

norah rudin & keith inman

www.forensidna.com • norah@forensidna.com • kinman@ix.netcom.com



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.

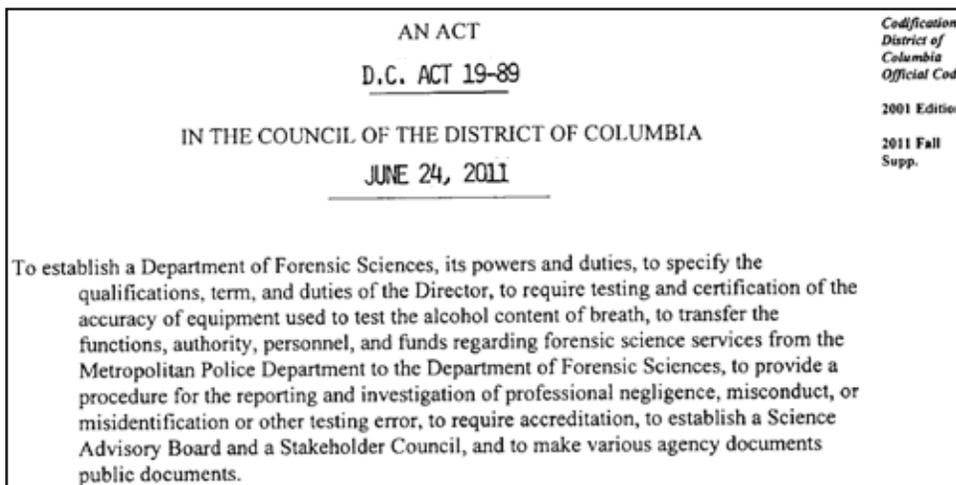
The events, their genesis,

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.*"

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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

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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

Jay A. Siegel, Ph.D.
8334 Tilly Mill Lane
Indianapolis, IN 46278 317.697.4659
siegel.jay@gmail.com

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

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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 aspects 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 ...

References

1. Mike Coble, presentation at the American Academy of Forensic Sciences (Orlando, FL), February 19, 2015, “Variation in DNA Mixture Interpretation: Observations from a NIST Interlaboratory Study”
2. Mike Coble, presentation at the International Symposium on Forensic Science Error Management (Crystal City, VA), July 22, 2015, “Interpretation Errors Detected in a NIST Interlaboratory Study on DNA Mixture Interpretation in the U.S. (MIX13)” (available at www.nist.gov/director/upload/interpretation_errors_detected_in_a_NIST_interlab_study_on_DNA_mixture_interpretation_in_the_US_MIX13-coble-crim1.pdf).
3. Mike Coble, presentation at the 26th Congress of the International Society for Forensic Genetics (Krakow, Poland), September 5, 2015, “Inter- and Intra-Variation Observed from a NIST Interlaboratory Study on DNA Mixture Interpretation in the U.S. (MIX13)”
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7. Lohmueller, K.E., Rudin, N., Calculating the Weight of Evidence in Low-Template Forensic DNA Casework. *J. Forensic Sci*, 58 (S1) 2013. P.S243-S249
8. William Thompson, A Setback for Forensic Science, Editorial, *Washington Post*, May 8, 2015

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