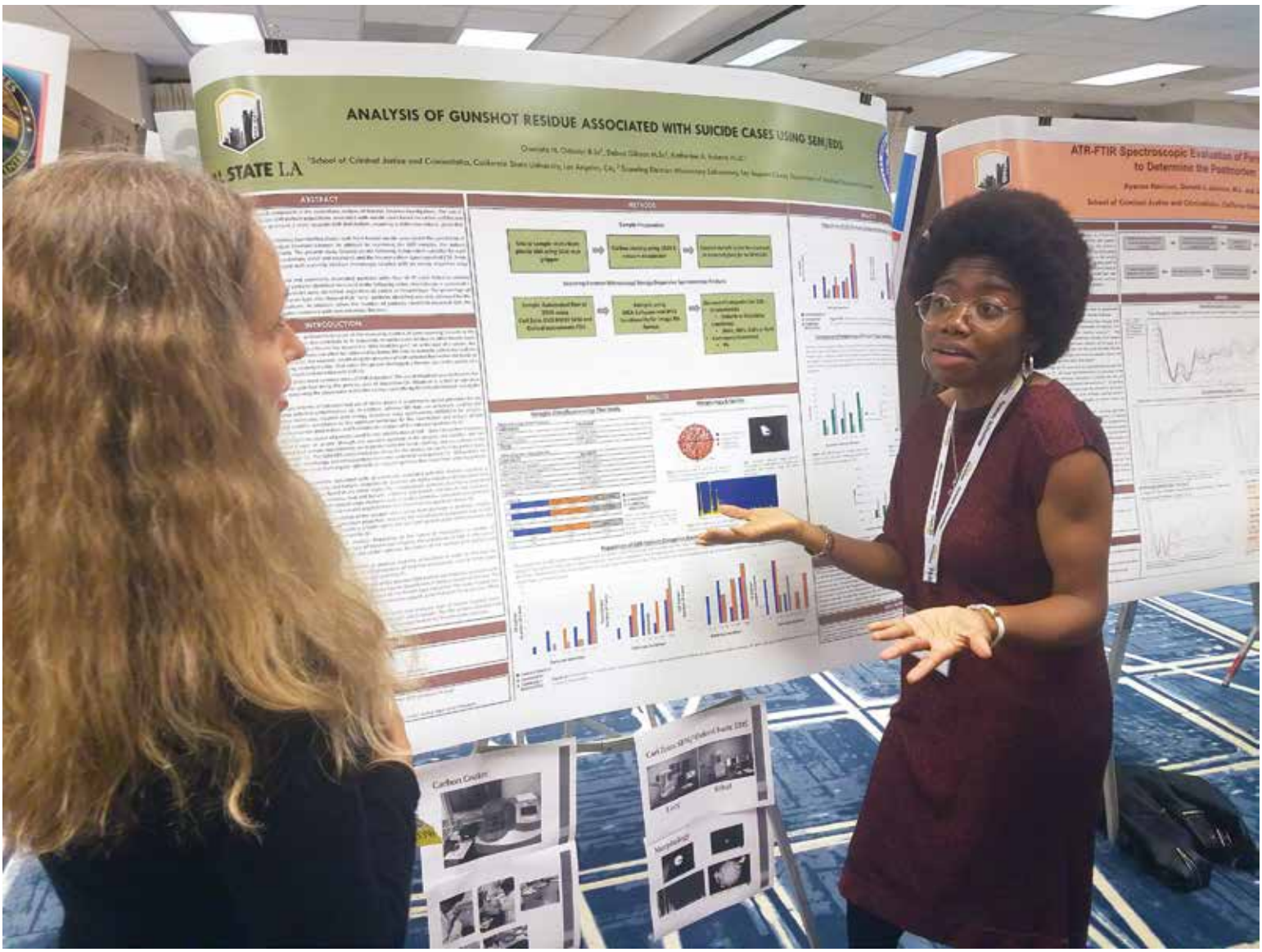
The CACNews

News of the California Association of Criminalists • Fourth Quarter 2019



Greetings from Oakland

The President's Desk

alice
Hilker

CAC President

With all of the changes happening in forensics, we benefit from diversity. We need the generalists and the specialists, the newbies and the veterans and everyone in between.

Halfway Home

A few years ago, my husband reached a milestone birthday. Our good friend called him to say, "Congratulations, buddy, you're halfway home!" Halfway Home. When hearing those words, considering what milestone we were celebrating, I laughed and thought, "well, that's optimistic!" And while initially laughing at those words, the concept of being at a halfway point began to fill my thoughts regarding aspects of my own life.

While I am approaching the same birthday milestone as my husband, I am now entering my twenty-first year in the forensic profession. I feel an overwhelming sense of gratitude and gained perspective for reaching this point in my personal and professional life. I am now at a clear vantage point where I can reflect on where I have been while looking to the future towards where I still want to go.

When thinking of where I have been, it is interesting to explore how forensics and our image as criminalists has changed. I have heard my generation referred to as "OJ" Criminalists. The "OJ" designation came from the increased attention to forensics labs in the mid to late 1990's as a result of the *People v. OJ Simpson* trial. This trial brought forensics to the public eye in a way that hadn't previously been seen sparking an increase of interest in our field. This unique time period coincided with advancements in DNA technology, which was within my education and skill set, forging my path into a career in forensics.

Once in the field, I was mentored by a generation of criminalists I will refer to as the "Founders" generation. Some of these women and men were generalists, while some specialized in a certain discipline, but all of these "Founders" began their careers before accreditation, large scale grant funding, and before strict limits were put on their time.

On the other side of the spectrum is the what I call the *CSI* generation. This generation of criminalists are referred to as such not because they are fans of *CSI*, but because they began their careers in a world of accreditation standards, a shift in the industry towards specialization, and a constant battle against the public expectation of what our capability is based off their favorite crime drama.

With all of the changes happening in forensics, we benefit from diversity. We need the generalists and the specialists, the newbies and the veterans and everyone in between. We are better for our varied experience and the ability to share it with one another. During the Oakland seminar, it was evident that the different generations of Criminalists within the CAC continue to struggle with collaboration and mutual respect. In Meiling Robinson's article, "Drinks with Dinosaurs" from the 1st Quarter 2017 *CACNews*, she discusses the lack of communication between the generations and expresses the sentiment that, "Both generations need to seek to meet in the middle." She encouraged the membership to reach out to others at the New Member Reception, where new members can meet fellow criminalists of all generations. I wish to echo this sentiment and encourage you all to do your part to meet in the middle, and if you are already in the middle, like my generation, do your part to reach out to both sides. Our seminars provide the perfect venues to strengthen the bonds between the generations of criminalists. Sit at a table with a group of people you don't know well at the banquet, take a moment to talk with each new member at the New Member Reception, or grab a drink and play a card game with everyone at the Hospitality Suite.

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FOURTH QUARTER 2019

The CACNews

www.cacnews.org

The *CACNews, ISSN 1525-3090,* is published quarterly (January, April, July, and October) by the California Association of Criminalists (CAC).

The CAC is a private foundation dedicated to the furtherance of forensic science in both the public and private sectors.

Please direct editorial correspondence and requests for reprints to the editorial secretary.

Notice to Contributors: We publish material of interest to our readers and are pleased to receive manuscripts from potential authors. Meetings and course announcements, employment opportunities, etc. are also solicited. Advertisements are also accepted, although a fee is charged for their inclusion in *The CACNews*. Please contact the advertising editor for further information.

Submissions should be made in the form of Windows compatible files on CD or by e-mail. Alternatively, text files may be saved as plain ASCII files without formatting codes, e.g. bold, italic, etc. Graphics, sketches, photographs, etc. may also be placed into articles. Please contact the editorial secretary for details.

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

On the cover:
Omolola Odeniyi explains her poster to CAC President Alice Hilker at the Spring CAC Seminar in Oakland.

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Two, or One?

jonathan
Charron

CAC Editorial Secretary

California is a pretty big place. We have the largest population of any state in the entire United States as well as being the third largest state by area. By having two conferences a year, the CAC can provide a location close to the membership every single year.

Fall is my favorite season. Perhaps this is due to my selfish sentiment as both my birthday and favorite holiday happen in October. Or maybe it is because I love wearing a cozy hoodie while sipping on a hot espresso drink as I think about how much I have missed cold, rainy days. Regardless of my personal affinity for Fall, it is hard to deny that there is something inspiring about bearing witness to the world changing around us. The trees ignite into a fierce and fiery display before shedding their colorful plumage while the moon and stars begin to cling longer to the sky. I love experiencing this change, and change is a good thing, right? I would imagine that depends on whom you ask and what is changing. And though we have asked this question before, we would like to ask again about a potential change for the association: should the CAC change from hold one training conference a year instead of two?

This question seems to be brought up every decade or so. I feel that as the world changes around us, we can benefit from revisiting questions that have already been asked. In doing so, we can affirm our previous decision, or decide that a change might best suit the needs and wants of the association at this time. When you renew your membership this year, you will be asked questions regarding your opinion on the frequency of our training conferences. I encourage you all to take some time when answering these questions. As you are preparing to fill out this survey, I would like to explore a few points on both sides of the argument to create a starting point for your decision.

California is a pretty big place. We have the largest population of any state in the entire United States as well as being the third largest state by area. By having two conferences a year, the CAC can provide a location close to the membership every single year. With the ever-increasing strains on training budgets, attending a meeting without the need for airfare or possibly even lodging helps make these conferences more affordable to attend. Reducing these conferences to once a year might mean that the membership is only able to attend once every other year when the conference is on their side of the state.

While having a pool of new people to meet may be seen as something desirable, some would argue that developing a smaller and more intimate network is more advantageous. By having a conference twice a year, the numbers of attendees at each event is not overwhelmingly large. These more intimate conferences allow the attendees to interact more frequently with the same colleagues. An unfinished conversation with someone may be easier to pick back up if you can quickly find them at a lunch or coffee break as opposed to having to search for that person in a larger group of people. The smaller conference size also gives us a broader range of options when drafting hotel contracts as well as offering a smaller setting for bonds to be formed among the attendees. The CAC has been able to host a conference at hotels that may not be able to accommodate the entirety of our association.

Though a smaller group may be easier to manage, there are some challenges associated with creating two events a year. The planning of two conferences can take a toll on resources and time from the membership and planning committees. As I am helping to plan the Spring 2021 conference here in Sacramento, I've discovered that the process of planning a conference begins more than two years prior to the event actually taking place. This translates to there being a minimum of four teams of members who are in various stages of planning and execution of a conference. Another challenge that arises from having two different conferences a year is trying to secure vendors for both events. As we are on budgets limiting our ability to attend every conference, so too are our vendors. Having a broad range of vendors at the conferences allows us to see what new technology, kits, or instrumentation is coming available for us to utilize in our work. There is also a potential challenge in finding interesting speakers for two full programs every year. If we moved to one conference a year, we could potentially see an increase in the number of attendees which may make it easier to secure a larger group of vendors and presenters.

While I outlined a variety of other topics that should be considered prior to filling out the survey, I would be remiss in not bringing up the topic of tradition. As an association that has been around since 1954, the CAC is steeped in traditions that have been created and passed down at these conferences. If a decision is eventually made to go to one conference a year, some of these traditions would need to be adapted, while new traditions would inevitably form in response to the new structure. Does continuing to hold a training conference twice a year mean that we are not willing to adapt with the times? Perhaps there is some truth to that, and we are not ready to make such a significant change to how we approach conferences. Or perhaps change isn't warranted, and we are ahead of the curve by offering two opportunities for our membership to learn, grow, and engage each year.

I certainly did not cover every angle of this topic. I encourage you to take the time to think about what is best for the association and to use this survey to bring up your ideas and opinions. You are the CAC, and I am calling on you to pave the path to our future by letting us know which road we should create. We are listening, so let your voice be heard.

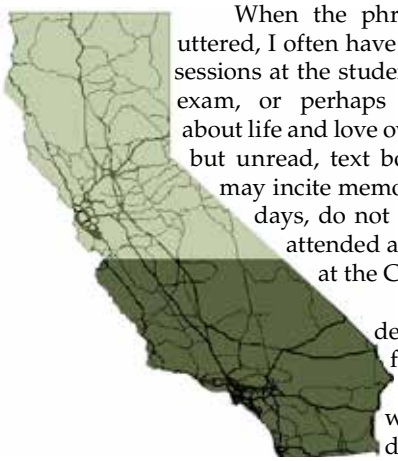
The President's Desk *cont'd*

These are opportunities that should be seized to better ourselves and share our thoughts and ideas with those with a different perspective. Ultimately, we are all real criminalists, and we should strive to extend respect for each other, new and seasoned.

I would like to leave you with a task and another topic of discussion. This is the topic of whether to have semi-annual seminars or to change over to the format of one seminar per year. Many of you have already heard and discussed the arguments, for and against this change. In his editorial, Jonathan Charron has outlined some of these points with the recognition that there are many more that to be considered. That is where you come in. You will be prompted to fill out a survey when you renew your membership this year. I am asking that you all respond to the survey thoughtfully as your Board wants to hear from the membership. Has the time come for change?

With this article coming to a close, I have now reached the midpoint of my term as your President. Having finished this second message to you, and having two more to go, I am officially halfway home!

Report from the Regions



When the phrase "study group" is uttered, I often have visions of 3 a.m. cram sessions at the student union prior to a big exam, or perhaps personal discussions about life and love over coffee and an open, but unread, text book. Though the term may incite memories from your college days, do not let that stop you from attended a "study group" session at the CAC.

The study groups are designed to be a venue for us to spend time with our colleagues within our discipline to discuss technical procedures and how to approach certain types of cases, share new ideas or technologies, or to simply present an interesting or unique case with the group. These study groups are also a great venue to fine-tune a topic that you are planning to present at a conference. Furthermore, these sessions allow us to meet and form new bonds with members within your discipline whom are from different laboratories.

In order to best serve all the members of the association, there are often two study group meetings each year; once in the north and once in the south. There is no cost to attend these meetings if you are a member, but registration is required to receive a training certificate. The next study group meeting will be held on September 19th in the north at the Contra Costa Sheriff's Office Crime Laboratory. Aside from the various groups meeting, there will be a lunch time talk for all of the attendees titled "A Tale Of Two Units" presented by Stephanie Souza and Nichole Tuscher from the hosting lab. The south meeting is being scheduled for some time after December, so be sure to check the website frequently for updates!

While a study group may not be currently scheduled for your region or discipline, it is never a bad time to get involved! If you have a case, technique, or presentation you would like to present, contact your Regional Director. If you are in the north, Cindy Anzalone is your director and can be reached at northregion@cacnews.org, while the south is headed up by Stephen Lu who can be reached at southregion@cacnews.org. Their contact information is also available on the CAC website and they will be able to get you in touch with the Study Group Chairperson for your discipline.

Having the opportunity to meet and discuss our world with peers is important and can only happen when we, as members, take the time to participate. I encourage you all to block off the study group day every year to attend these free events and encourage you even more to present at them. Along with a call for presenters, there are also some vacant chairperson positions that need to be filled. The north needs a chairperson for digital evidence, while the south needs a chairperson for Arson, and QA.

Stephen Lu and Cindy Anzalone contributed to this article.

JASON BIRD

magician | illusionist | tv host

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In his 20 year career, Jason Bird has performed LIVE world-wide from London to the Las Vegas Strip, Direct from starring in "Masters of Illusion LIVE" at Bally's, Jason appears on numerous tv programs including the CW's "Masters of Illusion" & hosting the travel series "In Search of Magic". Part comedian and part magician, you will become a part of a fast paced show that will have you wondering how one many can operate so quickly. Experience the Magic LIVE that Forbes Magazine called "a Perfect Choice for those who need more magic in their lives".

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Rededication to a Common Cause: *The Search for Truth in the Name of Justice*

*Ted Robert Hunt**

(Remarks as Prepared for Delivery)

Thank you for that introduction, Jamie.

It's a great honor for me as a Fellow in the Jurisprudence Section to address this 71st Annual Scientific Meeting of the Academy — and a great pleasure for me as a federal employee to be away from Washington D.C. for a little while.

I want to thank my friend Sue Ballou for her leadership of the Academy this past year.

Congratulations, Sue, for a job well done.

I want to thank the Plenary Committee for inviting me to speak — and for sticking with me over the last couple of weeks as they stared squarely into the face of a government shutdown and the possibility coming up one Plenary speaker short.

They didn't blink. Thank you, Jamie and Ken.

But most of allI, I want to thank the forensic scientists at this meeting, across this country, and around the world for the work you do every day to advance the cause of justice through the practice of science.

Thomas Huxley, the very quotable 19th century English biologist, once said: "Learn what is true in order to do what is right."

To me, that simple sentence fully defines and describes both the call and the cause of the forensic scientist.

Most of you are from agencies with small budgets and big caseloads. You work in a cubicle, not the corner office. You're highly educated, but most of you will never be rich or famous. And despite the fact that you're scientists, the only thing that you will ever know to a reasonable degree of scientific certainty is that no matter what you say, somebody won't like the answer.

But your sacrifice comes with a reward that few share. You have the freedom to come to work every day without fear or favor, but with devotion to the facts, not the factions, in search for what is true, in order to do what is right.

So on behalf of the Attorney General, I want to thank each and every one of you for your devotion to truth through the practice of forensic science.

At the Department of Justice, our top priorities are to reduce violent crime, to increase public safety, and to work for true and just outcomes for all parties. The responsible use of reliable forensic evidence greatly advances those goals. You all know that very well. And so do I.

As some of you know, I'm a former prosecutor from Kansas City. For over 26 years, I worked on cases involving forensic evidence. And I've seen the incredible impact that it can have on the lives of so many people — helping to convict the guilty and clear the innocent.

In the days before DNA, I worked with a wide range of traditional forensic evidence, like latent prints, microscopic hair comparison, and firearms and tool marks. Time and again, I saw the great value that forensic science gave to law enforcement, prosecutors, defense attorneys, and finders of fact in our collective search for the truth.

One of my first trials as a prosecutor was the burglary of the Holy Rosary Catholic Convent in Kansas City, and the brutal rape of an elderly nun.

As you can imagine, it was a high-profile crime, and there was great pressure on the police to solve the case.

Investigators methodically processed the scene, taking pictures, dusting for prints, and collecting all the trace evidence they could find.

All of the evidence was sent to our local crime lab, then housed in a small and cramped building south of the courthouse.

Print lifts from the convent were examined, and some were found to be suitable for comparison.

One latent print in particular, from the point of entry, was uploaded to an early version of our local AFIS system and a list of candidate matches came back.

Examiners pulled known print cards for these suspects and compared them to the print left behind at the point of entry — a bathroom window located on a second story deck of the convent.

I'll always remember the fingerprint expert's story about the exact moment when she realized what she'd found: A match between the print on the window and the known print of a suspect on the list. She told me that she was momentarily paralyzed by the significance of what she'd seen.

The suspect was soon arrested—and more forensic testing ensued.

Three hairs collected from the victim's bed sheet were found to be microscopically similar to the suspect's known hair.

But for me, the most amazing piece of evidence was a single hair collected from the bottom of a sock found in the suspect's home. It was microscopically similar to the victim's pubic hair standard.

Apparently, the suspect had taken off his shoes to avoid making noise during the burglary. A pubic hair from the victim, probably on her bathroom floor at the point of entry, stuck to his sock and stayed in place as he put on his shoes to make his escape.

At the time I tried the case, the only available DNA technology was RFLP, and as some of you know, that system required a about a quarter-sized stain or sample to get a full profile.

To make matters worse, mitochondrial DNA testing was only under development at the time and was not widely used.

So, at the time of trial we didn't have any DNA evidence. But in light of what we did have, that didn't matter.

The Defendant, Jerry Owens, was convicted and sentenced to two consecutive life terms plus an additional 60 years in prison.

**Senior Advisor on Forensic Science, United States Department of Justice. Plenary Session Remarks, 71st Annual Scientific Meeting American Academy of Forensic Sciences, February 20, 2019 Reprinted with author's permission. Hat-tip: Jerry Chisum*

But both at trial and during the years that followed, Owens strongly and consistently maintained his innocence.

Ten years after his conviction, he convinced a large Kansas City law firm to take his case and file a motion for post-conviction DNA testing.

The court granted the motion and the evidence hairs were sent to a lab in California for mitochondrial DNA testing.

Analysts developed a mitochondrial DNA profile from each hair; each profile was then compared to Owens; a report was written; the attorneys were notified; a conference call was calendared; and on that day science had the final say:

The verdict?

He was a perfect DNA match to each hair.

Post-conviction testing affirmed Owens' guilt. It also confirmed the relevance and reliability of the fingerprint and hair evidence offered at trial 10 years earlier.

This is not an uncommon result. It happens all the time. What is uncommon is the fact that you just heard about it.

How often do we hear reports about all of the planes that land safely at the airport each day?

We only hear about the crashes. Then we hear about the same crashes over and over again — as if the exception is the rule.

In this field, the frequent focus on isolated failures has led to a carefully crafted, constantly

reinforced, and patently false narrative that the forensic sky is falling. That's simply not true.

Forensic science isn't failing, it's flourishing. And it continues to provide relevant and reliable answers to the legal system's most critical questions, just like those asked in the Owens case.

From a legal perspective, relevance and reliability are the gateways to admissibility. For evidence to pass through these gates, it must to be the product of scientific, technical, or other specialized knowledge that has good grounds, based on what is known. But fine distinctions between different types of knowledge aren't just hard to make — they're legally irrelevant.

On this point, the Supreme Court has said: *"It would prove difficult, if not impossible, for judges to administer evidentiary rules [if the] gatekeeping [role] depended [on] a distinction between 'scientific' knowledge and 'technical' or 'other specialized' knowledge . . . and conceptual efforts to distinguish the two are unlikely to produce clear legal lines capable of application in particular cases."*

The Court also said: *"Rule 702 [didn't] create[] a schematism that segregates expertise by type while mapping certain kinds of questions to certain kinds of experts. Life and the legal cases that it generates are too complex to warrant so definitive a match."*

In other words, it's the reliability of the knowledge — not its name or its nature — that is key to admissibility. But we humans — especially lawyers and scientists — have a compelling need to categorize, classify, and along the way oversimplify, as we pigeonhole people, professions, or principles of knowledge into separate bins or boxes with bright lines and barriers between them. In reality, those lines aren't bright, they're often very blurred.

What's legally important is not the type of knowledge in question, it's whether or not that knowledge — however it's defined or described — is reliable. That doesn't diminish the importance of science. It's proven to be our most reliable form of knowledge. But science, like other types of knowledge, is a continuum, it's not a corridor.

Department of Justice
Office of Public Affairs

FOR IMMEDIATE RELEASE

Monday, August 7, 2017

Justice Department Announces Plans to Advance Forensic Science

Deputy Attorney General Rod J. Rosenstein announced two new Department of Justice projects today at the International Association for Identification's conference in Atlanta, Georgia. This reinforces the Justice Department's commitment to sound forensic science practices and to increasing the capacity and effectiveness of forensic science providers by helping to improve the reliability of forensic analysis.

"The Department of Justice believes that when the adversarial American legal system functions as intended – including through the support of trained forensic examiners and legal practitioners educated on best forensics practices – justice is advanced," said Deputy Attorney General Rosenstein. "The Department is fully committed to examining and strengthening forensic science despite efforts in the courtroom and elsewhere to reject reliable and admissible forensic evidence."

The projects announced today are aimed at ensuring that the testimony of the Justice Department's forensic examiners is consistent with sound scientific principles and just outcomes. The Department will develop Uniform Language for Testimony and Reports to give clear guidance to what the Department's forensics examiners may discuss in a courtroom, and direct prosecutors to follow the same guidelines. The Department will also develop a new forensic examiner testimony-monitoring program to ensure compliance with the uniform language standards once they are adopted.

Deputy Attorney General Rosenstein also announced that Attorney General Jeff Sessions has tapped Ted Hunt, a former state prosecutor and member of the National Commission on Forensic Science (which sunset in April), to serve as the Department's Senior Advisor on Forensics. In addition to Mr. Hunt's decades of first-hand experience investigating and prosecuting cases with forensic evidence, he has long been involved with state, local, and federal efforts to improve forensic science through committees, commissions, and training programs.

"It speaks strongly of the Attorney General's commitment to the interdisciplinary nature of forensic science that he has appointed Mr. Hunt to serve in this position," said Deputy Attorney General Rosenstein. "I am directing him to coordinate closely with our federal, state, local, and tribal forensic science practitioners and to identify ways to best continue ongoing outreach to these stakeholders."

The famous astronomer Carl Sagan once said that, "*science is a way of thinking much more than it is a body of knowledge*." His point highlights the fact that science is an inescapably human endeavor and has no existence apart from the humans who practice it.

The famous astronomer Carl Sagan once said that, *"science is a way of thinking much more than it is a body of knowledge."* His point highlights the fact that science is an inescapably human endeavor and has no existence apart from the humans who practice it.

Rigorous and validated observation, interpretation, and judgment are core components of good science. They're also key components of good expert testimony in the legal system. The fact finder — whether a judge or a jury — needs that expertise to place forensic findings in their proper context. Those findings often corroborate and confirm other evidence, as they did in the Owens case. At other times, they exculpate or exonerate the accused – but in either case, they help us learn what is true, so that we can do what is right.

At the Department of Justice, getting it right is what we're all about. We know the importance of research, clear standards, transparency, and professional accountability to both science and the law.

Since 2009, NIJ has awarded more than 227 million dollars to support over 500 forensic science research grants. Since the year 2000, that figure is over 2 billion dollars.

That funding has helped support exciting new advances in testing and technology. We'll soon see the widespread use of rapid DNA in crime labs and booking stations. Sophisticated software systems are now being used to resolve DNA mixtures. And more advanced DNA technologies like next generation sequencing will soon be ready to tackle some of our most challenging forensic samples.

Other technologies like 3-D imaging and the optical analysis of latent prints, toolmarks, and shoe mark features are now in advanced stages of research and development.

These new tools — and many others — will soon be used to enhance both the capability and reliability of forensic testing.

Last year at this plenary session, the Deputy Attorney General announced approval and posting of Uniform Language for Testimony and Reports in the latent print discipline.

Since that time, the Department has approved 12 additional uniform language documents — with more on the way very soon — that describe the scope and limitations of the expert opinions that may be offered by our forensic examiners.

These documents work hand-in-glove with the Department's testimony monitoring program, and online access to our key quality assurance requirements, lab policies, and testing procedures.

As forensic technology advances, so does the work on national standards and best practices.

I want to recognize the enormous energy, efforts, and accomplishments of the Organization of Scientific Area Committees and our partners at NIST over the last 5 years.

OSAC is making steady progress with dozens of forensic standards and guidelines currently under construction and consideration. These standards, once approved, will form a strong foundation for our collective forensic thought and practice in the years to come.

This Academy, through its American Standards Board, also plays a critical role in this process, and we recognize your important contribution to creating quality national forensic standards.

But as standards continue to develop, it's important to remember that we can't let the perfect become the enemy of the good. Today's standards must reflect our best current knowledge — not our best possible knowledge — because forensic findings must address current and critical real world questions — those that need answers today — whether they're asked in Kansas City, Bakersfield, or right here in Baltimore.

To that point, Martin Fischer, a German-born physician and author once remarked, *"Truth is rarely writ in ink; it lives in nature."* We too need to remember that our forensic knowledge of nature can't be fully captured by pen and paper. It must be constantly pursued by those who seek the truth. Over time, as our knowledge advances, so too must the writings that reflect the current state of that pursuit.

But to me, the larger point is that less than perfect standards don't defy science, they actually define science. Scientific knowledge is never settled, is always contingent, and is constantly corrected, reexamined, and revised.

Along these same lines, I also think it's important to remember that the aspirational may be inspirational, but it's not necessarily operational. We need to mind the distinction between the constancy and consistency of a perfect world and the complexity, the differences, and the diversity that exists in the real world.

That means drafting forensic standards at the right level of generality to account for the real differences between people who use them, the places they work, and the problems they face.

Standardized guidance must always be somewhat customized to fit the unique needs of different environments, instruments, and the individuals who follow it. A one-size-fits-all approach is neither realistic nor scientific.

By the same token, the flexibility required by forensic diversity must always be consistent with sound science and technical truths. Our differences aren't an excuse to ignore or abandon core principles and best practices.

The key is to find — and then to mind — the right balance between the uniformity of a perfect world and operational flexibility needed in the real world of diverse forensic practice.

But that diversity isn't limited to forensic labs – just look at this Academy with its 11 sections, 7,000 members, and over 70 years of service.

We're more than our partner scientists who spend their days in a lab. We're a wide collection of people, professions, and priorities. We come from different backgrounds, we work in different fields, and we have sometimes very different points of view about the best path forward. That diversity is a great strength. But diversity can also bring the risk of division.

Much of the current criticism of forensic science is fair, balanced, and constructive; but some of it is also strategic, dishonest, and destructive. And part of it is little more than agenda-driven advocacy in the guise of promoting scientific purity — a genre that I call "forensic science fiction."

That further divides us, creating factions, suspicion, and dissension. People who should be working together instead go their separate ways and only speak to the like-minded, while they carefully curate their own preexisting beliefs and biases.

Some only speak to forensic scientists through written rebukes in published articles and op-ed hit-pieces, or by promoting and stoking what I call "junk journalism" — media stories full of partisan misinformation, straw-man arguments, and half-truths about forensic science.

We should all agree that there's a much better path forward.

Diligence to the effort, dedication to the details, and devotion to the field mean that all of us, whatever our role in the system, must work together and rededicate ourselves to a common cause — as Huxley put it, learning what is true in order to do what is right. That's a shared goal that should define us and unite us — not divide us.

To the stakeholders who want to make a real and lasting difference in this field, take the example of those who publish with forensic scientists, not at forensic scientists; who collaborate more, and excoriate less; and who truly partner with forensic scientists, rather than patronize them.

Now that's not to say that fair, honest, and constructive criticism isn't good. It's not only good, it's absolutely essential for knowledge to advance and for practice to improve.

We all have blind spots, biases, and beliefs that need to be challenged and refined or sometimes completely rejected and replaced. At the same time, it's important to remember that the spirit, tone, and purpose of our comments can mean the difference between building a lasting bridge or a permanent barrier. Once trust is broken, it's very hard to mend.

Let me take a moment to share a few thoughts with the forensic practitioners in the room.

Don't let criticism make you stop listening to the critiques.

Criticism can be many things. It can be painful, it can be annoying, it can be flat wrong, and completely unfair.

But open and honest criticism can also be the catalyst for conversation, constructive change, and continual advancement.

Criticism can be many things. It can be painful, it can be annoying, it can be flat wrong, and completely unfair. But open and honest criticism can also be the catalyst for conversation, constructive change, and continual advancement.

George Bernard Shaw once said, *"Every person who has mastered a profession is a skeptic concerning it."*

Great science happens because great scientists are the biggest skeptics of their own work.

They're critical thinkers.

They're open to criticism.

And they have thick skin.

In fact, what good lawyers do in the courtroom is what good scientists do in the laboratory: they question, they criticize, and they cross-examine.

See, you're not that different from lawyers after all!

So don't get complacent about what you do or how you do it. If you have a policy, a procedure, or a method, always try to improve it, or even throw it out when something better comes along.

Don't ever let the fact that a method is legally admissible be the sole reason to say that it's scientifically acceptable.

Legal decisions must not lead to scientific satisfaction and professional stagnation.

Instead, always try to improve upon what you do and how you do it — to make it more rigorous, more robust, and more reliable.

The self-correcting nature of science is one of its greatest strengths; but great science doesn't happen without great scientists.

Always strive to be a great scientist first. Great practice follows great practitioners.

So in closing, as this meeting continues, challenge yourselves to consider different positions and different possibilities for the best path forward.

Forensic science needs extraordinary scientists.

Take a moment every morning and challenge yourself each day to inspire others, improve your skills, increase your knowledge, and advance your discipline.

Why is that so important?

Because what you do is so important.

What you do doesn't simply result in technical triumphs that make life a little bit easier, more convenient, or more amusing.

And it's not something that we can simply take for granted, incorporate into our daily lives, and forget about — because what you do is more notable and noble than any of that — you practice science for the cause of justice.

Winston Churchill once said, *"We make a living by what we get — we make a life by what we give."*

What you give by your diligence to your disciplines, your dedication to the details, and your devotion to this field helps answer some of society's most serious and sobering questions:

Will someone's reputation will be spared or shattered?

Will someone go home or go to prison?

Will someone be cleared or be condemned?

Always remember that being a forensic scientist is a tremendous privilege, but it's also a tremendous responsibility.

On behalf of the Department of Justice, thank you all for the work you do, day in and day out, to learn what is true, in order to do what is right — advancing the cause of justice through the principled practice of forensic science.

THANK YOU.

Wikimedia Commons

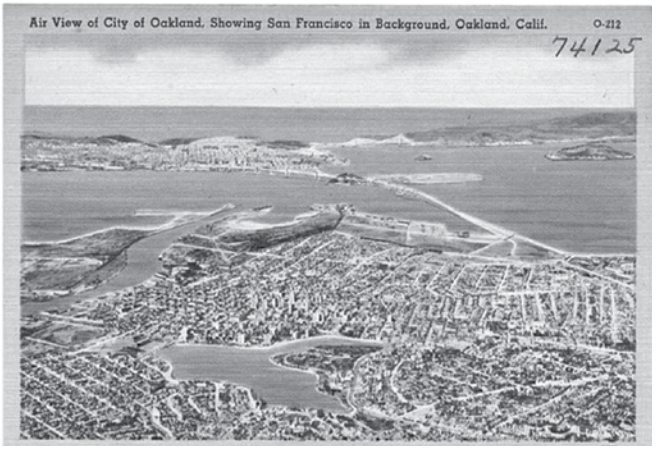
A Brief History of Criminalistics and the Oakland Police Department

by Stephanya Freckleton

Early Years

The Oakland Police Department was founded in 1853, between incorporation of the Town and re-incorporation of the City of Oakland. The area was a bustling and rapidly expanding port city in the Gold Rush era. By 1866, foot patrols were aided by a call box system and horse-drawn carriages. The Alameda County courthouse was built in 1872 at 4th St and Broadway and the Oakland Police Department moved from a small waterfront shop to the newly built City Hall at 14th St and Broadway in 1874.

The early 20th century saw many advancements for the growing Oakland Police Department under Chief Wilson (1906-1912). Telephone communications, and motorcycle and auto patrols were established. A Bureau of Identification using fingerprints was established, and the use of criminalistics was put into place. Training was formalized through a police school, and officers were trained in first aid by the Red Cross, and in legal matters by the District Attorney's Office.



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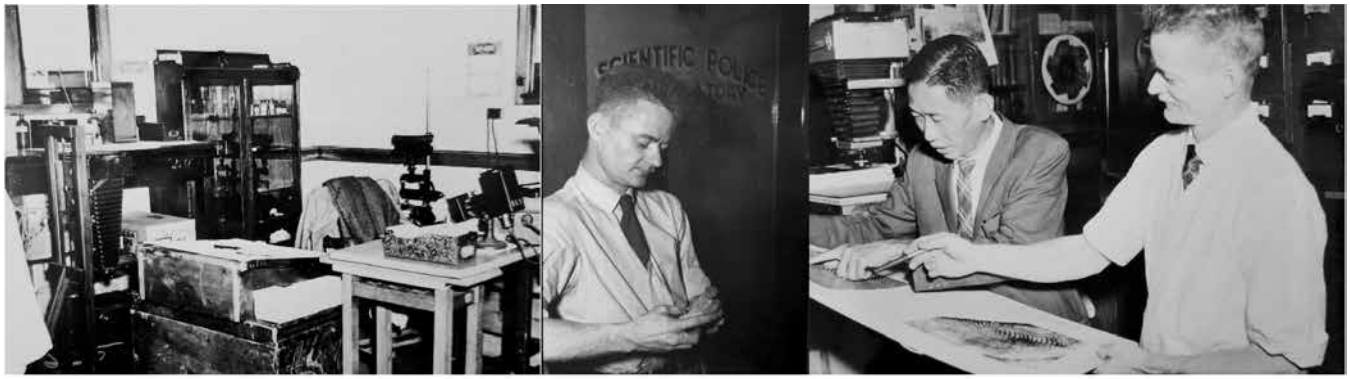
(top r) Oakland California 1900, (r) Air view of city of Oakland, showing San Francisco in background, Oakland, Calif. (1930-1945).

Many of the foundations of current forensics were established during the 19th and early 20th centuries. The application of scientific methods to criminal investigations including classification systems, forensic microscopy, body fluid identification, ABO blood typing, toxicology, forensic chemistry, and early firearms identification occurred at a rapid pace in this period.

Law enforcement had the ability to share information nationally with the founding of the National Bureau of Criminal Identification in 1896. The Federal Bureau of Investigation (FBI) was formed from the National Bureau of Crime Identification in 1908. In the United States fingerprints, used by the military since 1905, were first accepted by the U.S. courts as a reliable identification in 1911. Oakland Police Inspector Harry H. Caldwell co-founded the International Association for Criminal Identification in 1915. Three years later the word "Criminal" was dropped from the organization's name and they became "The International Association for Identification", the oldest and largest forensic association in the world. The FBI opened their Scientific Crime Detection Laboratory in 1932.



Oakland Police Department Crime Lab Archives

OPD Crime Lab: Director John E. Davis (1944-1977)

The Crime Lab was officially founded with the hiring of the first (and only) full-time criminalist John Davis in 1944. Prior to his hiring, criminalistics work was being done by Inspector Harry Caldwell who had retired a few years prior to the hiring of Davis. The lab consisted of a single 64 sq ft room in City Hall and was under the Identification Bureau of the Department. In 1946 the lab grew to two members with the hiring of Criminologist Patrick Fuller. In addition to fingerprints and firearms examinations, the laboratory conducted organic and biochemical tests, microscopic, and trace examinations. John Davis researched and published in the areas of drug chemistry, firearms, and serology. He was a leader in these fields and developed several tests and techniques including his patented striagraph for examining patterns on the surfaces of bullets; which was a precursor to modern techniques using lasers and digital imaging. In 1956, John Davis developed a fiberglass brush to develop latent prints; fiberglass brushes are now widely used in the industry. In 1958 the Crime Lab took over Oakland based drug evidence cases from the State Narcotics Bureau. As early as 1959, ninhydrin rapidly became an indispensable tool in the detection of latent prints. By the late 1970's, latent print processing advancement included cyanoacrylate ester fuming and fluorescence detection using chemicals and lasers.

Within this time period there were many advances in analytical techniques and equipment and the forensics field was growing and organizing on a larger scale. In 1948 the American Academy of Forensic Sciences was founded. In 1954, the California Association of Criminalists was founded as the first regional forensic organization in the U.S., and the American Society of Crime Laboratory Directors was founded in 1974. In 1962, the Oakland Police Department and the Crime Lab moved from City Hall to the newly built Police Administration Building located on 7th St. at Broadway. At this time the laboratory had grown to a staff of six. Management of the Oakland Police Department Crime Lab changed hands in 1977 when John Davis retired and Jan Bashinski became the new director.

Oakland Police Department Crime Lab Archives

OPD Crime Lab: Director Jan Bashinski (1977-1989)

Under Jan Bashinski, in 1983 the Oakland Police Department Crime Lab became the first in California, and fourth in the nation, to become accredited by the American Society of Crime Lab Directors Laboratory Accreditation Board which was formed two years earlier.

In the 1980s early DNA analysis using RFLP and VNTRS was being adopted by forensic laboratories. The development

of PCR in 1985 accelerated the advancement of DNA work. The FBI began DNA casework in 1988. The use of STR DNA typing was adopted in the early 1990s. This period also saw adoption of early DNA testing with DQ-alpha within the Oakland Police Department Crime Lab. Also in the early 1980's, the Automated Fingerprint Identification System (AFIS), a computer approach to search unknown prints against known prints, was being implemented in laboratories across the nation. Jan Bashinski retired from the Oakland Crime Lab in 1989 to take on the challenge of launching the California State Laboratory Program and the statewide DNA Offender Database. Following the retirement of Bashinski, management of the laboratory transferred to the new Director Mary Gibbons in 1989.

Oakland Police Department Crime Lab Archives

OPD Crime Lab: Director Mary Gibbons (1989-2016)

The year 1989 was marked by the Loma Prieta earthquake which did considerable damage in the region, including the partial collapse of the nearby Cypress Freeway. The Police Administration Building, and the Crime Lab, weathered the damage and remain in the same location today. The 1990s and 2000s saw continuing rapid advancements in science, technology, and computing. An internal Laboratory Information Management System (LIMS) was developed in this period and has grown to encompass all four functional units as well as quality control and document control. This system was instrumental for the organization required for the laboratory to adopt ISO standards and begin the process of ANAB accreditation when ANAB merged with and incorporated the ASCLD/LAB accrediting body in 2016.

This era also saw advancements in computers and electronic data storage allowing the establishment and expansion of CODIS (FBI), NIBIN (ATF), and AFIS (ACSO/CCCSO, CA DOJ and FBI) for local to national sharing of data in the DNA, firearms, and print fields.

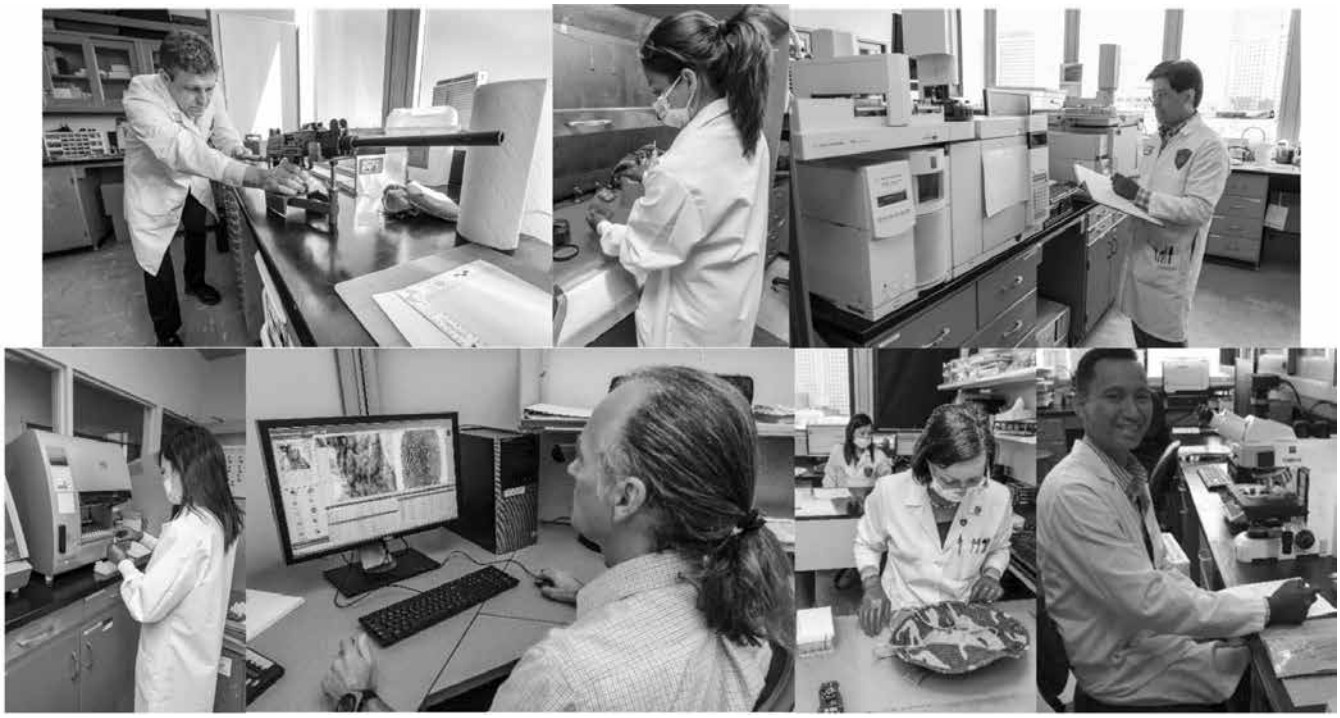
The Forensic Biology Unit advanced from serology and slab gel-based systems to multi-capillary instruments, from DQ-alpha to a global STR multiplex, and from manual to robotic methods. The unit was one of the first two to be accredited in PCR DNA analysis. Implementation of STR analysis and CODIS began circa 2000. The Forensic Biology Unit also currently employs an internally developed DNase based robotic differential digestion process. These rapid technologic advances allowed the unit to eliminate the victim sexual assault kit evidence backlog in 2014. Casework has been able to maintain a rapid turn-around time since the backlog reduction project ended.

The Firearms Unit was one of the first to use the IBIS platform in 1994 and has the oldest NIBIN hit on record. The NIBIN program shifted in 2013 from being part of regular casework to an emphasis on providing fast investigative leads. This resulted in greater throughput of IBIS casework and a thirty-fold increase in hits. The complexity of links between shootings necessitated the development of a LIMS based tracking of hits and a semi-automated creation of visual link charts to assist in crime analysis.

The Latent Print Unit which was closed in early 2006 due to funding and staff shortages, reopened in mid-2007. By this period AFIS had advanced to add palm prints search capabilities. There are currently four examiners and a supervisor who are working to prioritize and reduce the backlog generated by

that closure. All members of the Latent Print Unit are certified in their discipline. The unit was an early user of a color-coding system to convey weights of features, tolerance, and levels of confidence attached to the feature, and transparency of documenting the ACE-V decision making process.

The Drug Analysis Unit continues to use the microcrystalline tests developed by John Davis in the 1950s, in conjunction with GC-MS identification, and most recently the use of FT-IR was added to the technologies available to the unit. The large demand and rapid reporting in the Drug Analysis Unit was a challenge that was accepted and met with zero backlog and a 100% 24-hour turn-around time being achieved in 2016. The unit is currently adapting to large casework shifts resulting from the rapidly changing legal landscape regarding marijuana and the effects of the national opioid epidemic.



Oakland Police Department Crime Lab Archives

OPD Crime Lab: Interim Director Jennifer Mihalovich (2016-2017)

Following the retirement of Mary Gibbons, preparation for the transition of Accrediting bodies from ASCLD/LAB to ANAB was continued under the leadership of Jennifer Mihalovich. Transition from paper-based data capture to electronic occurred under her tenure. The laboratory needed to add several procedures to meet the new set of standards issued by ANAB. The eventual successful re-accreditation would not have been possible without her guidance.

OPD Crime Lab: Director Sandra Sachs (2017-current)

The laboratory currently consists of the Drug Analysis Unit, Firearms Analysis Unit, Forensic Biology Unit, Latent Print Unit, and a robust Quality Assurance Program. Crime Scene Response is a service also offered by the laboratory as needed with the possibility of expansion in the coming years. ANAB accreditation was awarded in 2018.

The laboratory has historically shouldered budgeting issues and an enormous caseload. Where caseloads are continuing to increase, finding ways to assist those units is imperative. For units which have experienced caseload decreases, priority is being given to explore new analytical services, and cross-discipline training. Keeping up with rapidly advancing technology will allow for faster and more precise analytical techniques, improvements in sample throughput, and increased efficiency of workflow in various forensic fields.

The legislative landscape is also rapidly changing for forensic scientists. While marijuana remains a controlled substance at the federal level, in 1996 CA Proposition 215 passed allowing the legal use, possession, and cultivation of medical marijuana, and in 2016 CA Proposition 64 legalized adult recreational marijuana use. The 2018 Farm Bill has modified federal regulations defining products made from hemp with a low quantitative level of THC as separate from marijuana and legal to sell; however, the bill did not address CBD products derived from hemp leaving legal ambiguity in the rapidly expanding industry. The opioid crisis has also caused a shift in resources available to and apportioned within forensic laboratories, as well as creating new safety issues for law enforcement and Crime Lab employees. Public pressure surrounding Sexual Assault Kit backlogs have spurred legislation and grant dollars requiring the analysis within reasonable periods of time (120 days in California), as well as auditing for all untested kits. The Bureau of Alcohol, Tobacco and Firearms is now requiring that participant laboratories enter results of cartridge case evidence into IBIS within 48 hours of a shooting. Latent print laboratories are being asked to provide statistics regarding error rates spawning numerous research efforts in the discipline. This changing legal landscape is creating new challenges for forensic laboratories in terms of allocations of limited resources and setting unit goals to meet the new requirements.

The Oakland Police Department Criminalistics Laboratory has always employed forward-thinking talents. Today this resource of people is front and center in terms of personnel initiatives to support our staff. The vicarious trauma workshop is one manifestation. Engaging staff in team building exercises, volunteering for efforts that move department goals of community outreach forward, encouraging staff to use tools and group exercise to manage stress and establishment of Alternative Work Schedules are a part of these goals. As a team the members of the Oakland Police Department Crime Lab are ready to embrace these changes and challenges head-on and hope to continue the outstanding tradition of quality work well into the future.

Oakland Police Department Crime Lab Archives

Two Roses: Jennifer Mihalovich, on Her Career in Forensic Science

Jennifer Mihalovich sat down with CACNews Editor Jonathan Charron and shared key insights and experiences of her amazing career.

There comes a time for everyone to retire and move on to the next chapter of their life. Everyone, however, may not leave a legacy of experience, passion, and service when they punch the clock for the last time. Jennifer Mihalovich certainly has. We were lucky to have her when she served as the president of the CAC in 2008 and held a seat in the Ethics Committee and Founders Lecture Committee. I wanted to take the opportunity to speak with her before leaving her post at the Oakland Police Department Crime Laboratory so that I could share a little glimpse of her amazing career in forensics.

CACNews: Before I get started, I just wanted to thank you again for taking the time to share some of your memories from your career, as well as your thoughts and observations on how forensics has changed over your years in the field. Did you go to school with the intention of going into the forensics field, or was this career path realized after you had already left the academic setting?

JM: I started school with the intent of being a medical technologist. The course work consisted of chemistry, biology, genetics classes; all of which I loved. I realized half way through my junior year that I did not want to be a medical technologist but rather get a degree in Chemistry. That degree would have required me to attend school for a fifth year; definitely not in my budget and I would have to take German. I did get a double major – Microbiology/Medical Technology with a minor in Chemistry.

CACNews: Where was your first job in the field of forensics and what were you hired on as? Tell me about who or what inspired you to pursue this field?

JM: I was fortunate enough to have work-study funding to help pay for college. My first position at the University of Montana was with the Chemistry Department assisting the professors in setting up the laboratory experiments. I worked with Dr. Forest Thomas; he also taught my physical chemistry course (my favorite). During the summers he would assist the Montana Department of Justice in firearm training. He would always tell me to contact the Montana State Crime lab for a work-study position. One day, my husband Robert and I were walking by the crime lab in Missoula; we asked for a tour and I filled out a job application. Timing could not have been more perfect as Ken Konzak needed an assistant. Ken subsequently moved to California and worked at the Jan Bashinski DNA Laboratory.

"The slow white Bronco chase down the LA freeways opened the public to the world of Forensic Science."

During my tenure at the Montana lab Ken suggested that I apply for graduate school at UC Berkeley. I am positive Ken wrote me a very nice letter of recommendation to Dr. George Sensabaugh. Dr. Sensabaugh called me at the lab; he had accepted me for his graduate school program. Later that day, I told Robert that we were moving to Berkeley and the rest is history.

CACNews: Tell me a little about your time in the field. What different disciplines have you been assigned to throughout your career? Is there a discipline that you have never trained in but would have liked to?

JM: My Assistant Forensic Scientist position at the Montana lab was in the Biology Unit where I learned about protein and enzyme typing (PGM, Group I, II, III), species testing and ABO typing. While this was state of the art at the time, I would never use these processes on casework in my future career.

I was fortunate to work at Forensic Science Associates, the first laboratory to use PCR on evidence; DQalpha using forward dot-blot technology. Peter Barnett and Dr. Ed Blake allowed me to work on a variety of cases. I knew I did not have the artistic eye for pattern matching analyses such as print comparisons, however I did enjoy distance determination casework in firearms. My first testimony was in this discipline; I sincerely thank Chuck Morton for helping me out on that case.

My casework focused on biological evidence examination and DNA analyses. I particularly liked working on cold cases and post-conviction cases; looking for the needle in the haystack of evidence. Several post-conviction cases stand out the most – Glen Dale Woodall, Ray Krone, and a wrongly convicted father [name not provided].

I left private practice after thirteen years and began working as the Forensic Biology Unit supervisor and DNA

"While it is true that DNA has been a game changer, it would not be where it is today without the ability to search a profile against other profiles"

Technical Leader at the Oakland Police Department Crime Lab. I was thrilled; I spent the first eighteen months or so conducting research and validation studies to bring STRs (Profiler and COfiler) and CODIS on line for the lab. The DNA typing field has come a long way since then. We now have the mega-plex kits, multiple capillary electrophoresis systems and probabilistic genotyping processes. I will miss bringing new technologies on line. I learned so much during my time at FSA and OPD and had the pleasure to work alongside some of the best forensic scientists.

Fortunately, I participated in only a few crime scene searches. The most notable one being the murder of the four Oakland police officers. That scene had a heightened sense of urgency and public interest.

CACNews: The world of forensics has changed dramatically the course of your career, most notably perhaps with the technology capabilities. Which change or technology do you feel has been the most interesting or "game-changing"?

JM: Everyone will expect me to state DNA analyses. While it is true that DNA has been a game changer, it would not be where it is today without the ability to search a profile against other profiles – CODIS. The searching databases in many areas of forensic science have forever changed the playing field against the criminals. I also believe that electronic data such as social media, texting, digital photography, and GPS are game changers. Criminals are not that smart when it comes to sharing their pictures with 'fill in the blank' to show off their latest escapade.

CACNews: The world view of forensics has changed dramatically as well with the introduction of the dramatization of the field by way of tv shows and movies. Do you feel that this exposure has been a good or bad thing for the field?

JM: The slow white Bronco chase down the LA freeways opened the public to the world of Forensic Science. The entertainment field caught onto the public's curiosity and developed a multitude of shows. This did benefit the labs as more funding started coming our way. The public began to expect what they saw on TV to be presented to them as they sat in the jury box. While we can't solve a case in 60 minutes (including commercials) this expectation has led to expanding laboratory techniques and requests for analyses on the physical evidence.

CACNews: With this exposure, I personally feel that there is a dramatic increase in people who are interested in getting into this field. What sort of advice would you give to a student who is wanting to enter the field as far as preparation goes and what to expect?

JM: I have always told students that I love my career and could not see myself doing anything else. However, we do work with the aftermath of the lowest part of society – people committing heinous acts on other humans. Not everyone is able to handle this exposure. I suggest that they obtain a degree in one of the natural sciences and then go on to obtain a graduate degree in Forensic Science. That way if it turns out they would prefer not working on evidence, they can start a different career.

CACNews: Speaking again to the change you have seen over the years in forensics, what are your thoughts about the changes in procedures and documentation that the field has gone through? Do you feel that we are getting to a place where these regulations are hindering the ability of the criminalist to do a thorough job, or do you feel that we are at a good place as far as ensuring an inaccurate result is not reported?

JM: I am a firm believer in documentation; if it is not written down it did not happen. I have had the joy of testifying (at a significantly later time) on work I did early on in my career. My notes were not as detailed then as they are today. We always think 'oh, I will remember that'; well as time goes by and the more casework you do the details get lost.

Can you conduct good science without accreditation or certification? Yes, you can. However, accreditation and certification set a baseline for all forensic science – the laboratory

Photos from the CACNews archives

and the scientist. I whole heartedly support both. Over the years I have witnessed the increase in competency of the analyses of physical evidence and laboratory management. The forensic science regulations are a good check on the quality of the analyses. However, many people think they cannot go outside the regulations. We can, we must use sound accurate science, document the process, and have peer review to make sure we have not missed anything.

CACNews: What do you feel are some of the challenges the forensic community faces, both within and externally?

JM: Currently I feel the main challenge to our community is a lack of resources—money, space, personnel, training, and time. The investigators, attorneys, judicial system, and public expect us to do more with less and in less time. The application of external pressures can result in mistakes and short cuts. Nothing saddens me more that when a 'forensic scientist' takes short cuts. The results can be devastating not only to the case(s) and individuals but also to the profession.

The other challenge for all of us is to remember that our work product affects the lives of many individuals; victims, suspects, defendants, families etc. We must remember that we are not out to get the 'bad guy' or prove the investigator's theory of the crime. We are using our scientific knowledge to evaluate the physical evidence. It is the evidence that tells the story and our role is to examine the evidence so that the story can be told.

CACNews: Having attended many CAC conferences, what is your favorite memory from these conferences?

JM: I was very fortunate that Peter Barnett was very active in the California Association of Criminalist; he totally supported my involvement. I attended many unique CAC conferences and picking out a favorite memory would be difficult. I met so many great forensic scientists through the CAC meetings and my tenure on the Board of Directors first as Regional Director North and the President track. So, based on that I would have to say the camaraderie and networking would rank right up there as a favorite. Crime scene reconstruction, new technologies, and training new scientists are also on that list.

CACNews: Are there any pieces of wisdom you would be willing to pass along to the membership about balancing a successful career while maintaining a happy and healthy personal life?

JM: The evidence I examined was typically in a sealed paper bag; leave that paper bag at work do not bring it home with you. If you find that the pictures in your mind just won't go away, find help. Your life is much more that what is in that paper bag.

CACNews: Any final thoughts?

JM: On my last day of work at the Oakland Police Department Crime Lab I left for two roses for each of the scientists – the significance being: The orange rose symbolizes enthusiasm and passion. I have embraced my chosen career, Forensic Science, with enthusiasm and passion. My goal was to always make the laboratory analyses on casework be the very best that it could be because the citizens of the United States deserve the very best. I hope, rather I know, I have instilled this passion into others in the field.

"...remember that our work product affects the lives of many individuals; victims, suspects, defendants, families etc. We must remember that we are not out to get the 'bad guy' or prove the investigator's theory of the crime."

The dark pink rose symbolizes gratitude and appreciation. I am truly grateful for the opportunity I have had at the laboratories - Oakland Police Department Criminalistics Laboratory, Forensic Science Associates, the Montana State Crime Lab, UC Berkeley, and the professional organizations - CAC, AAFS, ASCLD and CACLD. I sincerely appreciate the professionalism and personal career development in Forensic Science offered to me during my career. I have grown personally and professionally, and am very pleased with the work I have done, the awesome scientists, colleagues, investigators, officers, and attorneys I have been privileged to work with, and the laboratory changes I have helped to effect.

So, for all of you, I give an orange and a dark pink rose.

CACNews: Thank you again so much for taking the time to speak on these topics. As my last question, I'd like to know what happens next for you? Are you still planning on staying involved with the forensic community or will you be focusing on a new or neglected passion?

JM: My first two months of retirement were a whirlwind—travel, volunteering, etc. I plan on continuing to be involved in the Forensic Science community through my roles in the AAFS, CAC, CACLD, ANAB lab assessor volunteering and possible local FBI DNA QAS audits. I chuckled at "neglected passion" as our yard and house need TLC – my role will be as general contractor and design engineer.

2019 Fall CAC Seminar Workshop Descriptions

DNA Workshop

Tentative Schedule of Presentations
Monday, Full Day Lunch Included

How Forensic Genealogy Identified "Lisa" of the Bear Brook Murders

Presented by Peter Headley, a Detective in Crimes Against Children, San Bernardino County Sheriff's Department

The beginning of Forensic Genealogy, with the "Lisa case", which is part of the Bear Brook Murders. The first use of forensic genealogy to identify a decades-old case of a little girl, Dawn Beaudin (Lisa), who was abandoned by a killer and abuser, Terry Rasmussen. This case laid the ground work for solving the Golden State Killer case along with many others since.

Forensic Genetic Genealogy

Presented by Special Agent Jeffery Stiff from the Federal Bureau of Investigations (FBI), Violent Crime Squad

Description TBA

The Myth of the Rootless Hair - Forensic Genetic Genealogy from Difficult Samples

Presented by Professor Richard Edward Green, Associate Professor, Biomolecular Engineering at UC Santa Cruz

Research Areas: Genomics, computational biology, genome assembly, human evolution, ancient DNA

Forensic Genetic Genealogy is a powerful new approach for identifying leads from DNA analysis. However, sample requirements for typical genotyping preclude its use for many cases. We have developed a powerful new approach for recovering and sequencing minute amounts of fragmented DNA. This approach allows the small nuclear DNA fragments in rootless hair, bone, and other sources to be amenable for DNA analysis. This workshop will describe this technology and its limitations.

Collection of Sexual Assault Kits

Presented by Lisa Farbelow, Sexual Assault Response Team (SART) Nurse Examiner and Victim Advocate

Description TBA

Qiagen Forging New Frontiers: QIAGEN's products for 2020 and Beyond

Presented by Sim Winitz Sr. Customer Solutions Manager, HID Applications, Northwest

Various topics including: Pyrosequencing AgePlex Assay, Y screening. New EZ1 and potential new applications, FTA Elute.

The Revised FBI Quality Assurance Standards (QAS) for Forensic DNA Testing and Databasing Laboratories – What's Changed?

Presented by Clark Jaw from the FBI

The Scientific Working Group on DNA Analysis Methods (SWGDAM) has revised and updated the Quality Assurance Standards (QAS) for Forensic DNA Testing Laboratories and DNA Databasing Laboratories. In addition, the Audit Document format has been simplified to contain the audit checklist and associated audit documentation, while the Standard discussions have been compiled into a new QAS Guidance Document.

Many changes in technology, interpretation approaches, and casework applications have occurred in the years since the last revision of the QAS. These include the development of sophisticated software programs for interpretation and statistics, the expansion on the CODIS core STR loci, the emergence of legacy data, and the implementation of Rapid DNA technology. Additionally, next generation sequencing and non-STR markers could be adopted in forensic casework or databasing laboratories soon. Efforts have been made over the past three years to bring the standards up-to-date and to look forward to tomorrow's needs. This presentation will provide participants with an opportunity to take a closer look at the new QAS in order to initiate preparations in their laboratories to achieve compliance with these new standards.

Applied BioystemsTM SeqStudioTM Genetic Analyzer - A Versatile Fluorescence-Based Benchtop Capillary Electrophoresis System Allowing for Both Multiple Sequencing and Fragment Analyses

Presented by Nick Andrews, Field Application Scientist

The Applied Biosystems SeqStudio Genetic Analyzer is an easy, economic, efficient, and versatile 4-capillary, fluorescence-based benchtop capillary electrophoresis system that delivers gold-standard Sanger sequencing technology and fragment analyses, such as STR assays for HID, with just a simple click. An innovative all-in-one reagent cartridge provides flexibility for users to perform both sequencing and fragment analyses of different chemistries on a single sample plate in the same run. Other key features include a simplified instrument software with an interactive touch screen for ease of plate/sample/run setup and data QC/exporting, instrument setup reduced to minutes with the new cartridge containing all consumables except the cathode buffer, Wi-Fi or wired Ethernet connection as well as USB ports for plate set up and data transfer, consumable usage tracking through radio frequency identification (RFID), and a decreased burden for routine spectral calibrations or manual spatial calibrations. The system also included the optional use of a complimentary SeqStudio Plate Manager Software which is

well-suited for both first-time and experienced users to assist with plate and run set-up.

In the present study, we evaluated the performance of the SeqStudio Genetic Analyzer for HID analyses using ten STR kits (GlobalFilerTM, GlobalFilerTM Express, YfilerTM, YFilerTM Plus, NGM DetectTM, NGM SelectTM, IdentiFilerTM Plus, HuaxiaTM Platinum/VerifilerTM Express, VeriFilerTM Plus, and MiniFilerTM). The results demonstrated that the performance of the SeqStudio Genetic Analyzer met HID specifications for sensitivity, sizing precision, sizing accuracy, color balance, reproducibility, repeatability, concordance, stutter, and minor contributor detection in DNA mixtures, and that variation in environmental temperature from 15°C to 30°C had little effect on the performance of the SeqStudio Genetic Analyzer in HID analyses as evaluated with GlobalFiler and IdentiFiler Plus.

Measurement Workshop

Monday, Full Day Lunch Included

Keep Your Eye on the Cards: How Measurement Uncertainty Reappears as Measurement Confidence Workshop

Presented by Melissa Kennedy from ANSI National Accreditation Board (ANAB)

Measurement uncertainty and confidence are flip sides of the same card. This full day workshop details the basic principles surrounding measurement confidence and will discuss specific examples from the Firearms community. The concepts and accreditation requirements related to measurement traceability and uncertainty will be discussed. While these concepts are applicable to any discipline performing measurements, examples will be focused on firearm related measurements.

This workshop is appropriate for those with limited experience in the measurement confidence process. Questions can be sent beforehand, to be answered at the workshop, to Melissa Kennedy: *mkennedy@anab.org*

FARO 3D Scanning Workshop

Monday, Half Day 8—12:00 P.M., Lunch NOT Included

Presented by Mike Russ, Sheriff's Lead Crime Scene Specialist, San Bernardino County Sheriff's Dept.

This half day workshop will show participants the workflow of documenting shooting reconstruction and bloodstain pattern analysis scenes from initial scans of a scene to the final product.

Tuesday Workshops

Implementation and Practical Applications of 3D Technology, Analysis and Statistics for Firearms/Toolmark Examinations

Presented by Xiaoyu Alan Zheng from the National Institute of Standards and Technology

This full-day workshop provides foundational knowledge and real-world applications of emerging research, tools and automated technologies for firearm and toolmark analysis. NIST will provide an overview of the direction and methodologies currently being employed in Firearm/Toolmark research as well as future roles that the technology can be utilized. A case study will be presented on how the FBI Laboratory Firearms/Toolmarks Unit (FTU) has been evaluating 3D technologies, validation, incorporation into casework, and mapping out challenges that laboratories could face with implementation. Attendees will also have an opportunity to participate in several CTS style tests using virtual comparison microscopy to learn about its utility in every day casework.

Participants are encouraged to bring a laptop that's no more than two years old. Topics Include: Intro and Technology Landscape; 3D Measurement Principles; Measurement Quality; Computer-aided Firearm and Toolmark Identification; Statistical Framework; Virtual Microscopy (VM); FBI FTU Validation & Implementation of VM into Casework.

What's Riskier – Sawing Someone in Half or Inspecting/Testing the Forensic Evidence Afterwards? Evaluating and Acting Upon Risk in a Forensic Program

Tuesday, Half Day 8—12:00 P.M., Lunch NOT Included

Presented by Melissa Kennedy from ANSI National Accreditation Board (ANAB)

Being a Forensic Service Provider has always been a risky business. Providers employ longstanding risk measures in many areas, including employee hiring & training, quality assurance & control; and written procedures. But the newest ISO/IEC 17025 has placed an emphasis on risk-based decision making which has labs wondering if they need a magic trick to make more money and time appear to address the risk.

While there are many approaches to evaluating risk, ISO/IEC 17025:2017 does not specify a particular approach or formal method. We will discuss several risk evaluation tools and the decisions you make after those evaluations. Expect group discussions surrounding common risks to demonstrate use of the evaluation tools.

This workshop aims to add to your quality toolbox so you can answer the question – Is risk evaluation just one more thing to add to my overflowing plate, or can my agency benefit from risk evaluation?

This half day workshop is appropriate for all forensic staff and will be especially beneficial for Quality Managers and Forensic Service Provider staff tasked with oversight and risk management. Questions can be sent beforehand, to be answered at the workshop, to Melissa Kennedy: *mkennedy@anab.org*

Screening with Fluorescence, Infrared and White Light – from Leeds on ALS Screening and Documentation with the LSV

Tuesday, Half Day 8—12:00 P.M., Lunch NOT Included

Presented by Jake Kurth from Leeds Forensic Systems, Inc.

The Leeds LSV system is an ALS screening instrument for screening and documenting bodily fluids, gunshot residue, and trace evidence; with systems installed at numerous laboratories across California. Over the last several years we have run into techniques and developed free software improvements to help with the speed of screening and ease of use with the system. The goal of this workshop is to share techniques that we have picked up over the years of working with LSV customers, as well as provide a guided hands-on ALS training opportunity for any examiner that would like

some additional training on ALS, or ALS imaging. The workshop will involve both a lecture and hands-on portion covering fluorescence, infrared, and white light screening. We will have one of our LSV2 demonstration units and samples. Please feel free to bring feedback and samples.

Using Seratec® products to Identify Body Fluid Stains

Tuesday, Half Day 1—5 P.M., Lunch NOT Included

Presented by Dal L. Laux and Alexander Gruberman from Seratec®

Topics Include: Background anatomy and physiology explaining source of amylase, seminal fluid and sperm; Use of fluorescence to detect biological stains; Detection of saliva and semen stains using overlays to pinpoint stains; Chemistry of acid phosphatase; Using Seratec SemiQuant membranes to determine presence of saliva and semen; Using SeraQuant to quantitate the intensity of band membranes.

During the workshop, each attendee will receive a pair of new underwear with saliva and semen stains. We recommend each attendee bring a lab coat. All necessary materials including gloves, instruments and reagents will be provided. Students will locate stains with a Foster and Freeman alternate light source, map the stained areas, prepare extracts and analyze extracts using the Seratec membranes. The SeraQuant will be available for use.

Kathe "KC" Canlas

Launching Our CAC Social Media Platforms!

It has been a long time coming, but the wait is over! After being introduced as the social media specialist in the first quarter of 2018, I have been busy creating a private Instagram account and public Facebook page. With the accounts created and I'm finally ready to branch out to our CAC members and release our social media platforms!

Prior to releasing any of the social media pages to the public, we had to draft a social media policy detailing acceptable content and posting guidelines. During the development of the policy, I began to post seminar material to work out any issues with the pages. On 03/04/2019, the Social Media Policy 19-001 was approved by the Board and our journey into the world of social media was ready to go.

At the Oakland spring CAC conference, I conducted a test run of the Instagram stories with all 6 of my followers by posting real time stories during the seminar. I have also posted a couple of events on my Instagram stories to initiate the feel and type of content that I want to post. With these things all in place, I reached out to a few CAC members to let them know that I was starting an Instagram and Facebook page in order to gain several more followers. We currently have 17 followers on our Instagram account with 3 posts and my intention is to continue to gain followers with each CAC Seminar. For the Facebook page, I began by posting pictures courtesy of the CAC committee. These posts gave a shout out to our vendors and showed some of the highlights of the seminar. I added a feature on the Facebook page that will allow a potential follower to "like" the page rather than needing to send or accept a friend request. I will post everything on the Facebook page from here on out!

I would love to hear from you about any ideas you have for future content! If you are currently holding on to anything you would like posted to our Facebook page or Instagram posts, please feel free to submit them to me. Along with sending me your photos, please make sure to take the time to "like" and "follow" our pages to stay on top of all of the awesome things going on with the CAC!

Follow us on Instagram: @ CAC_News

Like our page and view your seminar photos at facebook.com/CACriminalists

Contact me by email: socialmedia@cacnews.org



CAC Archives

For Nessa

Nessa Rosenbaum
1956—2019

Our laboratory was dealt a tremendous blow with the recent, untimely death of Nessa Rosenbaum. After a short battle with health issues, she succumbed on August 18, 2019. For myriad reasons her loss will affect us for some time.

Nessa attended the University of California at Riverside where she worked as a lab assistant in the Department of Epidemiology while obtaining her Bachelor of Science degree in Biology in 1979. She began her laboratory career with Bio-Laboratories Medical Group in Colton, California and enhanced her toxicology-related job skills with Marion Laboratories/ Marion Merrill Dow while working in Kansas City, Missouri from 1981 to 1991. She returned to California as a secretary in a law firm for six years before being hired by the San Bernardino County Sheriff's Department (SBCSD) in 1997 to start her professional career as a forensic scientist.

She began as a Forensic Laboratory Technician, performing toxicological drug screening and controlled substance analysis. After promoting to a Criminalist position in 2001, she took on other duties: clandestine laboratory investigation and analysis, gunshot residue analysis, and serial number restoration. In 2009, while she was in training to be a Firearms Examiner, she accepted the position as the laboratory's Quality Assurance Officer where she served for the remainder of her time. She oversaw several iterations of the quality assurance system through transitions from the ASCLD/LAB Legacy and International programs to the current ISO/IEC 17025:2017 and AR 3125 ANAB International program, all the while coordinating the numerous internal and external audits as required by her position. She was recognized as the lab's Employee of the Year in 2016.

Nessa was very active in the California Association of Criminalists, becoming a member in 1998. She served on the Endowment Committee since 2012, was involved in the arrangement of many Southern California study group meeting locations, assisted with several semi-annual seminars hosted by the SBCSD, and made a presentation at the 2006 meeting in Temecula, "Clandestine Drug Manufacture with Style, an Unusual Underground Methamphetamine Lab."

In line with her duties as the Quality Assurance Officer, she became a member of the Association of Forensic Quality Assurance Managers in 2009 and attended seven of their annual conferences. Her other professional memberships included the American Association of Forensic Scientists (AAFS) and the Clandestine Laboratory Investigating Criminalists (CLIC), attending their seminars as often as her duties would allow.

Outside the lab, Nessa was active in her local community where she sang with the Community Chorus of Redlands and the Inland Empire Symphony Choir for many years, traveling for seasonal events at various locations including performances in Rome, Venice, Assisi, and at the Vatican in 2018. She was an avid orchid lover, serving as Secretary for the Riverside/San Bernardino Orchid Society. She looked forward to the Pageant of the Masters festival in Laguna Beach each year and attending Broadway plays.

Aside from her critical role in the Quality Assurance functions of the SBCSD crime lab, Nessa showed her personal side through the organizing of annual calendar event celebrations (e.g., Administrative Professionals Day, staff birthdays, department fundraisers) and the distribution of delicious homemade English toffee at holiday time. She even routinely thanked her internal audit crews with ice cream bars.

The youngest of three children, she is survived by her sister, Laura, and her brother, Earl, not to mention her three cats upon whom she doted as would a loving mother.

Nessa, after serving us in so many ways, you will be missed. Rest in peace.

Submitted by current and former members of the San Bernardino County Sheriff's Department crime laboratory.

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