



The **CAC News**

News of the California Association of Criminalists • 2nd Quarter 2005

J. HANNAFORD

The President's Desk

My Last President's Message

My father used to tell me that as you get older time moves much faster. I never thought much about that until recently. As many of you know (how could you forget with me reminding you constantly), I turned 50 in 2004, and I have to say that my father was right! The last year has flown by. It's hard for me to believe that my year as the CAC president is almost over. In May, I hand over the reins to Jim Stam.

My goal as president-elect and later as president was to increase member participation. It seems that member participation has increased based on the e-mails I have received from individuals volunteering their services. I'd like to take credit for that, but this increased interest isn't due to anything I did. The membership of this organization always steps up to the plate when volunteers are needed. I really appreciate all of you who said yes when asked to accept positions and those of you that volunteered to serve in the future. You have made my job as president much easier.

We lost three colleagues in 2004: Jan Bashinski, Bill Corazza, and Alfred Moses. Jan was chair of the A. Reed and Virginia McLaughlin Endowment committee at the time of her death and was an outspoken advocate of establishing a scholarship program within the endowment. Jan's wish has come true; this endowment cycle will be the first in which scholarships will be awarded. Bill Corazza retired in 2003. He wanted to serve his community and applied to become a member of the Sonoma County Grand Jury. Bill passed away before he had a chance to be selected. Alfred Moses didn't enter the field until he was 51, an age when many of us are planning our retirements. He was still working at Riverside DOJ at the time of his death at age 83. They will all be missed!

2004 brought about some interesting changes. Senate Bill 1623 was passed, and now begins the work of implementation. Thanks again to Kenton Wong and Patty Lough for all their hard work. I have nominated Kenton to sit on the Department of Health Services Forensic Alcohol Review Committee. If selected, Kenton will continue his work and help establish the new Forensic Alcohol Analysis guidelines. At our last Board of Director's meeting we voted to change the investment strategy of the endowment funds. The endowment funds will now be managed by Fremont Bank Wealth Management Services. They specialize in managing wealth for non-profit organizations, and we look forward to working with them.

Thanks to all of you for your support during the past year. I look forward to serving as past-president in the coming year.

Pennie

My goal as president-elect and later as president was to increase member participation. I'd like to take credit for that, but this increased interest isn't due to anything I did.



Pennie Laferty
CAC President

Second Quarter 2005



On the cover...

A portrait of Sir Francis Galton, rendered entirely in fingerprints by artist / criminalist Jennifer Hannaford. You may visit her website at www.printsinprint.com. The technique used to make this design is described on page 5 of this issue

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Member Heidi Robbins (LASO) was featured on A&E channel's series, "American Justice." She was interviewed for the episode entitled, "A Model Murder," in which she described her role as criminalist in the Linda Sobek murder case. The episode aired Jan 14 and more information may be found at www.aetv.com.

IAI meeting announcement

The 90th IAI annual training seminar will be held in Dallas Texas the week of August 7-13, 2005. If anyone is interested in presenting a paper or conducting a workshop for this seminar, I am sure the IAI would be willing to include them as part of the program. The website address for the seminar announcement is

www.theiai.org/conference/2005/callforpapers.html

Gregory E. Laskowski

Membership Roster Correction

The current area code for CA DOJ Riverside lab is 951.

Introduction to SEM/EDX for Forensic Scientists

April 26-29 at Iowa State University, Ames, Iowa. The instructors are: Dr. Scott Chumbley, Dennis Ward, Frank Platek, Mike Trimpe, Chris Bommarito and Thom Hopen. For more information, contact: William Randle—573-526-6134 ext 283, will.randle@mshp.dps.mo.gov

MAFS Meeting Scheduled

On October 3-7, 2005, the Midwestern Association of Forensic Scientists (MAFS) presents their annual fall meeting at the Adam's Mark Hotel, St. Louis, Missouri. Contact information: Bryan Hampton or Brian Krey, 636-949-7488.

BHampton@saintcharlescounty.org

Visit www.cacnews.org

See the CAC website (www.cacnews.org) for registration forms and updates on study group topics.

Study Group Chairpersons Sought

Carolyn Gannett has announced that she is stepping down as chair of the Southern California CSI study group. We need to find a replacement for her so if anyone is interested in serving as a chairperson for this group, please contact Regional Director South, John Simms, via email (jsimms@pd.sandiego.gov) or call him at 619-531-2576.

Please don't forget, that since Wayne Moorehead has stepped down as the Trace Study Group Chair, we are now looking for two chair persons: TRACE and CSI.

Death of Don Smith

Don Smith, a past president of AFTE and retired from both Chicago P.D. and Illinois State Police Lab System as a Firearm and Toolmark Examiner passed away on November 6, 2004 due to complications from surgery. The family asks that in lieu of flowers, donations be made to either: Veterans Foundation of Illinois, PO Box 13206, Springfield, IL 62791-3206, <http://www.vfwil.org/FoundationDonations.asp> or the American Lung Association, 61 Broadway, 6th Floor, NY, NY 10006, <http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=22556>

International Resources Group Seeks Forensic Subject Matter Experts for Upcoming International Projects

IRG is currently seeking qualified forensic subject matter experts for upcoming projects with DOJ, DOS and other international donor agencies. We are recruiting for forensic scientists that are available for short (>1 month) to long-term (up to 1 year) deployment to world-wide locations, including Eastern Europe/Russia/Asia; Latin America, Caribbean and Africa; Asia, Pakistan and Afghanistan; and Iraq. IRG seeks Iraqi Arabic translators and forensic subject matter experts in the following areas: Forensic Crime Scene Specialist, Forensic Odontologist, Forensic Technologist – Explosives, Forensic Technologist – Questioned Documents, Forensic Entomologist, Forensic Laboratory Manager, Forensic Pathologist, Forensic Anthropologist, Forensic Technologist – DNA, Forensic Technologist – Hairs and Fibers, Forensic Scientist – Advanced Degree

To Submit Your Qualifications: Please send resume to ForensicsExperts@irgltd.com. Please include your specific area of expertise from the above list in the subject line of the e-mail. For more information on IRG visit us at www.irgltd.com.

Forensic Qualifications: Candidates must be U.S. citizens or permanent residents and must have a minimum of a B.S. in one of the Physical, Biological and/or Forensic sciences (advanced degree preferred) with at least five (5) years relevant professional laboratory and/or experience in the related field; or possess at least seven (7) years relevant professional laboratory and/or training experience in the related field (with two (2) years as a first-line manager). Experience should be current with active employment in the relevant subject matter within the last two years. Familiarity with ASCLD/LAB accreditation a plus. Candidates must be available to work in overseas locations ranging from 1 month to up to 1 year. Relocation expenses for candidates will be paid. Candidates must be able to obtain at least a public trust clearance (credit, criminal history, and reference checks) to be considered. Preference will be given to those holding active security clearances at any level.

The Process



Photos courtesy of Jennifer Hannaford



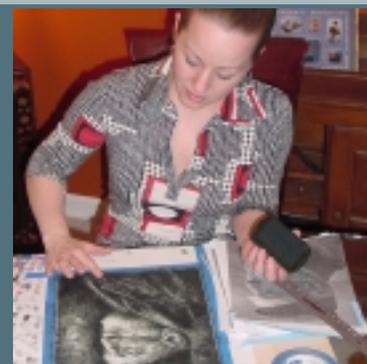
The preliminary sketch is laid out on the base paper.



Each similarly shaded area is blocked with tape.



Measured, inked fingerprints are applied until the desired depth and shading are achieved.



The same process is repeated for each of the shading ranges

“I am Jennifer Hannaford. The five years I spent in the criminalistics section of the Oakland PD lab fueled in me a passion for forensics that I only now am starting to truly appreciate. It provided me the understanding to survive elsewhere with hopes to contribute positively to the ever increasing challenges of friction ridge comparisons. It was one of my greatest periods of intellectual and personal growth.

I was then provided a wonderful opportunity. Vermont’s forensic lab was resurrecting a unit that had been down for a period of time and I was resurrecting my forensic career. I think it has been a wonderful match. I just hope that I have given to their program as much as I have gained.

Even as a kid I had always looked beyond the faces of my subjects to face the fundamental question that perplexed me. How much is enough to capture the essence of an individual? When do the existing lines, shades and angles of a model’s face become the enough units of uniqueness to sum up the individual of study?

I’m still sorting those questions out in my art. But I think I’ve found an inspiration and a medium in working with fingerprints as the strokes of my brush.”



All masking is removed, and final details are applied using the same fingerprint process.

Fingerprints in Print, the Sequel

The continuing saga of a latent print misidentification
in the Madrid bombing case



Time and travel itineraries once again favor us, and Dr. Simon Cole is able to join us for a mid-day repast as we convene at a more central “office,” a restaurant in Jack London Square. Removing our drenched coats, soaked from the winter rain, we consider the options on the menu. Judgments about what looks good take longer with a new menu, but after *Analyzing* the choices, *Comparing* them to our usual fare, *Evaluating* the likelihood of being satisfied with our choices, and *Verifying* the intelligence of our selection with our dining companions, our attention swings to renewing a discussion that focuses on fingerprints, but concerns all of forensic science.

In our last column (two issues ago), we responded to the news that a latent fingerprint recovered from a plastic bag associated with the Madrid train bombing had been falsely identified as that of Brendan Mayfield. While we had as much information as had been made public at that time, we were still waiting for the promised review by a team of international experts. That report (Stacey) was recently published in the journal of the International Association for Identification (IAI) and in Forensic Science Communications. We commend the committee for their expeditious review. The timely publication of the report, as unflattering as are several aspects of it, should do much to limit rumor and speculation.

We note that the composite report was written by the FBI QA manager, Robert Stacey. We also read that, while each member submitted a separate report, the published version is at least a compilation, if not selected portions, of those separate reports. We can't help but wonder what were the individual opinions of the other committee members. Deserved or not, a report issued by a member of the organization that committed the original error carries the taint of possible spin. Stacey is, however, correct that the FBI sets a good example by acknowledging the mistake, for, as Simon notes, only one other fingerprint misidentification, the McKie/Asbury case in Scotland, has even been reviewed by an independent group of experts. Ever skeptical, Keith and Norah wonder if perhaps they had little choice when a different suspect was identified by the Spanish Police (and the discrepancy leaked to the media). Interestingly, while the original FBI press release was quick to blame the general quality and digital nature of the print, the review committee and other experts now dismiss these factors entirely as contributing to the misidentification.

The primary conclusion of the committee, as represented by Stacey, was that the ACE-V method was not properly applied. ACE-V, an acronym coined by David Ashbaugh (1999) stands for *Analyze, Compare, Examine, and Verify*. Certainly this describes a summary workflow analysis, but it

does not qualify as a scientific method. This can be easily demonstrated by observing that it is the same general workflow that is followed in the course of any kind of comparative forensic examination. To rise to the level of a scientific method, procedures should describe in detail how each of those steps are carried out. In addition, to qualify as science in general, the examiner must at least pose a hypothesis, and, under the best circumstances, an opposing hypothesis. While the committee restricted its concern to the application of ACE-V, we must ask a more difficult question: does ACE-V qualify as a scientific protocol? Have formal studies been performed to establish its validity (i.e. accuracy, did we get it right?) and reliability (i.e. reproducibility, do we get the same answer every time?)? Have the limitations been rigorously tested and clearly defined?

At a minimum, including a specific direction to search for exclusionary, as well as inclusionary, characteristics would add a much-needed element of balance to the ACE-V “protocol”. Perhaps ACE-V was incorrectly applied in this case because no detailed description exists of exactly how to perform each step. An even more skeptical observation would be that no written standard exists to which the steps followed in a particular examination can be compared.

Or perhaps ACE-V, such as it is, was applied correctly and still yielded an incorrect result. It is known that an incorrect inclusion was obtained. Two possibilities exist to explain this result: (1) the method was applied incorrectly and yielded an incorrect result; or (2) the method was applied correctly and yielded an incorrect result. To accept the latter option, one must subscribe to the dogma that the method, applied correctly, can never yield an incorrect result.

While the article insists that: The error was a human error, and not a methodology or technology error we believe, as mentioned in our previous column, that, for examinations that are strictly visual comparisons, it is impossible to separate the analyst from the method; the instrument is the examiner's brain and her decision-making process is the method. The forensic community will need to come to grips with this and face it head on rather than trying to fit comparative visual examinations into the same mold as disciplines where the instrument that produces the data is at most a form of artificial intelligence that has not yet become self-aware. While an instrument can be programmed incorrectly, fail to be calibrated, or simply be used improperly, it cannot be accused of observer bias; that is the strict purview of human endeavors.

The power of the IAFIS correlation coupled with the pressure of working an extremely high-profile case was thought to have influenced the examiner's initial judgment and subsequent examination. . . .

The apparent mind-set of the examiner after reviewing the results of the IAFIS search was that a match did exist; therefore it

would be reasonable to assume that the other characteristics would match as well.

We like to call this a “gestalt” analysis – filling in details from a general impression. It is an extremely dangerous mind-set for a forensic examiner. Had the examiner adopted an appropriately skeptical mind-set instead, he might have been able to overcome his observer bias. Specifically, this would mean actively searching for even a single unexplainable difference that would automatically exclude the two prints as having a single common source. This is another benefit to posing alternative hypotheses; if the analyst is specifically looking for evidence of an exclusion, as well as for evidence of an inclusion, the probability of overlooking data for either proposition is minimized.

Of even greater concern than the false match by the initial examiner was the failure of three subsequent examiners to disagree. The report offers the stunning conclusion that *to disagree was not an expected response*.

Of what value is the review process at all under such a presumption? It refutes two basic tenets of science, informed skepticism of results, and the requirement to reproduce them. It would be curious to know specifically what doubts the two FBI reviewers might have had but failed to articulate; although the independent examiner expressed doubts, apparently he, also, was not willing to openly contest a match called by three FBI examiners.

Keith wonders whether the use of a specific word-element provides insight into this process. Although the ACE-V “methodology” requires a verification step, true technical review requires re-examination. The distinction may seem subtle, but it is not trivial. Verification of another’s results requires merely looking at the same traits and agreeing they are present. It also means that the results of the first analyst are known. A re-examination im-

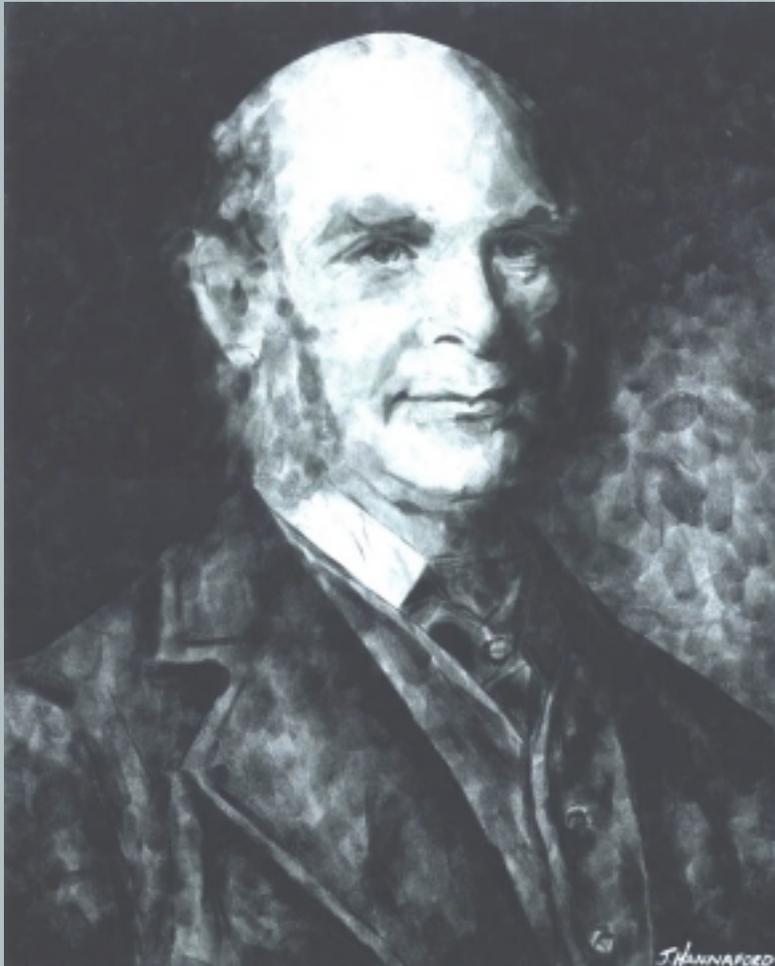
plies a *de novo* look at the evidence absent prior knowledge of either the case circumstances or the previous examiner’s conclusions. This clearly did not happen in this instance.

The report does suggest that a completely blind independent review by an examiner who is ignorant of the facts of the case as well as the primary examiner’s conclusions would overcome the effect of observer bias by the initial examiner who is privy to the facts of the case. Norah finds it incomprehensible that a review would be conducted in any other manner, even more so in a high-profile case where mistakes are not only dangerous but embarrassing. The committee’s suggestion that a subordinate should not be put in the position of having to disagree with a superior exemplifies the problem of doing objective science in a law enforcement environment operating within a chain-of-command administrative structure.

In this instance, for example, the FBI turned to a contractor as the first “verifier.” The report indicates that this examiner requested additional material from CJIS, and confirmed

that the latent “was the same” as the known prints of the candidate. But this individual was a retired FBI supervisory fingerprint examiner. The report includes this examiner in its indictment of the “groupthink” that contributed to the erroneous individualization of the evidence print. It does not appear as though this examiner could be considered “independent,” as a *de novo* examination would require.

The thorny problem that arises from desiring an independent examination in an atmosphere free from administrative pressures is what to recommend in place of the current system? What qualifications should an examiner possess, and in what analytical environment should the analysis be done, in order to offer what amounts to a truly independent (free from bias) second opinion? We do not believe this question has an easy answer,



Sir Francis Galton, 1822–1911, was an English scientist, founder of eugenics, and cousin of Charles Darwin. He devised the correlation coefficient and brought other statistical methods into this work, which was carried on by his pupil Karl Pearson as the science of biometrics. Galton established a system of classifying fingerprints that is still used today. He was knighted in 1909. —Ed.

but should be a current issue in all of forensic science, worthy of extended discussion and debate.

The report also discusses an assessment of the risk inherent in two agencies performing parallel analyses of the same evidence. It is unclear to us what kind of risk the committee has in mind—the risk that examiners could disagree? As the report clearly states, conflicting conclusions simply provides the impetus for further examination to determine which conclusion is correct. We are somewhat bothered by the statement that if one agency calls an inconclusive and the other a match, the conclusion of the agency with legal jurisdiction will prevail; this is a step away from science, not toward it.

A particularly salient point made by the committee concerns documentation. It is a concept to which fingerprint examiners have been historically resistant, yet is another hallmark of science. Simon observes that, without detailed documentation, no way exists for another examiner to determine the basis for either agreement or disagreement. Norah adds that documentation forces the examiner to codify his conclusion according to stated objective criteria. Documentation could well have prevented the “gestalt” analysis that apparently resulted in the initial false match.

The report significantly leaves out any mention of whether knowledge of case information influenced the original examiner. While this may have been outside the purview of the scientific review committee, it is clearly an issue that must be candidly addressed.

We conclude with a comment on the difficulty of associating a piece of physical evidence to a reference through a database hit. Latent fingerprints in particular are subject to distortion and ambiguity, requiring judgments on the part of the analyst to decide what constitutes “real” traits, representative of the true finger making the mark. This is best done blind, as must be done before submitting the print to an automated search. The computer is unaware of this judgment, and provides the best matches from its repository of reference fingers. The offering from the computer does not guarantee that the true match is actually present among the candidates, but provides a list of numerous possibilities whose ridge details are similar to the evidence print. Therefore, the candidate prints are not random, but are from those most closely resembling the evidence print. These result in the toughest challenge to the examiner because he must choose between two or more reference prints similar to the evidence print. For clear latent prints with a multitude of level I, II, and III details, eliminating incorrect matches can be a simple task. But for distorted, ambiguous, partial, or overlapping prints, the expertise of the most capable examiner can be taxed. It is for these situations that opposing hypotheses, objective criteria, detailed documentation, and independent re-examination are essential elements to a proper association between evidence and reference prints.

The error made in this case is considered by many fingerprint examiners to be an anomaly that has rarely occurred in the past, and should not happen again in the future. We respectfully disagree. The only reason that the error was exposed in the Madrid bombing case was because the high-profile international nature of the case prompted a truly independent review, that of the Spanish experts.

We were pleased to note that our previous column inspired a rather spirited discussion on the CLPEX discussion board (CLPEX). Simon was encouraged by the thoughtful comments posted by several of the contributors. All forensic scientists, including dermal ridge analysts, should recognize that

human errors occur, they occur with unknown frequency, and they reflect poorly on forensic science in general. Our credibility and effectiveness are reduced when such matters are trivialized and dismissed as a rare variant of normal practice. As the report succinctly states, *confidence is a vital aspect of forensics but humility is too.*

References:

Ashbaugh, D. *Quantitative-Qualitative Friction Ridge Analysis*. 1999 CRC Press, especially pages 108 – 148.

CLPEX *detail chart board* www.clpex.com/

CLPEX, Steve Scarborough, They Keep Putting Fingerprints in Print, *this week's detail*, Issue 174, 12-13-04. www.clpex.com/

CLPEX, Iain McKie, Fingerprints in Print—An Opportunity Missed Issue *this week's detail*, Issue 175, 12-20-04. www.clpex.com/

Stacey, RB., A Report on the Erroneous Fingerprint Individualization in the Madrid Train Bombing Case. *Journal of Forensic Identification*, vol 54(6), pg 706; *Forensic Science Communications*, January 2005 – vol 7(1) Special Report, www.fbi.gov/hq/lab/fsc/current/special_report/2005_special_report.htm

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FEEDBACK

The CACNews prints letters to the editor that are of interest to our readers. We reserve the right to edit letters for brevity and clarity. All submissions to this section become the property of the CACNews.

Editor:

When I read through the recent issue of the CACNEWS and saw Lou's article about me you could have knocked me over with a feather. I had to double check the name and the photos to make sure the article was indeed about me. I want to thank Lou Maucieri for his kind and generous words and surprising the H*** out of me. Also, a special thanks to John Houde who drove to Sand Point Idaho from Spokane, WA to take the photos that accompanied the article. Even my wife enjoyed reading it and was pleased to see her picture in the article. See you at the next seminar in Oakland. —Would love some visitors.

Raymond Davis

They Keep Putting Fingerprints in Print

by Steve Scarborough

There has been a recent flurry of sensationalistic articles challenging the validity and reliability of fingerprint science. Forensic scientists, as a rule, discount these articles knowing that the Law of Fingerprints—fingerprints are unique and permanent—is secure. When the California Association of Criminalists, *CACNews* decided to do an article on this issue, *Fingerprints in Print*, it was heralded with some hope that this issue would be examined thoroughly and fairly. Instead, the resulting article contained the same sensationalism and hyperbole as the other recent articles degrading the science and predicting the end of fingerprints as a useful forensic tool. However, now might be a good time to address all of these sensationalistic articles.

A consistent blunder running throughout these articles is the use of direct statements about the “inadequacies” of fingerprints, not in quotes, as if they are truisms. Upon examination these statements are the same exaggerations and embellishments spewing from the few quacks purporting such mendacity. These authors also fell into that trap. I suspect that some of these “critics” like Simon Cole can give a very convincing interview in person, (though he hasn’t given testimony in court) and they have a way of making outrageous statements seem acceptable.

Here is an example from the CAC text. “Conventional fingerprint doctrine would have us believe that the latter situation (that there are (unless this is in quotes) no unexplainable differences can be found between the prints [prints in question— from the *Mayfield* case] yet they do come from the same source) is impossible.” In fact this statement does not exist in any fingerprint science writings except in this article and in the ramblings of the few critics.

There are two reasons for these gross misstatements of fact and distortion of the theories of fingerprint science. One is the Chemist View of the World and the other is False Authority Syndrome (FAS). Let’s deal with the Chemist View first.

Fingerprint science is just like one of the major segments of biology, and is an observation science. Biology has two major branches, the molecular branch which uses chemistry at its base and is perfectly adapted to error rates, validation studies, calibration, decision documentation (machine printouts) and controls. The other branch of biology is the observation branch, which observes, documents and studies biology. This branch uses observation to make conclusions about biology— exactly like the tenants of fingerprint science.

There was a time when biologists in the molecular branch of biology and chemists did not accept the observation side of biology as a true science, thereby creating the Chemist View of the World. Over the years this postulation has been proven to

be in itself unscientific and the observation branch of biology and other observation sciences have been validated.

The Chemist View of the World suggests that every science should be like chemistry and DNA and molecular branch of biology. The Chemist feels that conclusions are not based upon observation but on data analysis accompanied by error rates, validation studies, calibration, and machine printouts. This principle is perfectly acceptable for these sciences and makes for perfectly solid and tested conclusions. These principles do not apply to the observation sciences and biology is only one among many. Trying to restrict observation biology to these principles would be counter-productive. These principles should also not be forced upon an observation science such as Fingerprints.

A common thread seen throughout the *Daubert* hearings, most critical articles and writings and recent documentation requirements is the application of the principles of chemistry to fingerprint science. The forced application of principles that do not apply to a scientific discipline is destructive to all of science. I suspect that early biologists were accused of not practicing “good science,” when in fact, to apply those principles would have been bad science. Machine print-outs are not appropriate for an observation science. A validation study is hardly appropriate for a chance impression such as a fingerprint. The eyes cannot be calibrated. And there is no such thing as an error rate when observing something as unique as a snowflake, an asteroid, a tree, and a beetle’s shell, the skin on a zebra and the human friction ridge skin.

Fortunately for some of us working in fingerprints we have not been encumbered by these restrictions and the chemists we work with and work for are not as gullible as the writers of the CAC article or other forensic scientists. They realize that you cannot translate the chemist view of the world to an observation science.

Another consistent thread in these critical articles is false authority syndrome (see vmyths.com). The writers of the CAC article have also fallen victim to FAS. False authority syndrome involves a pseudo expert or false authority espousing some controversial opinion that is believed and taken up by the media and perpetuated by other “authorities.” There are similarities between this issue and the Y2K Hoax. In hindsight we can now see that all the worry was unfounded but there were all too many in the media and the computer industry that believed a few false authorities.

To borrow some thoughts from vmyths.com: The U.S. Air Force highlights the concept of False Authority Syndrome in Tongue & Quill, their official publication on effective writing. They give the definition of the word *ultracrepidarian* as a person who gives opinions beyond his scope of knowledge.

“Nonexpert opinion or assumed authority — Don’t be swayed (or try to sway someone else) based on the opinion of an unqualified authority. The Air Force is chock-full of people who, because of their position or authority in one field, are quoted on subjects in other fields for which they have limited or no experience. As this Air Force publication notes, False Authority Syndrome can attack people in all fields of expertise.”

Vmyths.com also tells us that “Computer salesmen, consultants, repairmen, and college computer teachers often suc-

Fingerprints in Print— An Opportunity Missed?

by Iain A J McKie

As a police officer for thirty years totally convinced of the infallibility of fingerprints I have spent the last 8 years fearing that my daughter would be destroyed by exponents of the 'science' I so revered. Despite this I remain a staunch defender of the science of fingerprinting.

This paradoxical position has arisen because so many experts of honesty and integrity have in their support for Shirley McKie proven that in the right hands latent print examination is a legitimate forensic science and a major crime prevention and detection tool.

While a supporter, I am not naive enough to believe that all is well in the world of fingerprints as the cases of Shirley McKie and Mayfield clearly show and over the years I have often been saddened at the standard of debate between the experts and their critics.

This is why I was so impressed on reading the recent 'CAC News' article 'Fingerprints in Print'. Here was a fingerprinting organisation sitting down with its critics and attempting to highlight a number of important issues for the profession arising out of one of the highest profile mistakes ever.

I did not agree with every word - the article was judgemental in places and plain wrong in others - but a meaningful debate was taking place. People were listening.

Many of my concerns arising from Shirley's treatment over the past 8 years were being focused on and I looked forward to a measured response by the profession.

In the event in Steve Scarborough's article I was faced with something different and this concerns me greatly.

While accepting fully Steve's right to respond as he sees fit and without taking away from the eloquence and validity of many of the points he makes they were lost in an approach that arguably gave credence to the article's accusations that, "The reaction from the fingerprint community, at least as assessed from web chatter, has been largely defensive; circle the wagons against the attack that is sure to come."

One sentence in Steve's response in fact leaves me doubting if my daughter's years of trauma will ever lead to international debate and change. "For the future, fingerprint examiners will not be taking the advice of the CAC article's authors (or is it Simon Cole's advice?) to disabuse ourselves of the basic tenants of Fingerprint Science. Fingerprints are absolute and infallible. Any scepticism, if warranted, lies in the competence of the forensic scientist bringing the identification forward. This same scepticism should be applied to the pseudo experts and false authorities bringing forward these criticisms."

As I re-read the articles I struggled to relate to his assessment of the article as, "sensationalism and hyperbole... degrading the science and predicting the end of fingerprints as a use-

ful forensic tool" and to identify the "exaggerations and embellishments spewing from the few quacks purporting such mendacity."

My major problem does not lie with the wording of the article or its sentiments, but with its futility as a catalyst for progress and change at a time when I believe your profession should be taking a long hard look at lessons to be learned from the Shirley McKie and Brandon Mayfield cases. The self serving nature of the present debate is destructive and extreme language alienates others, obscures understanding and blocks progress and change. At times I felt you should also be aware of falling victim of False Authority Syndrome.

What occurred to me reading both articles was that it was time to listen to the more moderate voices within your profession who are aware that important issues require to be addressed and that debate, understanding and action for change is the only way forward.

While accepting that self serving spin is not the prerogative of any one of the protagonists, Steve's article unfortunately lays out some views that I have heard before and I believe does fingerprinting no favours.

He takes issue with statements like, "This suggests that the science / art (my emphasis) of fingerprint comparison is perhaps not as reliable as conventional wisdom would have us believe..."

Given that the Mayfield, McKie and Cowans cases are interfaced with claims of a 'next to zero rate' of errors can Steve really wonder at doubts being raised about reliability? For most lay people it is reliable results that matter more than the theoretical reliability of a science.

I feel that errors are opportunities to deal with serious issues like training, procedures quality control, culture and worldwide standardisation. This does not involve admitting that the science is wrong but does demand honest admission of mistakes with enquiry and effective remedial action.

The CAC article was not calling the science into question but challenging experts and those who represent them to draw back from the dangerous tenet of infallibility.

As you will have gathered I read the article in CAC with great interest feeling that it raised many issues that required to be looked at without being unduly judgemental. Having suffered 8 years of cover up and deception from SCRO I appreciated a 'fingerprint' organisation sponsoring such an article, opening the way for useful debate and above all tentatively suggesting solutions to the problems haunting fingerprinting at present.

In truth the CAC article raises a number of issues important to the future of fingerprinting as a forensic science and as the authors conclude there are a lot of 'uncomfortable' questions to be asked and answered.

The authors were careful to qualify what they were saying, "Any discussion that depends mainly on media reports must be prefaced by the disclaimer that we have no specific knowledge of the actual events of the case. As such, our discussion must be limited to general topics inspired by the case at hand, and any opinions we might have could change with

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Sometimes you have to just wing it!

by Bob Blackledge

I was just two months short of five years old on Dec. 7, 1941 when the Japanese fleet attacked Pearl Harbor. My family lived in Manila, Philippine Islands and my father and mother had worked in the American school system as an elementary school principal and elementary school teacher, respectively. My father (a captain in the U.S. Army reserves) was called to active duty and fought on Bataan. He survived the infamous Bataan Death March, but eventually died in captivity.

The Japanese interned my mother, my older brother, and me and we eventually wound up in the camp known as Los Banos that eventually would contain over two thousand internees. After over three years many had not survived, and the remainder were near death due to assorted illnesses brought on by malnutrition. Trenches for the bodies had already been dug. In the morning, when all the internees would be lined up along a road for roll call, our Japanese captors planned to mow us all down with machine gun fire. However, either through intelligence provided by three escaped internees who managed to make it through the enemy lines or through foresight, General McArthur anticipated this. Los Banos was not far from the shore of a large lake, Lake Laguna de Bay, and the Allied forces had advanced as far as the opposite shore. At dawn on February 23, 1945, U.S. C-47 transport planes flew over one side of the camp and suddenly the sky was filled with parachutes. During the night a battalion of amphibious tractors (amtracs) had crossed the lake and arrived simultaneously. As the paratroopers made their jump a force of Philippine guerrillas and a paratrooper recon platoon, that had infiltrated during the night, neutralized the camp guards while the amtracs sped up from the lakeshore. Not an internee was lost in this bold, heroic rescue.

Although I prefer to live in the present, recent events have caused me to think about our dramatic rescue. First, a TV program, "The Los Banos Raid" was aired on the History Channel. It was very well done. More

I would not be alive today if the plan for the Los Banos Raid had had to be written out in an approved format with multiple copies and then bucked up the chain of command for comment. . .



recently the obituary of an individual who was instrumental in the planning of the raid, Col. Glenn Joseph McGowan, appeared in the San Diego Union-Tribune. I went online and signed the guestbook. www.obituaries.uniontrib.com

I forwarded the obituary to CAC member and friend, Dianne Burns (Dianne's mother and several uncles were also interned in the Philippines), and also to my brother, Col. (U.S. Army retired) David W. Blackledge. Dave is seven years older than me and has an M.A. degree in American History. He remembers that time far better, and has participated in the annual reunion of Los Banos internees and rescuers. Following is a portion of my brother's reply to me:

"I don't remember whether I told you that the "official" story of the plan to rescue Los Banos proves once again that the historical facts are not necessarily what really happened. When I told Col. Ringler (the company commander who as a first lieutenant led the airborne assault on Los Banos) that the US Army Command and General Staff College at Fort Levenworth used the Los Banos raid as an example where a plan was perfectly executed, he just laughed. Then, he said it all was done orally with no time for written directions. After their stunning success, the reporters were clamoring for details and the division staff realized they had made history. So, they quickly got together and wrote the plan to reflect what happened!

Among other items the Army official historians like to ignore is that the 11th Airborne Division Commander, Major Gen-

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PULLING OUT THE CHEESE

by Ron Nichols

The adventure really began after I entered the desolate airport terminal and watched as the baggage carousel rotated, rotated and continued to rotate with no sign of my checked baggage. Just how important was that checked baggage anyway? After all, I had packed all the important things in the carry-on. Yes, I had clean underwear, my toothbrush and a razor!

But, what I did not have was my equipment—equipment that if opened would have had the sniff dogs looking for cocaine and heroin. After all, why else would anyone have plastic volumetric ware along with a battery-operated balance? It was confirmed when the yellow sign showed up on the carousel that not only were my bags not there, they would not be showing up for quite some time.

The assignment—should you choose to accept it—find a way to do serial number restoration in a country that could be considered Third World among the Third World when you cannot transport reagents and the rest of your equipment is being passed through the baggage bowels of the Charles De Gaulle Airport in Paris, France.

The trip started off with so much promise. I got all the necessary shots in advance, protection against many things that the States have not seen in years. I provided a list of chemicals including acids that I would need in order to make the necessary restoration reagents. While unable to obtain them within the country itself, it was a short trek to a bordering nation. There most could be obtained and indeed were prior to my arrival.

Prior to departure, I was assured that given the right circumstances the rest of the acids could be transported via Federal Express. Yes, there were restrictions but they were all met. The package was on the way prior to my own departure and would be there, awaiting my arrival—guaranteed. It's a good thing that when Joe Namath guaranteed a Super Bowl victory so long ago that he did not have to travel through Paris!

Yes, just like my equipment, acids necessary to make some of the restoration reagents were someplace in Paris while I was in the midst of a real-life, bigger than life, chemical spill clean-up kit. The Sahara Desert had taken over this area of the country a while back and I did not have to go far to find spill absorbent. Bags in Paris, Ron in the desert—do you see something wrong with this picture?

Sitting in the U.S. Ambassador's office the next morning



I was asked if there was a plan B. “Mr. Ambassador, there is always a Plan B.” There would have to be because the bags and chemicals would not be arriving for another couple of days at the earliest. Remember that *C.S.I.* episode where they pulled the cheese out of the garbage can to make a tool mark impression when a warrant to seize the tool was unavailable? It was time to pull out the cheese!

First stop—the hardware store. “They have one of everything.” Or so I was told. Ever the optimist, I saw it as hopeful that the owner was a man named Farid with a background in biochemistry. Farid means “unique” in Arabic, and he was. He excitedly walked me over to a battery-operated digital scale collecting dust on this counter top. Grabbing it, blowing the dust off and turning it on, I was encouraged when he pressed on and the numbers began to visualize. Although it did not have the precision I would have preferred, it did have the precision necessary to do the job. I decided not to press my luck though and ask for those NBS standards to check the calibration.

Next stop, the local kitchen store. Suspecting that there was not a chemical supply house in the country, I figured the next best thing was a kitchen store. After all, in what other profession are measurements as important, if not more, than our own? That's right—cooking! A short walk through the aisles produced the measuring cup, though the size was larger than even adequate considering the quantity of reagents I was preparing. Beakers in which the reagents could have been mixed would have been great but small, quarter-liter syrup pitchers work just fine in a pinch!

Even before the trip I understood that there are some sayings we readily use in the United States that could cause some head scratching if taken too literally elsewhere on the globe. “No guarantees, except the guarantee that I will do my best.”

Still, the measuring cup was a bit large to measure the quantities I was looking for. So, I went searching for a measuring teaspoon or smaller cup sets. None were found. More stores, still none. Not a single measuring spoon! I found that ironic. I know that a teaspoon contains about 5 mL of liquid, but that bit of knowledge was not helping much right now.

It was then that the store owner had a thought. How about the measuring spoons that come with medicine they give to children? That's it—the pharmacy! Riding the roads (and sidewalks) we soon arrive at the “Pharmacie.” But, they don't have the spoons apart from the medicine. Not giving up, we continue to pursue our quest for anything that could help. That's when the clerk showed us a sterile packaged plastic syringe, marked off in graduations of 1 mL up to 10 mL. Success—and free to boot!

Things were definitely looking up. But, there was still one thing needed—the formulation for the reagent. At my advanced age, there is room for only so much in this head and

serial number restoration reagent formulations just don't fall into the high priority list. Do keep this in mind next time you say "I don't need to know this because I can just look it up." Yes, you no doubt guessed it. The formulation was residing with the rest of my baggage and I could not just look it up.

"Do you have internet access at home?" I asked one of our escorts. When he replied that he did, I suggested we continue our little trek. Google popped up and I searched on Fry's Reagent. Lots of sites popped up but none of them had the formulation. Tried another reagent name and the same thing.

I will admit that I was getting a bit discouraged but then backed off the specificity of the search and simply typed in serial number restoration. I clicked on a link and while it did not specify the name of the reagent, I knew enough of the formulation to know it was the right one. Where was it found? I have some high school science teacher to thank for putting his laboratory assignments on line!

"Will you be able to do it Ron?" I was thinking of responding that the, "proof would be in the pudding." However, even before the trip I understood that there are some sayings we readily use in the United States that could cause some head scratching if taken too literally elsewhere on the globe. "No guarantees, except the guarantee that I will do my best."

The next day found me behind a bar-height bench pulling out the newly purchased supplies and chemicals that were available. Measuring out the cupric chloride, mixing it with the hydrochloric acid and distilled water, I felt like I was preparing a mixed drink—Fry's Reagent with a ferric chloride chaser!

I will admit that the entire trip was one in which I developed a tremendous amount of gratitude such as I have for the wonderful home and family with which I have been blessed. Even for the blessing of actual tanker trucks carrying liquid gasoline and not the manner in which it was transported through these city streets.

I also developed a good sense of gratitude for some of the simpler things in life—like a fume hood and lighting, as flickering as it may be at times. The approximate 15 by 40 foot concrete block building had two doors along one wall serving to ventilate the place. Lighting was provided by a central, 75-watt light bulb. There was a short second where I got too close to the open bottle of hydrochloric acid as the reagent was being prepared and far too many seconds of straining my eyes trying to determine if it was a five or a six I was seeing. Discerning the corner that can make the difference between a five and a six is difficult enough to see under the best of lighting, let alone what was available.

Yes, this has been a lighthearted way to convey what was in actuality a very serious assignment. There was a definite need behind the work that I had been asked to do. It was important to the people who had asked me to come and it was important to the host nation. I am pleased and humbled that there was much favor shown to us in this task and that restoration results were better than what had been hoped for under the best of circumstances, let alone the less than favorable ones that actually existed.

I do not want anyone to misinterpret this lighthearted attempt as a slam towards ASCLD/LAB or any other accrediting body. The purpose of accreditation is to assure a certain level of work quality such that the public can have confidence in the work product of accredited forensic laboratories. Accreditation serves a very important purpose and I feel that the efforts of the accrediting bodies need to be supported.

At the same time, it is critical to maintain a practical and sometimes innovative approach to our profession. In fact that is precisely what this profession was founded upon. We cannot get so bogged down in the rules, regulations and stipulations that we forego opportunities to offer assistance when it is needed. The rules can be an awfully difficult taskmaster.



Beyond the C.S.I. Effect

Time to ponder the great scientific questions of the modern era...

A new way to measure the C.S.I. effect: How many pop stars follow Brittany Spears' lead and also decide that crime scene investigation may just be the right job for them?

Thinking to a logical conclusion...

The coalition of owners in professional hockey decided that a complete lockout to force a salary cap was necessary for hockey to survive. Note to owners: Don't over estimate your importance to most of this country. Most of this country considers ice hockey to be irrelevant so the very thing that you felt was necessary to save the National Hockey League may be the very thing that kills it.

Out of nowhere...

Since pop stars feel they can "pop" right into forensic science, how about finding a place for those out-of-work hockey players? Maybe we could use them as subjects for producing blood spatter patterns? Or, as John Houde suggested, blunt force trauma studies?

The ever so necessary Giants update...

Last year at this time, all I had to look forward to was A.J. Pierzynski. This year, there's another bat, two Gold Gloves and an ace closer - all significant needs at last year's close. Of course there is also that little issue about steroids...

On a more serious, but related note...

So what do the C.S.I. effect, overestimating one's own importance and the Giants new acquisitions have in common? The answer has to do with getting back to basics with a humble spirit.

Let's have a look at this C.S.I. effect. At one point in time, juries did not have a clue as to what forensic scientists did. The closest thing that television had was *Quincy*. As a result, there was rarely a question of what we did not do with regard to a particular case. When the lab decided not to pursue latent print processing on a drug buy followed by an arrest, the jury was content to hear that the undercover officer actually saw the drugs in the hands of the defendant. Now, it is not uncommon for prosecuting attorneys to request (and even demand) that latent processing be done. Even though it is meaningless in the grand scheme of things, they have less explaining to do as to why it was not done.

In addition to this C.S.I. effect, the various disciplines within forensic science are facing more vigorous scrutiny from the courts. Challenges to the various identification disciplines such as firearms, tool marks, document examination, and fingerprints are on the rise. The common theme among the challenges can be reduced to one primary issue. "How do you

know?" How can you be certain that no two individuals will have the same fingerprints? How do you know that you can identify a bullet to a particular gun to the exclusion of all others? No longer is it good enough to simply say, "I know it when I see it."

At one time, a forensic scientist was a highly regarded expert witness. His or her word was the final word on evidence related issues. So much so that defense experts were to be suspected as hired guns. They were not to be trusted because the motivation of these individuals was primarily money - they had a living to make. Therefore, their objectivity was tainted.

Well, times have changed. What we do, or what we don't do, is being questioned. The basis of our work is being challenged. The forensic scientist is no longer considered an untouchable on the stand. And while there are some experts hired by the defense that are hired guns, it is well apparent that many more defense experts have legitimate questions than we dared admit in the past.

The issue is not whether we can return to the "good ol' days." The fact of the matter is that times have changed, period. What remains is our response. Will we respond in an aggressive stance, defending our position to the very death? Or, will we examine what these individuals are expecting and saying and respond with an introspective look? Will we humble ourselves enough to consider that maybe we do not have all the answers but are willing to get back to basics and offer investigation to what is being asked?

Other than saying that there are and will be many who will take the aggressive stance, little will be said regarding this type of response. The reason is that I feel it is the most inappropriate way to deal with the situation. Therefore, I will spend no more time addressing it. If others can provide a convincing and well-articulated defense supporting this aggressive response, I will be more than happy to offer equal time and have it published.

I feel that the best, most appropriate response is to respond from a position of humility. It is important to grasp that these individuals have a right to ask the questions that are being asked. Just as we have a responsibility to uphold, so do they. They have the responsibility to assure that we have done the best possible job that we could have. They have



Ron Nichols

CAC Editorial Secretary

the responsibility to examine what we have done, solicit advice, and ask questions to assure their clients that the conclusions we have reached are indeed appropriate.

When our work or conclusions are being questioned it will often times appear as a personal attack. The reason is that the questions will begin with “You” or “Your.” Yet, *your* work is based on some base of scientific knowledge that has been developed and *your* conclusions are supposedly based on some base of hypothesis testing and experimentation. Therefore, while the questions may be phrased in a very directed sense at *you*, what is really being questioned is the science *behind* what you do. It is critically important that we do not respond with an underlying attitude of, “How dare you.” Rather, we should be responding with an attitude more reflective of, “How can I help you?”

It is also important to grasp the reality that each of us is not the single repository of all that is good and right in forensic science. No matter how experienced or knowledgeable we

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may be we do not have all the answers. Just because we have been declared as an expert does not make us the end all for our discipline. As unfathomable as the thought may be, there may even be those outside this field that have questions or ideas that are based in scientific thought and process. To suggest that these individuals have little to nothing to offer based on their being an “outsider” is insulting at best.

It could very well be that there are individuals who will question or assert something that would have been resolved had they had an adequate base of knowledge within the specific forensic discipline. Rather than dismissing them out of indignation, it might be better to respond with respect. We tell our kids that there are no stupid questions. Why do the rules change when we become adults?

It could also be that these individuals have questions that are not being answered by the various forensic science disciplines. Maybe the conclusions that are being readily offered are truly facing exposure as houses built on sand rather than rock. Instead of facing these questions with an aggressive, indignant stance by digging our feet into the shifting sand, it might be better to exam the foundation and see if there is any way in which it can be solidified.

If we are humble in spirit, we will be in a much better position to be introspective and examine this foundation, the very basics of the house that we have built. One of the best ways to examine this foundation is by asking yourself the very same question being asked of us, “How do you know?”

Is there a sound scientific basis of hypothesis testing and experimentation that supports your conclusions? I have found that in many forensic disciplines there is an assortment of various resources that are thrown together in a reference list for a training program. However, there is rarely a logical summary of how these resources are relevant to the task at hand. Arguably, each forensic scientist is responsible for understanding this relevance, but it is rarely formalized. For examples of how this could be done, I would reference some of the more current literature in the firearms and tool marks discipline that summarize previous work and relate it to current practice.

It could be that during this examination we may find that there is something lacking. Rather than indoctrinating current practice more aggressively, it will be important to step back and do some work on the basics. Otherwise, we are simply putting a fresh coat of paint on a house that needs a new foundation! It might take some backbreaking work. It might even involve dismantling some of the existing house. It might even mean that the best foundation could support only a smaller house. Regardless of what might have to be done, the foundation has to be solidified because that is the only way our work will have integrity associated with it.

Are we communicating to the best of our ability? I would argue that a good amount of the attacks that come our way is because of our ill preparedness to articulate ourselves well enough. Arguments can include a lack of time for trial preparation, lack of time for educating attorneys or an aggressive stance that we cannot talk with opposing counsel or advisors. I find this line of thinking to be analogous to penny-wise, pound-foolish. The time we take in advance to educate will be more than compensated by less time on the witness stand addressing irrelevant issues and less time going over the same basic issues with different attorneys. In addition, I have found that when I had the ability to communicate with defense council and advisors, there was much less suspicion and much more respect accorded to me both on and off the witness stand. Many times I was even saved a trip to court.

John Houde expressed similar sentiment in a recent issue of the *CACNews* [“Thinking Outside the (Black) Box,” *CACNews*, 4th Q, 2004]. John offered many different thoughts on training and education. To his I would add speaking to various public and private groups such as high schools, college forums, and fraternal organizations. These are the scientists, lawyers, judges and juries of the future. Forensic science is a hot commodity! I think it might be a good idea to capitalize on that interest and offer a realistic view of what it is like.

Rather than facing the *C.S.I.* effect with an indignant, “Why should I?” maybe we should humbly respond with a “Why not?” I suggest that the latter will lead to a much more fruitful introspection and dialogue than the former. In addition, rather than assuming the problem can be solved with a fresh coat of paint maybe we should double-check the foundation beforehand, lest the fresh paint job be irrelevant.

Until next time, my best to you and your families.

Row

Firing a Beretta Model 950B .25 cal. Handgun Under Water at a Glass Target

by Gregory E. Laskowski

ABSTRACT

Very little published information exists on the behavior of firearms and ammunition components when they are fired completely submerged under water. Because of the variety of handguns and ammunition types available, this type of study would have limited applications. Although there are specific instances when this type of information may be needed, the best way of assessing its value is through practical experimentation. This paper will look at the effects of firing a Beretta model 950B .25 caliber semiautomatic handgun underwater loaded with Remington Peters 28 grain jacketed hollow point .25 auto ammunition. Additionally, the effects of firing the weapon and ammunition at a glass target while completely submerged will also be studied.

Background

A nine-year-old girl died of drowning as the result of a single vehicle roll over accident into the Kern River. Her father, the driver managed to escape from the vehicle unharmed. He claimed that he fired at the driver's side window while the vehicle was submerged using a Beretta model 950B .25 caliber semiautomatic pistol loaded with 28 grain Remington Peters jacketed hollow point ammunition. Three shots were supposedly fired from the firearm while under water. The father further claimed that he was unable to retrieve his drowning daughter from the vehicle.

The only evidence seized by the California Highway Patrol was the firearm that had a spent "stove piped" cartridge casing and the five remaining live cartridges in the magazine. Our laboratory was asked to test the firearm

and ammunition to determine the efficacy of the father's story. This would entail test firing the weapon underwater while firing at a glass target consisting of drivers' side window glass from a 1987 Ford Mustang.

Examinations Performed

Standard Test

The Beretta model 950B .25 caliber semiautomatic pistol was examined and function tested. According to investigators with the California Highway Patrol, the pistol was recovered with a spent cartridge stove piped in the chamber. This cartridge was not submitted with the firearm nor were any other casings or bullets from the scene submitted. This examiner was advised that the firearm was treated with BreakFree™ brand solvent in order to preserve the weapon.

Three rounds of CCI Blazer .25 auto 50 grain tmj ammunition were loaded in the pistol and fired into a Detroit Armor horizontal bullet recovery tank. The Beretta functioned normally firing and cycling the three cartridges. Bullets and casings were examined and bore standard markings associated with this type of firearm. It should be noted that the Beretta model 950B has an unusual feature in that it possesses a tip up barrel and has no extractor. It operates as a single action only blowback extraction system.

Initial Underwater Test

Because only five rounds of Remington Peters .25 cal. auto 28 grain jhp were submitted with the firearm for testing, it was decided to determine if the pistol would initially fire and cycle underwater using Remington Peters .25 auto 50 grain fmj ammunition. To accomplish this, a single cartridge was loaded into the firearm. The pistol was the completely submerged approximately six inches under water and fired horizontally at the rubber stop panel at the rear of the tank. A heavy gauge nitrile glove was worn over the shooter's left hand (firing hand) during testing to prevent injury due to blowback or possible disintegration of the firearm. When the pistol was fired, there was a loud report accompanied with a stinging sensation to the shooting hand despite the use of the nitrile glove. Most of the stinging sensation was directed to the dorsal side, the exposed area of the trigger finger. An examination of the firearm revealed no apparent defects or damage. The pistol did, indeed, fire and cycle

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completely. A spent bullet and cartridge casing were recovered from inside the bullet recovery tank. They appeared to have normal features typical of those observed on atmospherically fired ammunition components. Special attention was focused on the primer area of the spent cartridge casing. No unusual features were noted on the primer. None were observed to be "blown" as described by Carr (1). The bullet appeared to bear a normal shape and bore rifling characteristics typically associated with this type of handgun.

Rapid Fire Underwater Test

Based upon an interview conducted with the owner of the firearm by California Highway Patrol officers, the next test conducted would entail firing the pistol underwater twice in rapid succession followed by a pause then a final third shot. The pistol was loaded with three rounds of Remington Peters .25 auto 50 grain fmj cartridges. Again, the pistol was submerged underwater to an approximate depth of six inches and fired toward the rear of the tank with the pistol being held horizontally. Two relatively rapid shots were fired followed by a brief pause that the followed with the third shot. In this instance the test firing was recorded with a Sony model DCR-TRV900 3CCD digital video camera on Sony DV Premium DVM 60 video tape. While not a true representation of high speed photography (2), digital video does allow slow speed examination with stop frame capability. Images can then be captured by a frame grabber board and downloaded to a computer for further analysis and printing. In all instances the pistol functioned normally, firing all three cartridges and ejecting the casings. The bullets and casings were recovered from the tank. They also appeared normal in their appearance.

Digital videography did record the path of the bullet as it exited the muzzle of the firearm. There is a visible flame or muzzle flash at the time of discharge. A halo of combusted gases in conjunction with gaseous residues and unburned powder forms just forward of the muzzle. A turbulent bullet path projects from the halo with a stump like appearance. The bullet's path or wake turbulence appears then to reflect the cross section of the bullet as it traverses the water toward the target. A perceptible veer is observed in the bullet's trajectory from the proposed straight path. It will curve in either right or left progresses along its path. Eventually it strikes the target at an obtuse angle.

Underwater Test Fire With Glass Target

The investigators with the California Highway Patrol submitted with the Beretta pistol one left side driver's door window from a 1987 Ford Mustang. This window glass was of the same make and model year as the window supposedly shot out by the driver in the case. Testing was accomplished by standing the window in a vertical position at the far side of the bullet recovery tank with the window submerged and supported by the

rubber stop panel. In this instance, the firearm was loaded with one round of Remington Peters .25 caliber 28 grain jhp ammunition. The pistol was completely submerged to a depth of six inches and fired horizontally toward the interior surface of the window glass from a muzzle to target distance of twenty-four inches.

As previously described the pistol functioned normally. It fired the cartridge and ejected the casing. The glass target was observed being struck by the bullet. However, it was not shattered. In fact, there was no sign on the glass that the bullet had struck it. The bullet did, however appear to exhibit a defect midway along its axis to one side.

This experiment was repeated but the muzzle to target distance was changed to twelve inches. Again, the weapon fired and ejected the spent cartridge casing. The bullet was observed striking the glass target but not shattering it. An examination of the window's surface did not exhibit any evidence of where the bullet struck. Examination of the spent bullet revealed some interesting phenomena. First the nose area of the bullet appeared pinched, effectively closing the open cavity. It can be said that the bullet's nose had a crimped appearance similar to crimped small caliber snake shot cartridges. A small smooth dent at the crimped nose suggested the bullet struck the glass at an angle. No glass, however was observed on the surface of the bullet or in what remained of the cavity.

The muzzle to target distance was then adjusted to six inches with all other conditions remaining the same. The weapon was fired. As in all previous instances, the weapon functioned normally including ejecting the spent cartridge casing. The window glass shattered. Diced fragments of glass resulted typically of shattered tempered safety glass. This bullet was recovered and examined. In this instance, the bullet appeared flattened along one side. One could observe where the rifling characteristics had been disturbed by cuts and nicks to the bullet's surface. A fissure or crack was apparent at the bullet's ogive. Powdered glass was found embedded in the fissure (2). Some signs of glass were noted near the nose adjacent to the partially squeezed cavity. It was apparent from this examination, even at the relatively short muzzle to target distance of six inches, the bullet did not strike the glass target directly nose first, but rather at a yawed orientation.

All recovered under water fired cartridge casings appeared normal relatively to atmospherically fired cartridge casings. Overall firing pin depth into the primer of submerged fired cartridge cases may have been slightly less deep.

Summary

As a result of these experiments, it can be said that the Beretta model 950B .25 caliber semiautomatic pistol will fire and cycle completely while submerged in water. That is, during the process of firing the bullet escapes the

barrel surrounded by flame and powder gases. The slide does retract allowing for complete ejection of the cartridge. The cartridges tended to eject upward only a matter of inches from the open breech of the firearm based solely on slow speed video observations.

A bullet's path upon leaving the barrel of the firearm tends to be straight only for a relatively short distance. In the case of the Beretta model 950B, this was approximately one to two feet. The bullet then seems to deviate from a straight line of flight either left or right. Further study using multiple test firings at various distances with different types of ammunition is suggested. There is also an indication that the bullet tends to yaw or possibly tumble during flight. This may be especially evident with open cavity bullets. There may also be a correlation to pressure waves produced when the muzzle is nearer to the target. Further investigation into this phenomenon is warranted.

Firing a gun underwater at a glass target will result in the glass shattering as long as the target is close enough to the muzzle. For the firearm and ammunition used in this experiment that distance is in the range of six to twelve inches. Due to a lack of specific ammunition and resources, a closer range could not be established.

Reasonable care and caution need to be applied when conducting this type of experiment. Protective eyewear, hearing protection, as well as a protective glove should be employed when shooting a firearm underwater. Observers should also be present during test firing.

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I would like to thank Miss Jeanne Spencer of the Kern County Regional Crime Lab for her assistance in digitally videotaping the process and providing the video still photographs of the bullet's flight underwater. Also, a special thank you goes to Officers Jeff Lawson and Kurt Kruse of the California Highway Patrol for providing the firearm and window glass, but most importantly for providing the impetus to conduct the study.

COMMENTARY • Part I

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cumb to False Authority Syndrome. In many cases a person's job title sounds impressive, but his or her job description at most may only include references to vague 'computer security' duties."

Part of the syndrome is that the false authorities perpetuate myths about "their science" (fingerprints) with other pseudo-experts and they in turn talk to the media extending the myth, much like the Y2K Hoax. It becomes a morass of the "blind leading the blind" techno-babble and is ironically pseudo-science accusing a true science of being a pseudo-science.

It is interesting to note that False Authority Syndrome is nothing new to these times. Arthur Conan Doyle wrote in one of his Holmes stories: "...so aloof is he from general suspicion, so immune from criticism, so admirable in his self-effacement, ...that he could haul you into court...Is he not the celebrated author of *The Dynamics of an Asteroid*, a book ...that it is said that no man in the scientific press is capable of criticizing it?" In fact in the early 1900s the world abounded with FAS bringing us some interesting "sciences" such as phrenology.

Another issue in the CAC article, one proffered by Cole is that critics within the discipline are ostracized. This is more FAS mumbo jumbo. When in reality those "critics," of which there are only a handful, are no more "excommunicated" than those astronomers who believe in UFOs or biologists who ignore the evidence of evolution. Or the phrenologists of the early 1900s, the few quacks eventually uncovered for what they are.

A startling aspect of the CAC article is pop-out text box with the text and quotes over a photo of a fingerprint as if this is a quote from an expert. This effect can lend credence to the statement—in this case that statement—"More intriguing is the possibility that no unexplainable difference can be found between the prints, yet they do originate from different sources." When in actuality it is text from the article and a statement apparently made only by the authors.

The implied emphasis of articles like this, and this article can be lumped in with those appearing in other media, is that

because there are fingerprint comparison mistakes, the science is flawed. Of course, one point that they are missing is that these mistakes are found by fingerprint examiners, using scientific methodology and basing their conclusion on the uniqueness (infallibility) of fingerprint science. In other words you can't have it both ways. If the science is flawed then the science can't be used to verify the mistakes. To belabor the point: If none of this is valid then maybe there were no mistakes at all?

The CAC article also states: "This suggests that the science / art (my emphasis) of fingerprint comparison is perhaps not as reliable as conventional wisdom would have us believe..." This statement is not directly attributed to Cole by the authors, but it certainly represents a stance he espouses. Cole suggests that fingerprint science is not a science but an art and that the scientific concepts well accepted by forensic science, other scientific fields such as biometrics and the general public (conventional wisdom) are not valid. [Sounds like a created response to Daubert doesn't it?] Remember the Syndrome calls for a spreading of the myth and it looks as if these authors have bought into this false concept.

Here is another example. "The reaction of the fingerprint community, at least as assessed from the web chatter, has been largely defensive; circle the wagons against the attack that is sure to come." The quotes are mine so this must be thoughts of the CAC chemists. However, this notion is one that is constantly advocated by Cole. A perception not supported by any evidence but largely from lurking on the Internet.

A crucial factor of FAS is that by repeating the outrageous assumptions it gives them credence. This occurs in the CAC article with Simon Cole's new approach in attacking fingerprint science. After hearing for so long that "the technology is sound but it is the practitioner that can error," apparently his new tact is to equate the human mind with mechanical instruments such as those used to analyze DNA. The "mind is the technology" is an interesting concept. However, this concept is also not grounded in any scientific basis.

The authors were also sucked into the statement that "we note that it (a zero error rate for the technology based upon the fact that fingerprints are unique) would seem to be irreconcilable with the reported facts in this case." The facts in the case are that a mistake was made. The CAC authors have perpetuated the FAS with regard to the Law of Fingerprints- which is that fingerprint are unique. They are buying into the myth that fingerprints are really not unique as purported by the false authorities.

A staggering example of FAS is also in the article when the authors state that CSI syndrome is in the statement enlarged in a pop-out text. "...the preconception that fingerprinting is infallible, otherwise known as C.S.I. syndrome..." The quotes again are mine. I believe this misstatement comes from an ultrarepidarian as it suits the critical cause. C.S.I. syndrome or effect is commonly defined and used as the inflated expectations of juries and the public with regard to the capabilities of forensic science.

One element of the false authority syndrome is the ability to convince people that what they are saying is correct, that they are a voice of the consensus of the scientific community. This gullibility also leads to another factor authors may have not thought about. That is tainting of the jury pool. By restating as fact, the outrageous claims of these few false authorities, & pseudo experts (ultrarepidarians), they could be corrupting the jury pool. Just like the CSI syndrome can give a false expectation to juries so can these articles give the wrong information to the jury pool.

For the future, fingerprint examiners will not be taking the advice of the CAC article's authors (or is it Simon Cole's advice?) to disabuse ourselves of the basic tenants of fingerprint science. Fingerprints are absolute and infallible. Any skepticism, if warranted, lies in the competence of the forensic scientist bringing the identification forward. This same skepticism should be applied to the pseudo experts and false authorities bringing forward these criticisms.

As my boss says, "As a forensic scientist we have to be open to the possibility that our science can be proven wrong." Fortunately for fingerprint science, we are constantly reinforcing the positive. Every single day the Fingerprint hypothesis is empirically tested and proved reliable and valid. This offers daily support for the fact that the Law of Fingerprints is solid and fingerprints are permanent and unique. As scientists we are confident that any "critic" that tries to prove the fallibility of fingerprints will actually find the opposite. Just as we testify to everyday.

Reference

Vmyths.com
<http://vmyths.com/fas/fas1.cfm>

COMMENTARY • Part II

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additional information."

Importantly they accept that the answers to many of their specific doubts about FBI practice must await the findings of the 'International Panel of Experts'.

While it is not possible to review the whole article I would like to join in the debate by highlighting some of the issues that particularly interest me.

As an acknowledged supporter of fingerprints as a science I, like Simon Cole, have the greatest of difficulty with the 'zero' or 'next to zero' error rate claims made by the FBI and incidentally the SCRO. The article properly raises this issue as being critical to the debate.

Claims of a 'zero error' rate do fingerprinting no favours and have no place in forensic science.

The fact that each individual has a unique set of fingerprints in no way leads to the conclusion that all identifications are correct and that 'zero error rates' are possible.

As Simon Cole states in the CAC article, "The statement confuses the general potential for individualization with the specific analysis of the evidence in each case."

As I refer to later the myth of infallibility has had much to do with issues like error rates.

The CAC article also performs a service in highlighting issues like the impact of technology and culture. "...that the relatively recent (in the history of fingerprint comparison) introduction of the AFIS database may, in fact, contribute to erroneous identifications"

Is it so outrageous to suggest that the ability of new technology to bring a limited number of similar reference prints before the expert brings psychological and emotional pressures into play that we have yet to fully understand?

Indeed in highlighting just how many cultural, psychological, technical, emotional factors and political forces are at play when an identification is made the article has done us all a service.

Ongoing research into these factors, particularly in the visual sciences, is proving that sometimes what we see is what we want to see, or feel we should see, and that at an even more subtle level there are unconscious forces acting on our psyche.

Are the questions asked of the FBI unfair or unreasonable? Who can argue with the authors when they observe, "We can't help but wonder how a print that previously was sufficient to make a "100%" identification suddenly loses all its value. Does the fingerprint community have a consensus document that articulates specific criteria that determine "value?" How is it that it suddenly lost all value when the Spanish matched it to another viable suspect? As uncomfortable as these questions may be, they must be addressed."

As more than one observer has noted the *Mayfield* case has many disturbing similarities with the Shirley McKie case. The authors could well be speaking of the latter case when they say, "What is stunning about this case is that apparently four different examiners who were not only well-qualified, but highly experienced, and well-respected within the fingerprint community, apparently made an incorrect identification on the same print."

It would be interesting to know if any common cultural, psychological, procedural or political factors were at play within the SCRO and FBI that led to the 'mistakes'. Undoubtedly there are lessons to be learned and only through challenge and debate will they be learned.

Throughout the article important questions are asked, does "the culture and practice of friction ridge analysis leave(s) no room for ... uncertainty; does "Any attempt to move toward a statistically based assessment of strength cast(s) some aspersions on the current state of the practice"?

Can anyone really argue with the conclusion that without "stated objective criteria, it is impossible for two examiners to have an intelligent discussion about why they might disagree about a certain print comparison" or have "an effective post-mortem in cases where an error is exposed?"

While I found myself disagreeing with Simon Cole's sweeping assertion "that the way the fingerprint community traditionally handles mistakes is to disown or excommunicate the individual who made the error" I found myself nodding in agreement when he stated, "that although not everyone in the American fingerprint community is necessarily enthusiastic or supportive of the self-appointed leaders, their discontent has no voice."

Where are the IAI and Fingerprint Society in this debate. Their silence is deafening and despite the former having a long and honourable role in maintaining and improving training and procedures both have been spectacularly ineffective in taking action against organisations that have been proved either unwilling or powerless to act in the face of overwhelming evidence of culpability.

Although charges of generalisation can be laid against the authors, their concerns about the effect on individuals of certain organisational cultures appear genuine and important.

Of course the article contains some spectacular conclusions perhaps calculated to alienate the expert.

"Simon (Cole) opines that fingerprint matches should be presented, not as scientific determinations, but as opinions based on experience the practitioner has developed by looking

at fingerprints. It should be made clear that our collective belief that a match is individualizing, is just that, a belief, and cannot at present be quantified in any meaningful way."

This does not however excuse totally rejecting his argument or a thoroughly thought provoking and valuable article.

The truth is many other questions raised in the CAC article have a vital bearing on the profession's future. You can ignore or attempt to dismiss these issues but they will come back to haunt you. Surely experts should be embracing challenge and learning from it not avoiding and deriding it.

In closing I would identify two major issues that require to be tackled immediately.

Despite many genuine attempts at unification over the years, latent fingerprint examination worldwide is not a coherent science and practice. Standards of selection, training, quality control and competence vary country to country and even within countries.

We have experts using quantitative and qualitative approaches who eschew the others approach. We have experts claiming to be ridgeologists who frankly appear to be 'point counters' and we have 'point counters' who claim that change is unnecessary because what they do is ridgeology anyway. When we examine this apparently coherent body of science and scientists coherence is the last thing we are faced with.

The other major issue is the myth of infallibility that is still alive and well and is exemplified by 'zero error' or 'near to zero error' claims. Simon Cole is aware of this when he says, "... in spite of the claim that the FBI has made only one error in 79 years (Kramer, May 25a, Wertheim, May 26), many more errors exist than have been exposed."

Infallibility has turned out to be a curse for fingerprint examiners. As we all know it is through fighting to be accepted, making mistakes and experimenting that our strengths and weaknesses are revealed and our true worth established.

It is important to escape the fiction that in previous times the error rate has been next to zero. This is no longer sustainable and does not need to be. What the public needs to be assured of is that the science is aware that errors are being made and that something is being done to remedy the situation.

I feel at times that the profession is trying to do the latter without admitting the former—skewed logic that rests uncomfortably with me.

A simple sentence in the CAC article rings a lot of bells for me and hits at the very heart of the problem.

"Pete offers that any admission of fallibility in fingerprint identification makes, not only the examiners, but the legal and judicial community uncomfortable. Even defense attorneys are used to accepting an identification as absolute. Any introduction of uncertainty, much less a quantification of it, turns everyone's world upside down and threatens the basis for thousands of convictions."

Just how uncomfortable it has made the justice system, police and politicians remains to be seen and this latter point might yet explain their extreme reluctance to join in any public debate.

The whole of the fingerprint profession is in fact suffering from a very large dose of uncertainty and as any mental health expert will tell you this can be extremely unsettling as your world is indeed turned upside down. Depression and out of character behaviour is often the result.

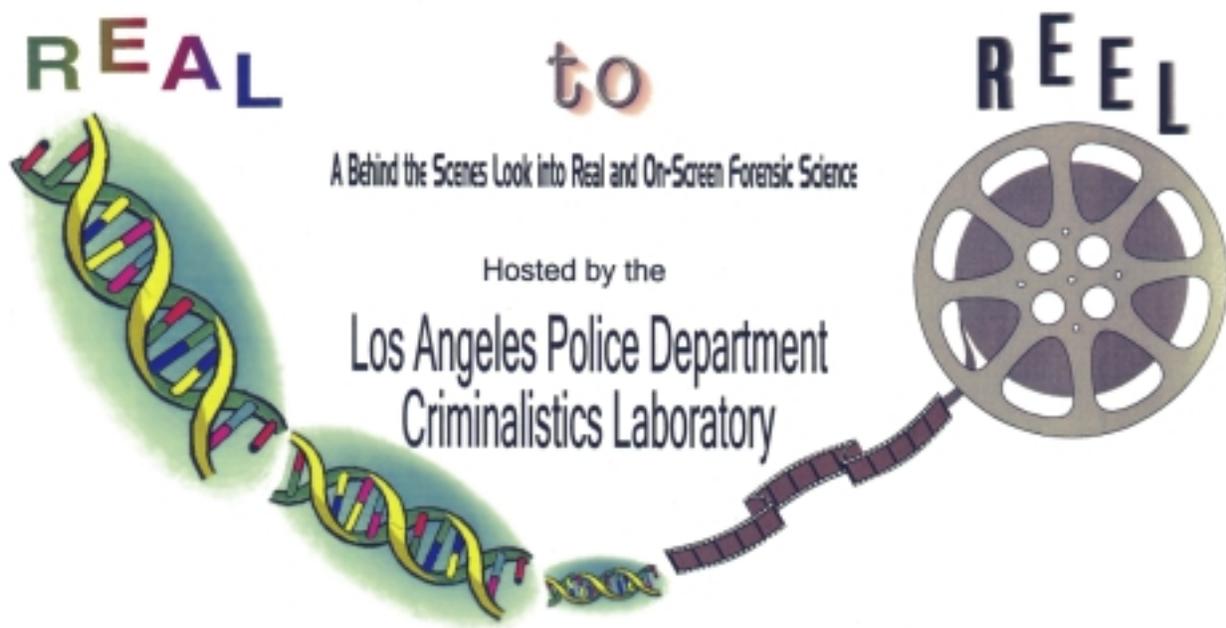
The fact is that some experts will always be effective and efficient, others will remain limited in their expertise and some will never be effective. While it seems sensible to retain the

first and continue to educate and train the second it is important to eliminate the third and ensure that an overarching system of checks and balances is in place that protects everyone in the system including the experts..

Perhaps the whole debate is reduced to two simple facts: Friction Ridge Analysis is a science, and Fingerprint experts make mistakes.

As your boss says, Steve, "As a forensic scientist we have to be open to the possibility that our science can be proven wrong."

This seems good advice to me.





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Fall: DOJ Riverside

2007

Spring: Orange Co. Sheriff
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2008

Spring: Sacramento DA
Fall: San Diego PD

2009

Spring: Santa Clara Co.

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... wing it!, cont'd from page 11

eral Joseph Swing, was trying to oversee the raid from his Piper Cub flying over the battlefield. There were only enough amtracs to evacuate half of the internees across Lake Laguna de Bay, and this at a time when the U.S. Army's thrust overland was held up at the river crossing some fifteen miles from the camp. General Swing ordered the few rescuing troops at Los Banos to march the remaining internees north in an attempt to break through the Japanese lines at the river. The Major in charge of the overall operation at Los Banos realized that (1) the internees were not physically able to make such a march, and (2) both internees and rescuers risked being slaughtered as the major Japanese forces reacted from the initial surprise and realized this was merely a small force conducting a raid. So, this Major told me that he shut off his radio contact with General Swing and ordered the reluctant Lt. Colonel standing beside him, who commanded the amtrac battalion, to bring back his amtracs for a second trip across the lake. Even the short hike to the lake to await the returning amtracs was hard on the internees who had to make that trek. Since it turned out to be the right decision, General Swing didn't challenge the Major's story that his radio had failed and thus he hadn't received and disobeyed General Swing's order."

As I pondered my brother's comments, it wasn't many days after the American Society of Crime Laboratory Directors had met in San Diego. My lab director came back with the news that ISO compliance by ASCLD/Lab was a done deal. In fact, in a report issued by ASCLD on May 28, 2004, "180-Day study Report: Status and Needs of United States Crime Laboratories" available at www.asclcd.org/pdf/180dayasclcdstudy.pdf. On page 26 it states: "[ASCLD/LAB] is currently in the process of establishing compliance with the International Organization

for Standards (ISO)."

I would not be alive today if the plan for the Los Banos Raid had had to be written out in an approved format with multiple copies and then bucked up the chain of command for comment, review and signatures prior to its implementation. By the time such a process was completed all 2000+ internees would have been dead! I'm sure that there are many arguments for including ISO compliance for ASCLD/LAB certification, but we must maintain a certain amount of flexibility for special situations. This would be especially true in the area of trace evidence. Just because a lab doesn't have a "validated protocol" for the analysis of an unusual type of evidence doesn't necessarily mean we must throw up our hands and cry, "We can't do it!" Every case is different and each must be evaluated on its own merits. Sometimes, "we can't do it" may be the correct answer. Sometimes the best answer might be, "we can't do it, but another lab can" - and the evidence would be transmitted to say, the McCrone Research Institute. And sometimes the best answer might be "even though we don't have a previously-developed *validated protocol* for the examination of this type of evidence, we have the necessary instrumentation and based on previous examinations of similar types of evidence there is no reason why it shouldn't work. Let's try it on some known standards and if we get reproducible results we can try it on the evidence samples. Afterwards we can write it all up, and validate the protocol by sending it and blind test samples to some collaborating laboratories." In summary, I am not against high quality standards in forensic laboratories, but I fear that we are becoming so focused on the *process* that we are losing sight of our *mission*.

Baby Boomer Rock & Roll

Submitted by Bob Blackledge

Some of the artists from the '60s are starting to revise their hits with new lyrics to accommodate us aging baby boomers.

Herman's Hermit — Mrs. Brown, You've Got a Lovely Walker

The Bee Gees — How Can You Mend a Broken Hip

Bobby Darin — Splish, Splash, I Was Havin' a Flash

Ringo Starr — I Get by with a Little Help from Depends

Roberta Flack — The First Time Ever I Forgot Your Face

Johnny Nash — I Can't See Clearly Now

Paul Simon — Fifty Ways to Lose Your Liver

Commodores — Once, Twice, Three Times to the Bathroom

Marvin Gaye — I Heard it Through the Grape Nuts

Procol Harem — A Whiter Shade of Hair

Leo Sayer — You Make Me Feel like Napping

The Temptations — Papa's Got a Kidney Stone

Abba — Denture Queen

Bob Dylan — Like a Kidney Stone

Queen — We WERE the Champions

Beatles — With a Little Help from My Meds

Dion — Limparound Sue

The Rolling Stones — Drooping-jack Flash

Tony Orlando — Knock 3 Times on the Ceiling If You Hear Me Fall

Helen Reddy — I Am Woman, Hear Me Snore

Willie Nelson — On the Throne Again

Lesley Gore — It's My Procedure and I'll Cry If I Want To

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