however feel that the social support is there. I also believe that more communication between mental health professionals is needed in our field. In particular, conversations that focus on the prevention of vicarious trauma. It is my hope that this discussion about secondary trauma will encourage this to become a topic worth incorporating into training procedures.

I'm not an authority on stress management, nor would I consider myself particularly good at it, but I strive to be better. This has become of the utmost priority and significance in my own life since I am working in a unit solely dedicated to crime scene response. In discussing this topic of secondary stress induced by our work, we are effectively practicing awareness and connection—two of the three of the ABC's. Balance comes with introspection and honesty. If we prevaricate about our experiences we are only augmenting the risk factors for experiencing vicarious trauma. Let's start understanding our personal risk factors so that we may prevent ourselves and our co-workers from experiencing symptoms. An effective approach to addressing vicarious trauma is balancing your personal needs with the demands of your work, as well as finding a balance within work that will allow you to work in a sustainable way.⁶ I, myself, will strive to work towards achieving this balance as often as I can. It is my hope that all of us in our field will continuously strive to be well-balanced, well-trained, and well-prepared.

Resources

Online training module "Understanding & Addressing Vicarious Trauma" by Dr. Laurie Anne Pearlman & Lisa McKay. www.headington-institute.org/files/vtmoduletemplate2_ready_v2_85791.pdf

If you suspect that you might suffer from PTSD, the Anxiety and Depression Association of America (ADAA) has a screening survey for Posttraumatic Stress Disorder. Please share the survey with your health care professional. www.adaa.org/screening-posttraumatic-stress-disorder-ptsd

The West Coast Post-Trauma Retreat (WCPR) is a nonprofit residential program for emergency responders suffering from severe critical-incident stress. www.frsn.org/retreats/wcpr

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It's OK Not to Feel Bad

By Jerry Chisum

Those of you who were present on Saturday of the Walnut Creek Seminar heard Dr. Flint, PhD. discuss stress in his paper "Stress. The Criminalist's Hazmat." As I listened to him speak, I thought there must be something the matter with me. He emphasized in his talk the "normal physical and psychological reactions to abnormal situations," i.e. the stress associated with viewing dead bodies at a crime scene causes you to manifest various symptoms. Yet, I didn't have those symptoms after homicide investigations. Is there something wrong, am I abnormal? Does the fact that I enjoy looking at crime scenes, either in person or in photographs, mean that I am sick? After 35 years, I find out that I do not have normal reactions to these "abnormal situations." I don't think so. However, how about you, the criminalist that has only now started to go to crime scenes or is anticipating going to scenes? Will you be subjected to stress or will you be one of us who does not have these symptoms?

Homicide Detectives

This was not the first psychologist that I have heard speak on this subject. We had an S.F.P.D. psychologist speak to us as supervisors at DOJ a few years ago. He had the same message--we need to have counseling or other treatment for the stress we have due to the dead bodies we see. I approached him after his part of the program. I asked him if he really believed that seeing dead bodies at the crime scenes would cause extreme stress in everyone. He stated that he did. I then asked, "Why then do homicide detectives refuse promotions to stay in homicide?" His jaw dropped, "You're right they do, I never considered that."

We discussed some possible reasons for this. One is that there is a higher clearance rate for homicides than any other type of crime, therefore there is a high job satisfaction. Another is that these cases are interesting, cops like to talk about their cases with other detectives, the lab, the DA, etc. This is therapy, discussing the things you saw, getting them into the open rather than internalizing them. If you sit down for "war stories" with homicide detectives, you will find that the stories increase in the amount of violence or gore as the session continues.

There are those of us in society that may not react to the viewing of the dead involved in crimes in the "normal" manner. We see the crime scene as a puzzle, a mystery to be solved. The evidence, including the body, is to be examined for information that will assist us in the solution of this mystery. Homicide detectives (the ones that stay), criminalists, and, certainly, pathologists have members of this group.

Go to an Autopsy

A few years ago, I had a subordinate tell me that he had gone to an autopsy and fainted. I asked him why he had gone. He said he went to see if he would be able to take this part of the job. I told him he had no reason to go and that he should never go until he is involved in a case. Then he won't have a problem. A few months later he was called to a scene with seven people killed including four children. He attended the autopsies. He was describing the case to me and talking about what had happened, when I asked him if he fainted during the autopsies. He looked puzzled, then said, "No, I didn't

even realize that the victims were people, they were evidence items."

Biofeedback

I was at an ASCLD meeting at the FBI in Quantico a few years ago. The subject was stress. As part of an experiment, the speaker gave us some biofeedback dots to stick to the back of our hands. These dots change color depending on the blood flow to the hand. The amount of blood flow is known to be related to stress; the more stressed the less the blood flow. After a break he changed the subject and started showing us some particularly bloody homicide cases. His lecture was about the circumstances of the cases. After several minutes and about 30 slides, he suddenly said for us to look at our biofeedback dots. He wanted to know how many had gone up two or more stress levels. The answer was zero. One level? Zero again. The same level? A few. He looked very perplexed, and I suggested that he ask how many had lost stress as indicated by the dots. About 90% had gone down one level, the rest of us had dropped two levels.

The instructor was shocked, he said in all the classes he had ever given, most persons had gone at least one level higher. He had no experience with a group that did not find his slide presentation stressful. We had not been looking at the "horror" of the content of the slides. We had been looking at the slides to work through the problems presented and to learn what we could from the situations that were described. This was what we do. This was "our world" and it was familiar territory.

Am I Bothered?

I do not mean to say that there are no homicides that have bothered me. I do not like the death of children. I could never understand why someone could do the things they do to someone so helpless and trusting. It even bothers me to look at photos of child victims. In those cases, I do seek a friendly, sympathetic, understanding person to talk to (like a homicide detective).

If you have any problems with these abnormal situations (homicides), you should take advantage of whatever counseling programs that are available. Don't be "macho" and try to hide these feelings. You can ruin your life by trying to overcome them on your own.

However, if you don't experience the symptoms of stress that were described by Dr. Flint after every homicide investigation, do not think you are abnormal. It's OK to not feel bad.



This article first appeared in the Winter, 1995 issue of the CACNews.

Giving it a Name

By Janet Patel

My friends and I stroll along the city streets enjoying beautiful weather. A suspicious-looking (by my standards only) group approaches. My heart races. I have to get out of there.

We pass each other. Nothing happens. I'm safe. I'm also embarrassed. I hope nobody noticed how I could no longer engage in conversation or how my gait sped up or how I suddenly suggested crossing the street.

I turn up the radio as I reach the traffic light. A car creeps up next to mine. I hear my heart beat over the music. Don't look. If you look, then they will shoot you. I know that's ridiculous. I want to turn my head, but I can't. The fear has taken over.

These episodes crept up on me slowly, happening sporadically, and then I rarely went out without feeling some sort of anxiety. I didn't want to admit that I was struggling with the horrors I saw or read about at work. I felt ashamed, powerless, and alone.

During the ten years I worked in various DNA Units, I coped with the gruesome case details by refusing to acknowledge that I could ever be a victim. Near the end of my career, I went to crime scenes as well as working in the lab. Seeing the trauma up close and personal made me feel vulnerable and exposed. Not only did I no longer believe I was immune to crime, I was convinced I would inevitably become a victim.

Then I just couldn't do my job anymore. I didn't want to deal with murders, sexual assaults, and violent crimes. The greater good, being an integral part of the justice system, lost to my need to feel safe again. I quit.

Three years after I left forensics, I sought professional help and was diagnosed with secondary traumatization (also known as vicarious traumatization). What a relief.

During therapy, I talk about cases as a human being, not as a scientist. Discussing the crimes that have stripped away my sense of safety over the years has transformed them into benign memories.

Three years after I left forensics, I sought professional help and was diagnosed with secondary traumatization...What a relief.

Now I acknowledge my fears and then rationalize them instead of shoving them to the back of my mind and hoping they go away. It's empowering.

I've shared my experience for one reason: to get people talking. Vicarious traumatization is not an inevitable by-product of the job, but it shouldn't be ignored. Especially because it's preventable. Create a work environment which encourages a supportive network. Don't just ask, "How's the case going?" Ask, "How are you doing?" Humane acts when you are engulfed in inhumane cases can mean all the difference.

For more information, Please refer to:

Larius, D. and Byrne, M.K. Vicarious traumatization: symptoms and predictors. *Stress and Health*, Vol 19, Number 3, August 2003, p 129-138.

An *FBI Bulletin* by Lynn A. Tovar, Ed. D., provides an excellent description of vicarious traumatization and offers some proactive methods for addressing this issue at the workplace.

A special thank you to H. Cherdon Bedford, who's creative talents were essential in bringing my story to you.



[Below is an excerpt from the article referenced by Ms. Patel.]
<https://leb.fbi.gov/2011/july/vicarious-traumatization-and-spirituality-in-law-enforcement>

Vicarious Traumatization

The concept of vicarious traumatization, as introduced by McCann and Pearlman, provides a theoretical framework to understand the complicated and often painful effects of trauma on crisis workers. By definition, "the effects of vicarious traumatization on an individual resemble those of traumatic experiences. They include significant disruptions in one's affect tolerance, psychological needs, beliefs about self and others, interpersonal relationships, and sensory memory, including imagery."

Vicarious traumatization results from empathetic engagement with traumatic experiences. Tragic events that harm innocent victims are, unfortunately, an inevitable part of our larger world and society. Because law enforcement officers hold the responsibility of responding to these incidents, they repeatedly witness human beings' intentional cruelty to one another. As investigators listen to graphic accounts of victims' experiences and participate in reenactments of tragic events, these encounters stir powerful emotions as officers engage with victims' pain and suffering. Officers can become painfully aware of the potential for trauma in their own lives, and this empathetic engagement leaves them vulnerable to the emotional and spiritual effects of vicarious traumatization.

Officers who fall victim to vicarious traumatization may demonstrate changes in their core sense of self or psychological foundation. These alterations include shifts in the officers' identities and worldviews; their ability to manage strong feelings, maintain a positive sense of self, and connect with others; their spirituality or sense of meaning, expectation, awareness, and connection; and their basic needs for safety, self-esteem, trust, dependency, control, and intimacy. These effects, which disrupt officers' professional and personal lives, are cumulative and potentially permanent.

* * *

The study's results indicated that participants exhibited numerous signs of vicarious traumatization, including hypervigilance, symptomatic reactions, relationship problems, lack of communication, denial, repression, isolation and disassociation, change in worldviews, and a loss of sense of meaning. Participants' statements clearly demonstrated the impacts of juvenile sexual assault investigations in their lives. The first interviewee stated, "I think that is a part of what this job has done to me. You look at society or you look at people with a jaundiced-eye, cynical perspective. We don't always see the best, we see the worst, or we have suspicion about someone."

Raymond Davis, *cont'd from page 15*

the value in finding the evidence where it's found. At a steep cost to our well-being, however.

The trend however, is for the criminalist to remain at the lab while the CSI expert conducts the crime scene investigation. What about them? They see more horrific crimes in a year than most criminalists see in a career. We still have a number of criminalists who continue to work crime scenes and when the day arrives when they hang up their lab coat, they'll take their experiences with them. I wonder how they'll process these old, nagging memories. If the solution is to ignore them, let me remind you again, that is not a healthy, long term solution.

I was fortunate early in my career to work with a bunch of great guys who saw the value in sharing our crime scene assignments. Our intention was not to alleviate the shocking experience but rather to learn from one another. One unintended consequence, however was to put our experience into a healthy perspective which made me realize that I wasn't the only one affected by what I saw. I want to take this opportunity to acknowledge the wisdom and experience of my old colleagues from back in the day: Bill Corazza, Mike Waller, Lance Gima, Bob Ogle and Gene Persons.

I don't know if you've given any thought to this subject but I do think we should discuss it. I know there are some, like my friend who found the child in the fireplace, who must be suffering from the horrible pictures that continue to scroll across their memories, unable to delete them. PTSD can cause a feeling of tenseness, being easily startled, having difficulty sleeping, fearful thoughts, anxiety and avoiding places or people that might trigger a reminder of the initial trauma.

There have been many occasions when people told me to 'compartmentalize the experience' that is, lock it away and forget about it. That may work in the short term until the next event triggers or recalls a dreadful memory. As I mentioned earlier, there is no training that prepares a person to witness the carnage most people will never be exposed to. It's time we talked about it.

FEEDBACK

Desensitization Worked

I've been thinking a lot about the current topic of PTSD among crime scene workers. There are several thought-provoking articles in this issue of the *CACNews*. In fact, I'm making this topic a large part of a guest lecture that I will be delivering to incoming forensic science students at a certain Big Ten college this September.

I feel that crime scene workers who carry around vivid images of their first few experiences with violent death might have been spared a lot of pain had they been properly oriented into the profession. I recall talking with a group of grad students at a CAC meeting a few years ago and asking if they had thought about the more gruesome aspects of the job. I remember one young woman admitting she might not be able to tolerate it. I delayed my own entry into the field, because I knew I wasn't ready to see the proverbial "shotgun suicide" crime scene. My father was a crime scene photographer and I knew damn well what I would be getting into.

Instead, I embarked upon a self-directed strategy of desensitization. A gradual exposure to fatal scenes, first as a spectator at a drowning victim recovery, then as a police

intern at natural death scene and later an overdose. Finally, I volunteered as an EMT in a local hospital emergency room and got a cold dose of reality, but by this time I had tasks to perform and I was no longer just a spectator.

Up to this point I was participating at my own pace. I could turn away anytime I wanted and no one was paying me to be there. I was controlling how much input I wanted to receive. When the time finally came for me to process a real crime scene as a fully-trained criminalist, the shock had been dissipated.

I appreciate the various points of view on this subject presented in this issue of the *CACNews*, but I'm not sure I'm ready to dismiss compartmentalization so easily. The technique has worked well for me. When I see a victim of violence I feel sad, and I ponder, for just a moment, how cruel people can be to each other. Then I set those feelings aside and get to work. I don't really want to see the body as simply an "evidence item." That's a dead person, not a specimen.

Your mileage will, of course, vary. I'm just reporting what worked well as a coping mechanism for me.

—John Houde

NIST Notices

I am not a CAC member but did receive a copy of the *CACNews* through the services of Jeff Teitelbaum, Forensic Science Library Services at the Washington State Patrol, who sends out all kinds of relevant forensic science material to his mailing list.

I wanted to compliment you on your article. [Fiat Justitia per Scientiam, *CACNews*, 3rd Q, 2015] I think your advice to your members to get involved and participate to help shape the future of the industry is spot on. Since we launched the OSAC here at NIST back in February 2014, we have seen the forensic science community shift from saying "why is NIST doing this" to "now how exactly is this going to work" and "how do we participate" which is a great development. Also, you will see some future announcements from other professional association(s) about their interest in becoming Standards Development Organizations (SDO)s to support the development of standards in the forensic science industry. This is a very healthy development for a maturing industry as the more SDO's you have in an industry, the more opportunities you have to build standards and engage with the correct stakeholder base for the specific document being developed.

The OSAC is able to work with any SDO and in fact expects to have ideas that start in the OSAC move out into SDOs where that SDO matures the idea into a standard (through consensus and balloting) and once published by that SDO can be considered for addition to the OSAC Registries. The Registries are how we identify and share the standards that the forensic science industry has determined as key and should be followed.

—John Paul Jones II
National Institute of Standards and Technology

CAC Member Responds to the *Times*

From an article in the *Los Angeles Times*, July 8, 2015:
"After a 12-year decline, crime in L.A. surges in first half of 2015."

Peter Moskos, a criminologist at the John Jay College of Criminal Justice in New York, said it was too soon to say whether Proposition 47 was behind the increase in property crimes. Even if the initiative has contributed to the rise in property crimes, he said, the result may be an acceptable trade-off for taking a less strict approach toward relatively minor crimes.

"If there is huge money saved in incarceration, I think we can take an increase in property crimes," Moskos said.

Larry Blanton Responds: I take issue with Peter Moskos' comments in the *Times* article.

I've been a criminalist for twenty-eight years at a large metropolitan crime lab.

Honestly? An increase in property crimes is acceptable if it saves money? Have you ever had your home or office burglarized? The financial loss, and emotional impact, not to mention a real possibility of identity theft days or months later are extremely costly for the victims, especially poor victims that can't afford insurance. I think many burglary victims would be offended by your comments. I know I am.

Highlights from Luke Haag's CAC Spring Workshop

THE WOUND BALLISTIC BEHAVIOR of TWO FMJ BULLET TYPES by HIGH SPEED VIDEOGRAPHY

NUMEROUS SHOTS WITH THE 160-gr. 6.5mm CARCANO BULLET INTO VARIOUS MEDIA REVEALED THAT THIS BULLET WAS EXTREMELY STABLE SO LONG AS IT WAS INSIDE THE PARTICULAR MEDIUM (e.g., WOOD, BALLISTIC SOAP, GELATIN).

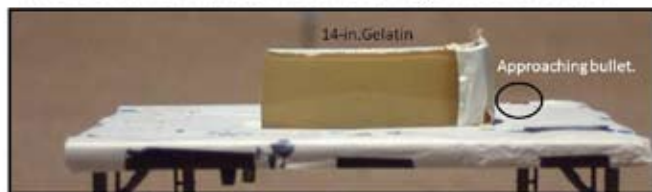
AN EXAMPLE OF THIS, USING A PHANTOM™ HIGH SPEED VIDEO-CAMERA, WAS SHOWN IN THE 2013 PBS-NOVA PROGRAM, *COLD CASE: JFK*. A STILL FRAME FROM THIS H-S VIDEO IS SHOWN IN THE NEXT SLIDE.

THIS STABILITY WAS THOUGHT TO BE THE RESULT OF A PHENOMENON CALLED "SHOULDER STABILIZATION" FIRST DESCRIBED BY THE EUROPEAN WOUND BALLISTICIAN BEAT KNEUBUEHL, AND WOULD OCCUR WITH ANY OTHER LONG, CYLINDRICAL, ROUND NOSE BULLET. FOLLOWING UP ON THIS HYPOTHESIS, SOME .30-CALIBER BULLETS FROM THE LATE 1800s AND EARLY 1900s WERE OBTAINED AND LOADED INTO .30-'06 CARTRIDGES. THESE BULLETS, ALONG WITH THEIR SUBSEQUENT SPITZER COUNTERPARTS, WERE FIRED INTO BLOCKS OF BALLISTIC SOAP. THIS WOUND BALLISTIC MEDIUM HAS THE ADVANTAGE OF PRESERVING THE 'TEMPORARY' CAVITY DUE TO ITS PLASTIC BEHAVIOR. SEVERAL RESULTS OF THESE TESTS ARE INCLUDED IN THIS POWERPOINT PRESENTATION.

H-S VIDEOGRAPHY WAS USED DURING THE SPRING 2015 CAC WORKSHOP TO DOCUMENT THE VERY DIFFERENT BEHAVIOR DURING SOFT TISSUE SIMULANT PENETRATION AND PERFORATION BETWEEN A LONG, ROUND NOSE BULLET vs. A SPITZER BULLET OF THE SAME CALIBER.

WCC 6.5mm CARCANO BULLET through a TISSUE SIMULANT

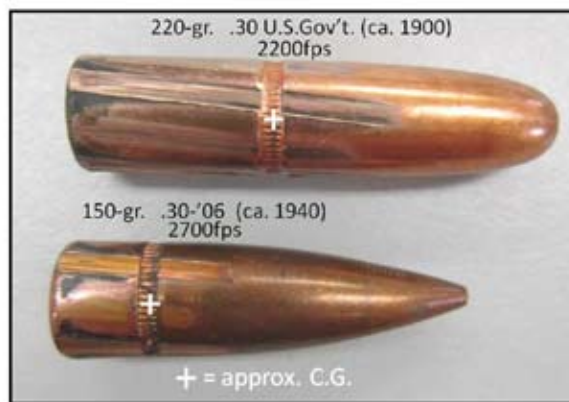
Frame Grabs from the 2013 PBS-NOVA Program *COLD CASE: JFK*

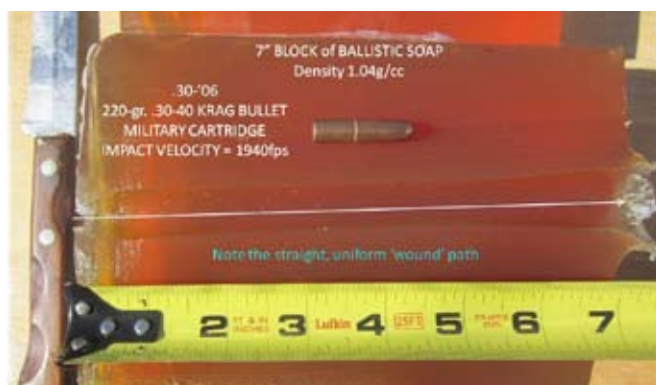


MBM* BALLISTIC SOAP SHOTS with .30-Caliber HEAVY, ROUND-NOSE FMJ BULLETS

*7-inch PATH LENGTHS

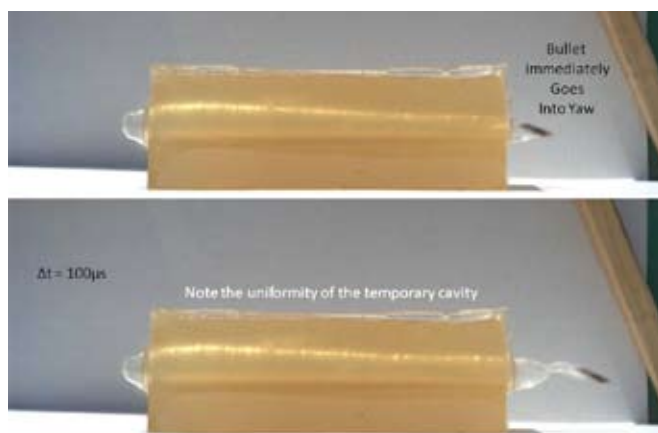
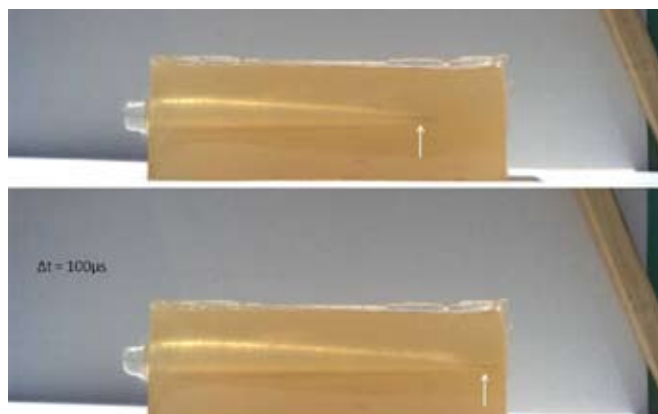
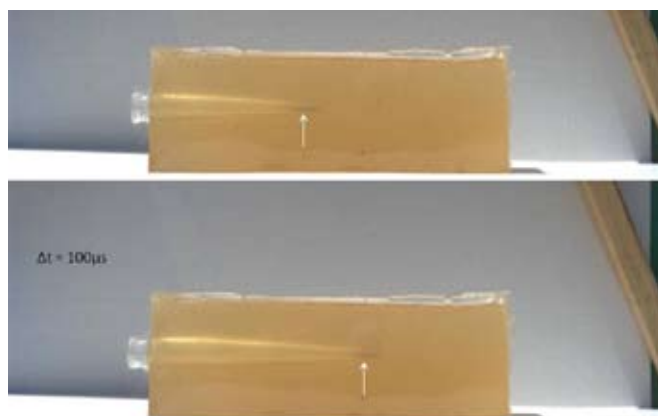
BULLET DESIGN and STABILITY in SOFT TISSUE TWO .30-CALIBER MILITARY BULLETS



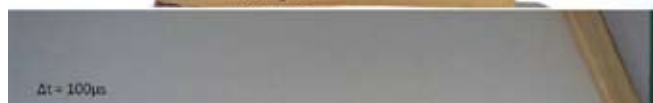
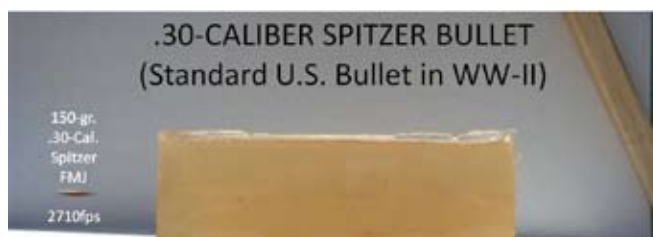
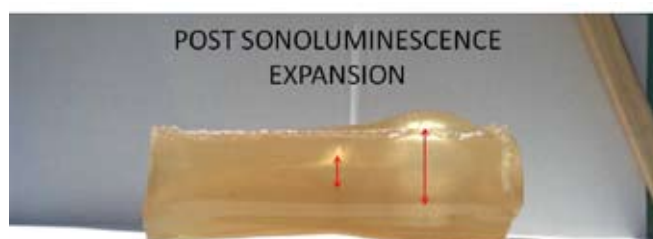


*Read the slides down the columns,
left then right.*

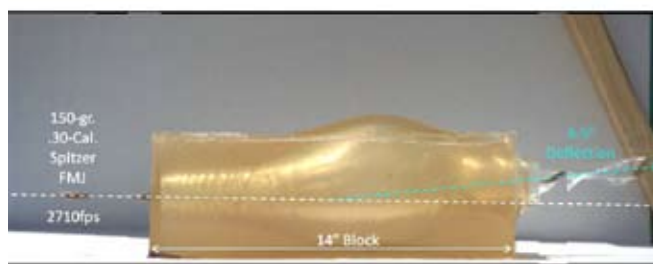
Luke Haag's Workshop, *cont'd*



THREE FRAME COMPOSITE



FOUR FRAME COMPOSITE

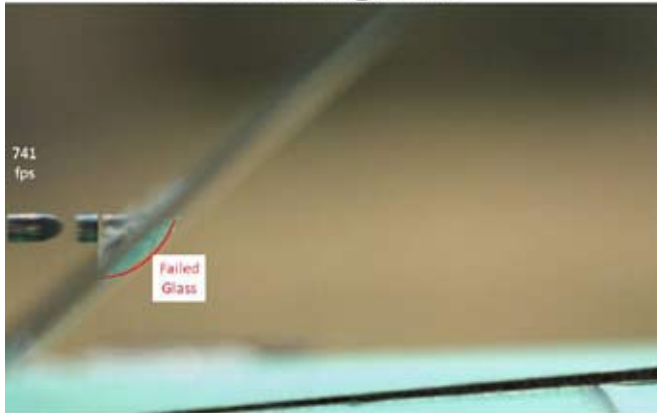


Comments regarding future tests

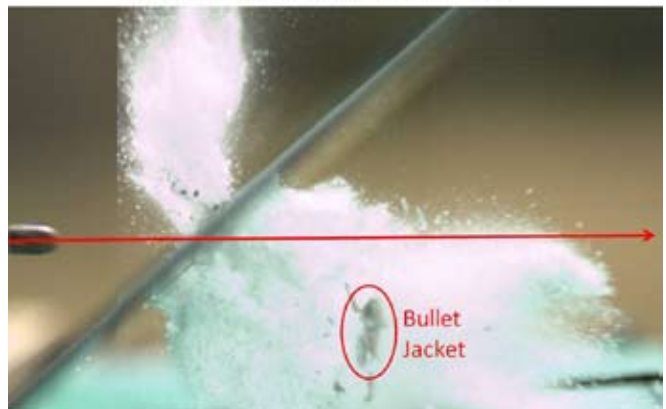
With a known time between frames (e.g., 100μs) and known target dimensions (e.g., a 14-inch block of tissue simulant), the step-by-step deceleration (velocity loss) could be calculated as the projectile works its way through the medium. This would determine whether such deceleration is linear or obeys some other function with penetration depth. The approximate exit velocity could also be determined by this method.

SHOTS into LAMINATED GLASS

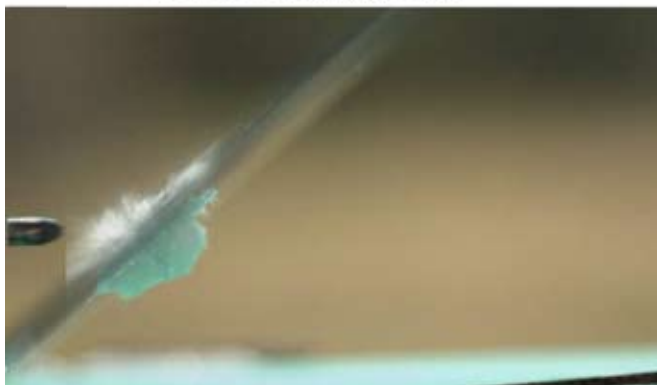
.38SPL. 158-gr. LRN



.38SPL. 130-gr. FMJ-RN



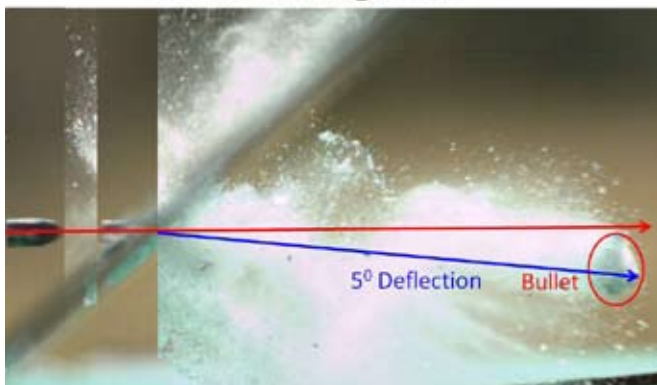
.38SPL. 158-gr. LRN



.45AUTO 230-gr. FMJ-RN



.38SPL. 158-gr. LRN



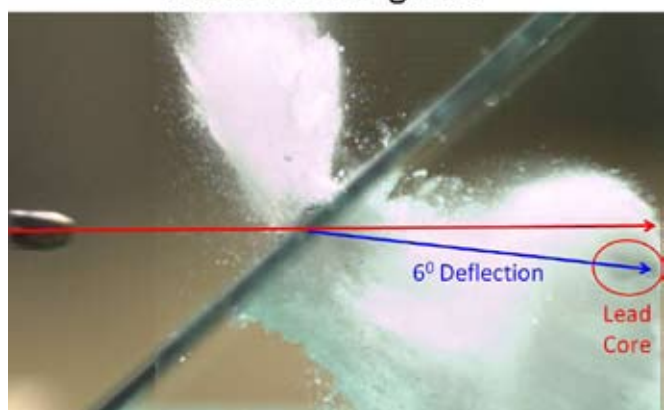
.45AUTO 230-gr. JHP



.38SPL. 130-gr. FMJ-RN



.45AUTO 230-gr. JHP





Ethical Dilemmas

DISCUSSION CORNER WITH CAROLYN GANNETT

Violating the Attorney-Client Privilege

Paragraph IV.D of the CAC Code of Ethics

The Scenario

You are a CAC member and a private criminalist, also called a “physical evidence consultant” (PEC). You have just completed trial testimony for the defense. Incriminating evidence, which you had found in your examinations and included in your written report to the defense attorney, was not introduced at trial by either side. You wonder whether the defense attorney was fully forthcoming in his discovery of your report to the prosecution. You also wonder whether the prosecuting attorney had the competence to recognize your incriminating results and produce them in trial. In either case, you believe that a miscarriage of justice might occur.

What would you do?

Discussion

This scenario was generated from questions I have about the following paragraph from the CAC Code of Ethics:

IV. ETHICS RELATING TO THE GENERAL PRACTICE OF CRIMINALISTICS:

D. Generally, the principle of “attorney-client” relationship is considered to apply to the work of a physical evidence consultant, except in a situation where a miscarriage of justice might occur. Justice should be the guiding principle.

In this discussion, let’s assume that the “attorney-client” relationship includes the work-product doctrine—one of the recently proposed changes to the Code.

At first blush, it might appear that the PEC has an ethical obligation to violate the attorney-client privilege and make known his or her incriminating results. Let’s look at this more closely.

The sentence, “Justice should be the guiding principle” could be interpreted to mean one of two things:

1. Justice, as opined by the PEC, should be the guiding principle, and the PEC should act if he or she believes that a miscarriage of that justice might occur; or,
2. Justice, as determined by those who are responsible

for determining how justice is to be met (judicial experts and legislatures), should be the guiding principle, and the PEC should conform to those tenets put in place by judicial experts and legislatures, including the principle of attorney-client relationship.

If the first interpretation is correct, then when a PEC opines that justice might not be served in a particular case, that PEC is ethically required to break the confidence of the attorney-client relationship and find some way to bring supporting evidence to the attention of the court. This makes PECs into the judge, the jury, and the attorneys, because this phrase requires PECs to determine, all on their little lonesome, what might (not even “does,” but simply “might”) constitute a miscarriage of justice for their case. But, justice is the purview of the justice system—the ENTIRE system, NOT just one individual, and certainly NOT one little lonely PEC who really knows only about his or her technical area of expertise. As I related in a previous article (CACNews, 3rd Q 2014), when it comes to the workings of the justice system, the PEC is usually not much more knowledgeable than the average person. It is not for him or her to decide how justice is to be met. That is the purview of judicial experts and legislatures. It may be the forensic scientist’s ethical responsibility to *serve* the justice system, not to second-guess it. And that concept is suggested in the CAC Code of Ethics Preamble opening sentence to paragraph three:

It is the duty of any person practicing the profession of criminalistics to serve the interests of justice to the best of his ability at all times.

Again, clarity is somewhat wanting in this wording. By “the interests of justice” does the Code mean the individual’s opinion of what constitutes justice, or does it mean the justice system and its rules and regulations as determined by judicial experts and legislatures? It would be helpful to have this made clear.

**In attempting to comply with
the Code of Ethics, the physical
evidence consultant has
most likely sealed the
coffin on his career.
I don’t think this was the
intent of the Code.**

Share your thoughts and dilemmas at
www.ethicsforum.cacnews.org

If the second interpretation (“2.” above) of the sentence, “Justice should be the guiding principle” is taken, then Paragraph IV.D conflicts with itself. The attorney-client privilege has been established by judicial experts and legislatures responsible for determining the means to mete out justice—the same “justice” found in the quoted second sentence of the paragraph. Yet the first sentence states that it is acceptable to violate those means by violating the attorney-client privilege.

Giving Paragraph IV.D the benefit of the doubt, perhaps a PEC could attempt some kind of compliance with the Code by approaching the court clerk or bailiff and requesting a private conversation with the judge. And, if granted, the PEC might relate his or her concerns in private to the judge. (Would that be considered a violation of attorney-client privilege? I don’t know—perhaps someone reading this could enlighten the rest of us.) Maybe during the course of the conversation with the judge, the PEC would learn that the court was aware of the evidence in question and had deemed it inadmissible in court. But now, based on IV.D, the PEC gets to decide whether justice was served by deeming it inadmissible. Back to the starting line, again.

Or, maybe the judge would not want to be bothered with what the PEC had to say or would not even grant him an audience. It could happen. Now what? Has the PEC done enough to satisfy the ethical requirements of Paragraph IV.D simply by attempting to speak to the judge? The PEC is still left with “a situation where a miscarriage of justice might occur.” To whom should the PEC now go with his breach of attorney-client privilege in pursuit of “justice?” The prosecutor? The district attorney? The head defense attorney? State or federal attorneys? The media? And, in going to any of these entities, in attempting to comply with the Code of Ethics, the physical evidence consultant has most likely sealed the coffin on his career. I don’t think this was the intent of the Code.

Or, maybe during a private conversation with the judge the PEC would learn that the judge was unaware of the evidence, the judge would pursue the matter, and maybe a different, more just, outcome of the trial would unfold based on the PEC’s actions. This may be the type of situation the Code was hoping to promote. But in so doing, the wording of Paragraph IV.D creates problems. Furthermore, I’m not sure that Paragraph IV.D is even needed, because the concept may already be covered in the Preamble, in the sentence quoted above: “It is the duty of any person practicing the profession of criminalistics to serve the interests of justice to the best of his ability at all times.”

Conclusions

I’m of the opinion that the CAC Code of Ethics might benefit from clarifying what is meant by “justice.” I’m in favor of replacing that word with the phrase “justice system.” Perhaps some alternate wording could be something like the following.

For the Preamble, paragraph three (taking this opportunity also to suggest gender-neutral wording), I suggest these edits.

Change from:

It is the duty of any person practicing the profession of criminalistics to serve the interests of justice to the best of his ability at all times.

To:

It is the duty of all persons practicing the profession of criminalistics to serve the justice system to the best of their abilities at all times.

For Paragraph IV.D, I suggest removing the exception to compliance with the attorney-client privilege. It conflicts with my proposed re-wording of the Preamble. That rewording makes the criminalist ethically responsible for serving the justice system, which includes maintaining attorney-client confidentiality. Besides, without the rewording of the Preamble, Paragraph IV.D would need to be rewritten to clarify what is meant by justice as a “guiding principle.”

Change from:

Generally, the principle of “attorney-client” relationship is considered to apply to the work of a physical evidence consultant, except in a situation where a miscarriage of justice might occur. Justice should be the guiding principle.

To:

The principles of attorney-client privilege and work-product doctrine apply to the work of a physical evidence consultant.

Or, do away with the paragraph entirely, as the edited version serves only to educate the reader, rather than to define an ethical concept.

A Final Word

What would you do if you were this PEC? Seriously—put yourself into this situation. How would you comply with the CAC Code of Ethics? What would you do if your attempts to speak to the judge were rebuffed? How would you maintain your ethical integrity without compromising your career? Share your thoughts in the CAC Ethics Forum: www.ethicsforum.cacnews.org.

Have an ethical dilemma you’d like evaluated?
Submit a sanitized version to
GannettForensics@aol.com

AAFS is an SDO

On July 22nd AAFS became a Standards Development Organization (SDO) and was awarded the money to do so by the Arnold Foundation. Here's the article: news.aafs.org/aafs-news/aafs-receives-funding-to-become-an-accredited-standards-development-organization-sdo/

Milestones

LAPD SDU anticipates it's 6000th offender hit sometime in September 2015. October 3, 2015 will mark the 20th anniversary of OJ Simpson's acquittal.

New GSR Technique

Characterization of volatile organic gunshot residues in fired handgun cartridges by headspace sorptive extraction, by Matteo Gallidabino, Francesco S. Romolo and Celine Weyermann. Cite: *Anal Bioanal Chem.* 2015 Sep; 407(23):7123-34

Abstract: In forensic investigation of firearm-related cases, determination of the residual amount of volatile compounds remaining inside a cartridge could be useful in estimating the time since its discharge. Published approaches are based on following the decrease of selected target compounds as a function of time by using solid phase micro-extraction (SPME). Naphthalene as well as an unidentified decomposition product of nitrocellulose (referred to as BTEA2⁺) are usually employed for this purpose. However, reliability can be brought into question given their high volatility and low reproducibility of the extracted procedure. In order to identify alternatives and therefore develop improved dating methods, an extensive study on the composition and variability of volatile residues in nine different types of cartridges was carried out. Analysis was performed using headspace sorptive extraction (HSSE), which is a more exhaustive technique compared to SPME. One hundred sixty six compounds were identified (several of which for the first time), and it was observed that the final compositional characteristics of each residue were strongly dependent on its source. Variability of single identified compounds within and between different types of cartridge as well as their evolution over time were also studied.

Submitted by Bob Blackledge who adds that this technique might be of interest to fire debris analysts.

Fast Fingerprints

Bob Blackledge found this gem at the recent Impression Pattern and Trace Evidence Symposium

"A Novel Method for Fingerprints on Absorbent Surfaces — Contact Ninhydrin"

Abstract: This project is to develop a novel method for rapidly visualizing fingerprints on absorbent surfaces. The method is free of organic solvents, highly portable, rapid and produces high quality fingerprints on absorbent surfaces. This is done in one step that involves a Ninhydrin development sheet, a dry portable moisture source and the use of microwave energy to speed the usually slow Ninhydrin/amino acid reaction. The treated paper containing Ninhydrin and additives is placed in contact with the substrate enclosed in a microwaveable sandwich containing a moisture source. The sandwich holds the reactant materials together under pressure to facilitate the two phase reaction. After attending this presentation, attendees will learn that the ninhydrin-amino acid reaction can be carried out in moments with no solutions or expensive equipment to visualize fingerprints.

Settled the Question

"Just to settle it once and for all: Which came first, the Chicken or the Egg? The Egg—laid by a bird that was not a chicken." —Neil deGrasse Tyson

Submitted by Eric Halsing

CAC Board Opening

Kirsten Fraser reports that the position of **Recording Secretary** will be opening up in May 2016. Trying to help the nominating committee out!

McCrone Classes Offered for October

Visit www.mcricri.org for full descriptions of all courses, secure online registration, hotel information and more.

Oct. 5-9 Microchemical Methods

Oct. 5-9 Microscopical Identification of Asbestos

Oct. 12-16 Advanced Asbestos Identification

Oct. 12-16 Practical Infrared Microspectroscopy - FT-IR

Oct. 19-23 Applied Polarized Light Microscopy/Forensic Microscopy

Oct. 19-23 Forensic Fiber Analysis: Advanced Microscopy and Microchemistry

Oct. 26-30 Microscopy of Explosives

Since 1960, McCrone Research Institute in Chicago has offered intensive courses in microscopy that emphasize the proper use of the microscope and more specialized microscopy, focusing on a particular technique, material or field of application. All courses are hands-on, featuring lectures, demonstrations and laboratory practice.

Future Seminars

The CAC Seminar Planning Committee (Eucen Fu, chair) reminds members that the next seminar will be hosted by the San Mateo Sheriff's lab and held at the San Francisco Airport Doubletree, Sept 21-25 2015. Rooms will be \$155/night. The 2016 spring meeting will be hosted by LAPD which will be held at the Garland Hotel. Due to north/south swap, the CAC will be holding another southern meeting in the fall of 2016. That meeting will be hosted by DOJ Riverside with a possible joint meeting with ASTEE (trace evidence). For those who like to plan way ahead, the 2017 spring meeting is scheduled to be hosted by San Francisco PD and the 2017 fall meeting by Orange County Crime Lab.



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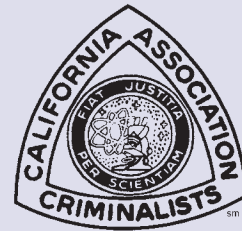


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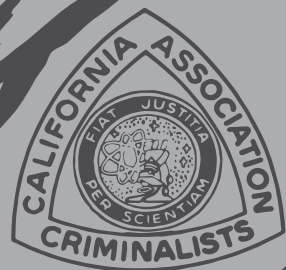


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