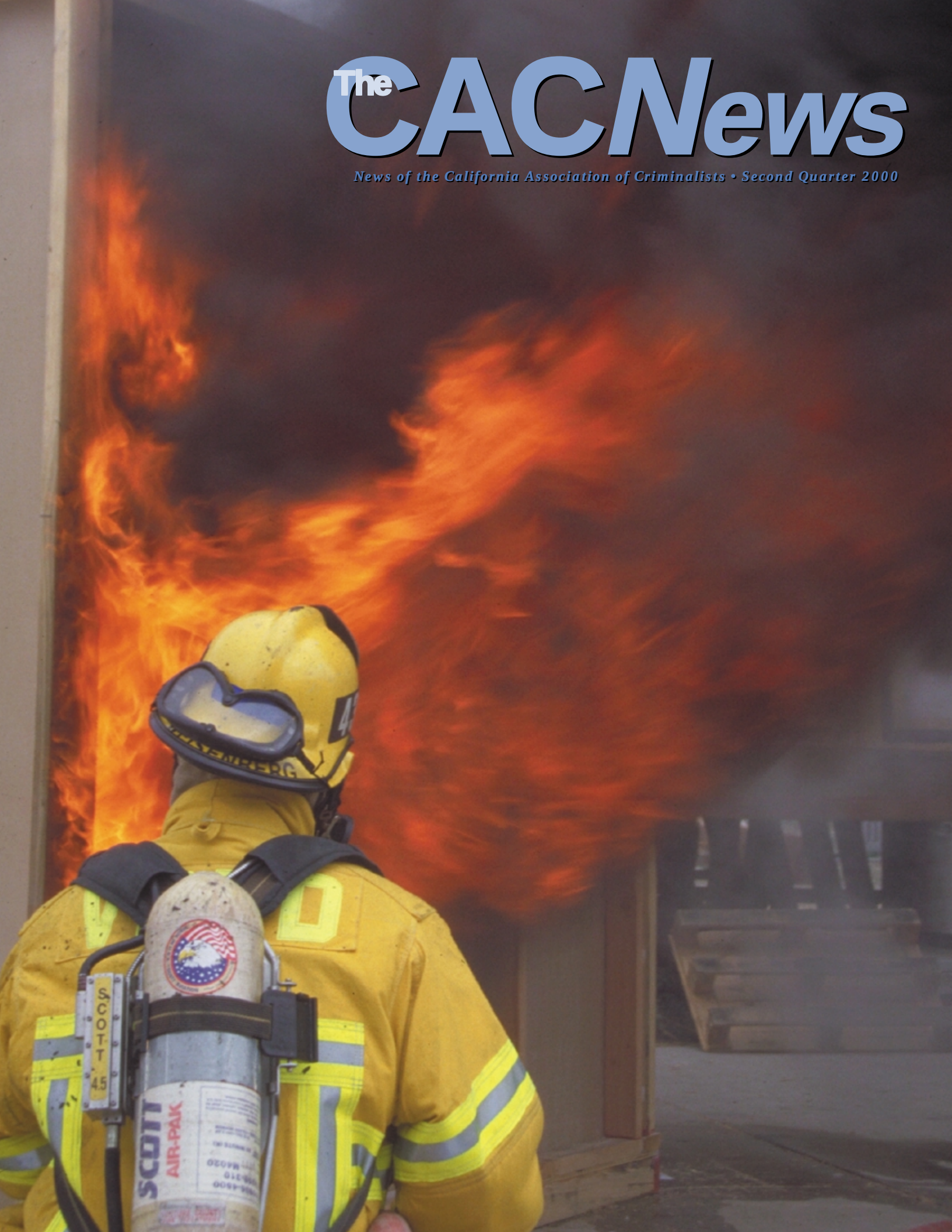


The CACNews

News of the California Association of Criminalists • Second Quarter 2000

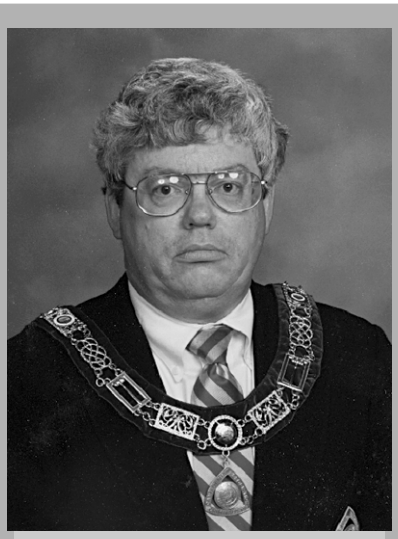
HIRAM **EVANS**

Challenges & Blessings in 2000

Both Y2K and February 29, 2000 have come and gone with more Sturm und Drang than true substance, but early 2000 has brought challenges to this Association unrelated to the calendar.

Proposition 15. The March 7 ballot will allow the People of California to vote with their wallets on the need of improvement in the physical facilities for local forensic science laboratories through the Hertzberg-Polanco Crime Laboratories Construction Bond Act of 1999. Taxpayers throughout the state have supported the DOJ's Bureau of Forensic Services laboratory system for 20+ years, many of them also supporting their local police, sheriff, or district attorney's crime laboratory all the while. While it would, in an ideal world, be local taxpayers locally supporting those things on which they set priorities, Prop 15 has the opportunity to provide new or remodeled physical plants for locations which have not responded to the needs of their laboratories. The CAC will urge the governor to appoint a representative of this association to the forensic laboratories authorities, which will determine the priorities for spending from the bond act's funds.

Reform of Alcohol Regulation. The Public Health Liaison Committee in the person of Jeff Thompson, representing both CAC and CACLD, has worked hard to draft language for a bill that has been sponsored by State Senator Ross Johnson as SB 1849. This bill would require DoHS to: 1) revise regulations by July 1, 2002, incorporating the Model Specifications for Evidential Breath Testing Devices and Model Specifications for Calibrating Units for Breath Alcohol Testers published by the National Highway Traffic Safety Administration, only after convening the review committee, 2) continue to provide proficiency testing samples, 3) convene the review committee before July 1, 2001 and at least once every five years thereafter, with members of the committee to include representatives of criminalists and forensic laboratory managers, 4) limit the regulation to requirements the review committee determines are necessary, 5) allow licensees or ASCLD/LAB accredited laboratories to perform BA analysis, 6) allow breath testing using the Model Specifications, above, 7) license ASCLD/LAB accredited laboratories.



SWGDRUG has announced their intent to take their "guidelines" to ASCLD/LAB for adoption, at which point they become so much more than guidelines.

Again, the CAC will urge the appointment of a representative of this Association to the Review Committee, which will statutorily set priorities for DoHS

"Crystal Wars." SWGDRUG's latest proposal on methods excludes the use of microcrystal tests as a confirmatory identification. Numerous laboratories which use this validated technique in order to provide timely reports on many cases for their clients have written in opposition to these "guidelines." I hasten to add that SWGDRUG has announced their intent to take their "guidelines" to ASCLD/LAB for adoption, at which point they become so much more than guidelines. CAC as an association has written in opposition to the proposal, making it clear to ASCLD/LAB that these guidelines do NOT constitute a consensus in California, whose laboratories are leaders in accreditation and where there are more certified criminalists here than in any other state.

A Home for CAC. The latest challenge being considered by the members of the board of directors is the need for a home for the association. As we near our 50th Anniversary, the need for a home for historical archives, corporate and membership records, and donations of library materials becomes more pressing. Committees are now being surveyed to determine their needs for storage space before the decision is made on a home for the association.

As an association and a profession, we continue to enjoy the blessings brought us by the **Reed and Virginia McLaughlin Endowment,** which through growth and income, will provide funds akin to $90,000 for scholarships, research, and training in 2000. As a matter of perspective, this amount is approximately half the *principal* of the Forensic Sciences Foundation!

And finally, we have the opportunity in May to renew acquaintances with our colleagues from the Forensic Science Society, add to our technical expertise, and share with them the natural beauties, both visual and oenological, of the Napa Valley at the Spring Seminar.

Second Quarter 2000

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On the cover: Having reached "flashover," this training fire burns furiously. It will be allowed to go another minute or two before being extinguished. More training fire pictures inside. Photo: John Houde / Calico Press

The CACNews

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Notice to Contributors: We publish material of interest to our readers and are pleased to receive manuscripts from potential authors. Meetings and course announcements, employment opportunities, etc. are also solicited. Advertisements are also accepted, although a fee is charged for their inclusion in *The CACNews*. Please contact the Advertising Editor for further information. Because of the computerized typesetting employed in *The CACNews*, submissions should be made in the form of MS-DOS compatible files on 3.5 inch floppy disks or by e-mail (mccombsn@hdcdojnet.state.ca.us). Text files from word processors should be saved as ASCII files without formatting codes, e.g. bold, italic, etc. An accompanying hardcopy of the file should be submitted along with the disk. Graphics, sketches, photographs, etc. may also be placed into articles. Please contact the Editorial Secretary for details. The deadlines for submissions are: Dec. 1, March 1, June 1 and Sept. 1.

Southern Regional Director's Report

On January 12, 2000 the Los Angeles Police Department hosted the first dinner meeting of the "new" millenium. The meeting was held at the San Antonio Winery and featured Jim Druzik, Senior Scientist, from the Getty Museum. The topic concerned the identification and preservation of historical artifacts. The dinner meeting was attended by over 70 criminalists who were treated to an excellent presentation. **Joe Hourigan** and **Warren Loomis** are to be thanked for their efforts in putting together this meeting. All of the study groups met. Reportedly **Jerry Massetti's** presentation at the drug study group about SWGDRUG generated the most discussion.

The next meeting will be hosted by Kern County Lab in Bakersfield. **Greg Laskowski** is the contact for this meeting. The meeting is tentatively scheduled for March 24. It will be a luncheon meeting. All of the study groups will be invited and the first meeting of the crime scene study group is planned.

At the next board meeting, a suggestion of changing the format of the meetings and study groups to luncheon meetings versus dinner meetings will be discussed.

—Jim Stam
Southern Regional Director

New Additions to *CACNews* Staff

The *CACNews* welcomes Frank Healy and Suzanne Preaseaux to the Publications Committee. Frank will assist in hunting down advertisers to help offset printing costs and Suzanne will review technical articles and work with authors to maintain the high quality of our newsletter.

Arson Groups Join for Meeting

The So-Cal Arson Analysts and the NorCal Arson Seminars will be joining forces for the first time in a joint meeting. The California Arson Seminar will be held at the Embassy Suites, San Luis Obispo, CA, June 15-16, 2000. Some of the topics that will be discussed include: latest CTS test, report writing, ASTM 1387 changes, setting up for arson analysis, and accreditation with ASCLD-LAB. Who should attend: arson analysts, case reviewers, peer group members, and any person interested in pursuing a career in arson analysis. Cost for this event is $185 including room and board.

Please contact **Collin Yamauchi** at (213) 847-0052, e-mail: c_yamauchi@yahoo.com or Brad Johnson at (916) 874-9240, e-mail: btjohnson@2xtreme.net for more information.

Scanning 2000

See us at www.cacnews.org

Stuff seen on the //WWWEB

(Accuracy not verified)

Northwest Association Meeting

The NWAFS is planning a meeting at the Radisson in Sacramento, CA, May 15-19, 2000 .

The Spring 2000 NWAFS meeting in Sacramento, CA will be a different style of meeting than we normally have. This meeting will be a weeks worth of WORKSHOPS!!!

Along with the great workshops that are scheduled there will be a poster session on Tuesday night, a Bring-Your-Own-Slides Wednesday night and the traditional banquet Thursday night. As meeting info gets solidified, the web site will be updated:

http://members.aol.com/lctox/spr00.htm

Anyone wishing more information on the workshops offered should contact Lisa Caughlin or phone (916) 874-9240.

Expert Witnesses in the Courtroom

Hosted by: Oregon State Police Forensic Division April 19 and 20th, 2000 Greenwood Inn, Beaverton.

Nationally renowned Speakers: Carol Henderson and Roger J. Dodd

Guest Speakers: Michael Schrunk, Multnomah Co. D. A. , Dale Penn, Marion Co. D.A., Bob Hermann, Washington Co. D.A. & Barry Scheldahl, Asst. U. S. Atty.

This unique seminar will teach you how to integrate the following tools into your next case:

· Goals and methods for effective direct examination of your experts.

· Stunning cross-examination of the defense experts.

· Train your expert witness to use vocabulary that sells your theory to the jury.

· Use trilogies to cause jurors to memorize your best facts.

No matter how important your scientific findings may be, they are not as powerful unless you can convey the significance of your results in a competent, professional and understandable manner.

This seminar will teach the experts how to effectively discuss your qualifications as an expert witness, project your expertise to the jury and withstand the rigors of cross-examination.

Certificate Program in Tox Offered

The University of Florida is offering a Forensic Toxicology Certificate program which is web based. For more information look at the following site. http://www.nfstc.org/

Kevin Lothridge, Director of Strategic Development, National Forensic Science Technology Center, 3200 34th Street South, St. Petersburg, Florida 33711. Phone 727-549-6067 Fax 727-549-6070

Forensic Analyst

Broward County Sheriff's Office, Ft. Lauderdale, Florida.

SALARY RANGE $35,627 - $52,637

Under general supervision, the purpose of this position is to analyze and enhance videotapes, still photographs and digital images used in criminal investigations. Employees in this classification perform specialized technical work in the repair, reconstruction, and authenticity of audio and videotape evidence. Other duties include the digital processing and enhancement of latent fingerprints. Position is responsible for the formal reporting of and testifying in court to the findings of such analysis. Tasks involve the ability to exert heavy physical effort with greater emphasis on climbing and balancing, but typically involve some combination of stooping, kneeling, crouching, and crawling. May occasionally involve heavier objects and materials up to 100 pounds. NOTE: A more detailed description of the duties required in this position is available upon request from Human Resources.

Requires bachelor's degree in the natural or physical sciences, criminalistics, engineering, mathematics, audio/visual production or a closely related field; supplemented by laboratory experience; forensic laboratory experience preferred. Requires any equivalent combination of education, training, and experience may

substitute for noted requirements. Such experience must be clearly documented for consideration.

Location is the Department of Law Enforcement / Crime Scene, 201 Southeast 6 Street, Fort Lauderdale, Florida. The position is open until filled

Applications may be obtained and must be received in Human Resources, Ron Cochran Public Safety Building, 2601 West Broward Boulevard, Fort Lauderdale, Florida 33312, by the closing date. A resume may accompany a complete application. INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED. Job Line: (888) 276-7827. Web Site: www.sheriff.org

Forensic Biologist

The Northern Illinois Police Crime Laboratory, a full service ASCLD / LAB accredited laboratory that services approximately 40 police departments in Lake and Cook counties of Illinois, is seeking a forensic biologist. The successful applicant will be responsible for the following duties: Identification and collection of body fluids from items of evidence; DNA analysis of biological evidence using STRs and capillary electrophoresis; Preparation of written reports of findings and opinions; Testifying to results in court; Participation in research and validation studies; Training police and medical personnel regarding evidence collection techniques; Assisting law enforcement officers at crime scenes.

The successful applicant must at a minimum possess a Bachelor's degree in biological, chemical or forensic science (Masters of Science or Doctor of Philosophy is highly desirable). Additionally, applicants that have completed courses in genetics, biochemistry, and molecular biology (in compliance with DAB) will receive foremost consideration.

Preference will be given to individuals with experience using the ABI 310 and / or previous court testimony as an expert witness.

Salary Range: Commensurate with experience.

Please submit a letter of application and detailed resume to the following address: Peter Yallaly, Northern Illinois Police Crime Laboratory, 1677 Old Deerfield Road, Highland Park, Illinois 60035. Phone (847) 432-8160 Fax (847) 432-5199 e-mail NIPCL@hotmail.com

Calico Press

Collin Yamauchi (LAPD Crime Lab) hands out samples of crude oil at a recent meeting of the Southern Section of the Arson Study Group. Collin notes that some of the samples, gathered from around the world, are so light that they could power a gasoline engine without refining.

Forensic Quality Consultants

The National Forensic Science Technology Center (NFSTC) expects to need several forensic quality consultants in the next several months. The incumbents will be responsible for supporting the NFSTC's Crime Laboratory quality support programs, including the new state forensic services planning program.

The ideal consultant will have a sound awareness of quality systems in forensic science including the ASCLD / LAB and ISO accreditation programs.

To work on the forensic services planning program the consultant must have experience in Forensic Laboratory management.

Please let us know if you are interested in being considered for a consultant position. Please send a resume and a short description of why you are interested to Dr William J Tilstone, Executive Director NFSTC, 3200 34th Street South, St Petersburg FL, or by e-mail to wjt@nfstc.org.

Kevin Lothridge, Director of Strategic Development, National Forensic Science Technology Center, 3200 34th Street South, St. Petersburg, Florida 33711. Phone 727-549-6067 Fax 727-549-6070 www.nfstc.org

Chief Scientist

The National Forensic Science Technology Center (NFSTC) expects to recruit a chief scientist this Spring. The incumbent will be responsible for scientific management of the NFSTC's crime laboratory quality support programs, including the new proficiency testing program.

The ideal candidate will have a sound awareness of quality systems in forensic science (for example the ASCLD / LAB and ISO accreditation programs, the DAB standards for DNA analysis, and the work of the various TWG and SWG groups). The person appointed needs to have the committed attention to detail that is critical for successful delivery of these programs. The chief scientist must also have the ability to establish and maintain effective working relationships with operational forensic scientists.

The post is not tenured and its continuation will depend on the performance of the person appointed. Please let us know if you are interested in being considered for the position. A formal application packet will be sent out to you when ready. Please send a resume and a short description of why you are interested to Dr William J Tilstone, Executive Director NFSTC, 3200 34th Street South, St. Petersburg FL, or by e-mail to wjt@nfstc.org.

Forensic Scientist 1

(State of Washington)

$2477-3161 per month (range 44) Duties: Performs beginning level laboratory analyses of physical evidence using accepted scientific methods. Interprets analytical results and prepares written opinion reports. Testifies as an expert witness in courts of law.

A bachelor of science degree in forensic science or a natural science which must include a minimum of 20 semester or 30 quarter hours of chemistry and 5 semester or 8 quarter hours of physics.

Special Note: Some positions will be working with DNA analyses. These

positions require at least one college level course in each of the following: Molecular Biology, Biochemistry, Genetics

DESIRABLE QUALIFICATIONS: One year of full-time paid technical experience in an analytical, research, or crime laboratory.

EXAMINATION: The examination is a one and three quarter-hour multiple-choice exam that measures your knowledge, abilities, and aptitudes to perform the duties of the job. You will be notified by mail when and where to appear for the written exam. Bring picture identification with you when you come to take the exam. We will mail you your score, but we cannot tell you your ranking on the list of job applicants.

DNA Analyst

The Acadiana Crime Lab is pleased to announce the creation of a third analyst position in its Biology / DNA section. The position shall remain open until filled. We encourage all interested candidates to apply. Candidates MUST have at least a master's degree in a biology-related field and no more than four years of DNA experience. Coursework must also include genetics / population genetics, statistics, biochemistry, and molecular biology. Due to DAB guidelines, we can not substitute experience for degree requirements.

Experience with the ABI Prism 310 Genetic Analyzer and its operating software is a big plus. The Acadiana Crime Lab will also weigh additional abilities, such as computer, teaching, and communication skills. The salary range is $42,648 to $47,466, which will be commensurate with experience. For the South, that ain't bad... The Acadiana Crime Lab is a small, quasi-state agency that offers most forensic services in-house. Specialized disciplines, such as odontology, anthropology, and entomology, are provided through other agencies. The Acadiana Crime Lab is located in sunny (sometimes too sunny) New Iberia, Louisiana, which is about 20 miles from Lafayette. New Iberia is also about 2 hours from New Orleans by car and about 3 hours by boat. Interested applicants should send their CV's to Arthur Young at 5004 W. Admiral Doyle Drive, New Iberia, LA 70560. Questions can be e-mailed to this address (ArtWYoung@aol.com). Sorry, no phone calls at this time (I've got work to do!).

DNA Analyst

The Lake County Regional Forensic Lab in Painesville, OH currently has an opening for a DNA analyst. Should you have any questions, please contact: Linda M. Erdei Assistant Director Lake County Regional Forensic Laboratory Phone: (440) 350-2184 Fax: (440) 350-2731 e-mail: LMErdei@aol.com

DNA Scientist

The Lake County Regional Forensic Lab in Painesville, OH is seeking applicants for the position of DNA Scientist. Qualifications include a bachelor's degree in chemistry, biology, forensic science, or a related field. Three years of experience in a forensic DNA laboratory is preferred. An MS or PhD degree will be strongly considered. Applicants must also have completed 12 semester hours in genetics, biochemistry and molecular biology, in order to comply with DAB Guidelines. Preference will be given to those individuals with experience performing PCR analysis or using the ABI 310, and to those with previous experience testifying in court as an expert witness. Responsibilities include crime scene processing, examining evidence for biological fluids, body fluid analysis, analyzing and interpreting test results using STR DNA technology, writing reports, testifying to results in court and participating in ongoing research and validation studies. Salary commensurate with education and experience.

Linda M. Erdei,Assistant Director, Lake County Regional Forensic Laboratory Phone: (440) 350-2184 Fax: (440) 350-2731 e-mail: LMErdei@aol.com

Forensic Drug Analyst

New Mexico DPS Crime Lab

Recruitment Begins: 2-14-2000

Pay Grade: 28 $35,199.84 — $52,800.80 To analyze controlled substances and present results in court. Qualifications: Bachelor's degree from accredited college or univ. in chemistry, forensic science, criminal justice, and / or physical science. (CJ degree must be supplemented by 18 sem hrs of chemistry or biology) Experience: 4 years in drug analysis in forensic lab, and testimony as expert witness. 2 yrs experience in multiple instrumentation: GC, IR, MS. For further information, contact Tom VanValkenburgh (505) 827-9140.

Forensic Scientist

Washington State Patrol is currently hiring Forensic Scientists 1, 2 and 3. For information please visit them at:

http://www.wa.gov/wsp/hrd/forensic.htm

NANCY**MCCOMBS**

To Err Is . . .

I have heard that, for most, public speaking is more terrifying than death itself. Translated for those occupied in our profession, we would prefer to be shot or stabbed than speak in front of a group. Why? Because of our dire consciousness of how society will perceive us. Being that testifying in front of a judge and jury is a manner of public speaking, there must be a multitude of trembling criminalists out there.

Some of the most brilliant people we know are those who possess the lowest self-esteem and who avoid the public eye at all costs. How bizarre. Is there a secret? Perhaps those speakers exuding confidence realize they are not intellectually inferior to their listeners.

Certainly, exposure is the most effective method of alleviating our anxieties. With each experience, addressing an audience becomes significantly less difficult. Organizations such as the CAC provide us with the opportunity to "practice" by presenting papers at seminars. Yet, how else could the CAC help to diminish our apprehensiveness in this area?

How gratifying it was to be reminded we are merely human and are destined to be imperfect periodically.

I asked several friends and colleagues at the Ontario seminar what their most disconcerting courtroom experience was. Virtually everyone could recollect a minimum of one account and no one was reluctant to share them. How gratifying it was to be reminded we are merely human and are destined to be imperfect periodically.

Conceivably, acquainting ourselves with one another's discomposed courtroom encounters could heighten our self-assurance. If even one occurrence comes to mind prior to assuming the "dangling like bait" position, it could remind us we are no less deserving of respect than anyone else.

In this issue of the *CACNews* we are introducing a new feature, "Courtroom Calamities." This regular addition to our newsletter will be devoted to our most momentous episodes, which if desired, may be submitted anonymously.

For if we cannot learn to laugh at our own falterings, we are truly doing ourselves an immense disservice.

Nancy

F E E D B A C K

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

Adversary System Still Best

Editor,

Re "Nation's Crime Labs to Merge with Judiciary" by Raymond Davis [*CAC News*, 1st Qtr, 2000]

Although I have not heard that there actually is a move towards having a forensic science expert recognized as an expert of the court, I know that this topic has been on the minds of many scientists and lawyers who often struggle with the adversarial nature of expert witness testimony in the U.S. There have been many examples of this "court expert" system in Europe, particularly in the former communist countries of Central and Eastern Europe. Be that as it may, I disagree with Ray's commentary that there is a "great advantage for an expert witness to have a neutral standing in court."

I have worked under both systems: for about two years in Poland in the late 1960s, and in the USA since 1974. I have also held many discussions with the criminalists, law professors and the crime lab administrators from Poland, Armenia, Georgia

(former Soviet Republic, not a "Peach State"), Moldavia and Ukraine as recently as the last year. The topic, of course, was a comparison between the court expert system of these countries and an adversarial expert witness system in the U.S.

It is true that we are often a tool in the hands of the side who called us to present the view of evidence which supports the theory of that side. It is equally true that in the court expert system, the presentation of expert evidence and its interpretation is left entirely to the expert. I am not suggesting that an expert may dishonestly represent his or her findings, but there are often many aspects of physical evidence that may not find their way into the courtroom short of a vigorous cross-examination. These fine interpretive nuances could shed a different light on the case although an expert may not be aware of their impact. Under a court expert system these aspects may never be brought to light. It is a fact that under a court expert rule, there is practically no cross-examination. Either side can pose some questions, but these questions are screened by the judge and usually serve only to explain technical language and terms often used in the written laboratory reports.

In all countries I visited last year, the average number of expert witness testimony actually presented in court by an expert in one year was in a single digit even in those labs performing virtually thousands of examinations per year.

I think that the latest [U.S.] Supreme Court decisions (*Kumho* and *Daubert*), although strictly applicable to federal jurisdictions, have already found a following in the state courts. These important decisions have put all of us on notice that now we must be able to describe the principles behind our examination and findings at the risk of not being admitted at all. In short, they keep us honest.

Therefore, in my opinion, the adversarial system provides far better chance that the entire value of evidence will be presented to the trier of fact even if one side takes a different view of evidence than does the other.

—Richard A. Grzybowski

Not Scientific Fraud

Editor,

Recently, publicity has been generated surrounding a 1986 rape case in which a criminalist, James Hall, from my laboratory was involved. Many of the news articles have mentioned allegations of "scientific fraud" on the part of Jim in this case. Because of this, I feel that people should be aware of who Jim Hall really is and to let you know how ludicrous these allegations are.

I have known Jim for 14 years. As a new criminalist in 1985 I was assigned to the narcotics section of our laboratory. Jim took me under his wing and trained me. He also assisted me in my Blood Alcohol training. One feature of Jim's character that I saw from the very beginning was how unbiased he is, and how he is one person in forensic science who does not have an ego that gets in the way of his casework and testimony. I have seen him testify without hesitation about an Intoxilyzer test in which he opined that the instrument was not working properly and therefore, he could not say that the test results were accurate. I remember that he told me how he hated the fact that there was not free exchange of information in cases between the defense and prosecution, and how we often are treated as "pawns" in their games. I remember him cautioning me about going too far in interpreting analytical results. Is this the thinking of someone who would commit "scientific fraud"?

What happened to the defendant in the 1986 rape case is very unfortunate indeed. But, I think that wrongfully and publicly assassinating another person's character in order to push your own idea to get DNA testing done in a more timely fashion for defendants who have been convicted of crimes, is not the way to go about it. . .

—Marianne Stam

Open Letter Criticizes SWGDRUG Stand on Microcrystals

To: Thomas Janovsky, Assoc. Deputy Assist. Administrator, DEA Office of Forens Svcs.

I appreciate the time that you and Mr. Bono took at the recent American Academy meeting held in Reno to provide those in attendance with an update as to the progress of SWGDRUG. I even appreciated the time at the end for questions, and indeed, Mr. Bono's prompting for those supporting microcrystalline tests to speak their mind when no comments seemed to be forthcoming. I wish there had been more time for discussion regarding some of these very difficult issues but then again, some things are better left for a more formalized, written venue.

I have several concerns that I wish to address in this letter and these concerns are related to either things that were said by prominent members of SWGDRUG or issues that seem to be in contradiction with the mission statement of SWGDRUG. I feel that these concerns are valid enough that I will be submitting this letter to all the core members of SWGDRUG, the Methods and Reports Subcommittee, the president of ASCLD / LAB as well as to the regional association newsletters within this country.

I am concerned with the use of the term "guidelines," especially as used by Dr. Siegel during the course of the discussion. I am not about to suggest that there is a deliberate attempt to mislead the forensic community in this respect as to this group's intent. To do so would be blatantly unfair and judgmental and I will engage in neither. However, as you had stated, it was your intention to "present the recommendations to the differing accrediting bodies." With all due respect Mr. Janovsky what is the logical consequence of this action? The logical consequence is that these accrediting bodies will look at the material provided to them, go in faith that this is the general consensus of the scientific community and set them as standards for their member agencies. Now it can be argued that a laboratory does not have to be a member agency of an accrediting body, but that too is a fallacy as increasing governmental legislation and funding are directly tied to the accreditation process. With all due respect to Mr. Bono's statement that SWGDRUG is not "taking authority away from laboratory managers" that is precisely what is going to happen as a direct result of these "guidelines." These guidelines and recommendations will rapidly become institutionalized as the methods by which drugs will be analyzed.

Now if this is going to take place, and it will, we need to do justice to the scientific community by validating the process through which this has been done. If this is not done, then before too long no one will ever know the concrete reasons why certain methods were excluded and why certain methods were included. If this is not done, no one will ever know the reason why it is vital to have structural elucidation methods when there are other methods available that will identify the compound despite not giving structural information. As a boy

growing up in Gary, Indiana I suspect you never imagined being in the position of influencing the international scope of forensic drug analysis. Is the legacy of that influence to be a simple document that 20 years from now people will not be able to understand why something was done? Or is that legacy going to contain scientific logic, insight, research and a consideration of many different issues, including those held of what is being considered an inconsequential group of people when compared to the international spectrum.

With respect to this issue I wish to address the concept of minimum standards. If I may quote the mission statement of SWGDRUG, it reads, "The mission of SWGDRUG is to make recommendations for internationally accepted minimum standards for the forensic examination of seized drugs." Yet during the course of your presentation I continued to hear the phrase "raising the bar." I submit that in the common use of the terms, no matter "what state" one is from, "minimum standards" are not the same thing as "raising the bar." Minimum standards are just that, those minimum standards that are necessary to do the job correctly and competently. When one refers to raising the bar, it is meant to elevate one above the minimum requirements, to strive to do better in some manner. I would argue that those laboratories that were not even meeting the minimum requirements of analysis are performing work that cannot be relied upon and demonstrates incompetence. These are precisely the laboratories for which minimum standards are required. Raising the bar is a step above those minimum requirements and as such represents a level that is artificially set. No matter how much science is involved, no matter how much logic is involved and no matter how much anecdotal information is shared, it is still an artificial level. In practice, it is an artificial level set based on the premise of popularity or commonality of use. Not only that, but establishing an artificially high level as the minimum level paralyzes all of forensics in the light of increasingly powerful technology. In short, new technology by itself, does not invalidate methods previously validated. Technology simply provides us with a new tool for our toolbox.

This leads to my very next point. When GC / MS was first introduced, but not in practice at many of the local laboratories, was the methodology invalid simply because it was not in use at the majority of laboratories? The answer is no. It was studied and examined and scientifically validated for the purposes for which it would be used. Why then is the same logic, i.e., not in common use, being used to refute the use of microcrystalline tests? With all due respect, I am tired of hearing the comments that say it is not used extensively outside California, that it requires extensive training, that there is little documentation (a statement which is not true), that it is subjective, and on and on and on. None of these concerns directly addresses the only issue that should be of any significance and that is its validity. I appreciate the little soliloquy you gave at the end of your talk regarding your colleague, but has the Methods and Reports Subcommittee found any published data that regards microcrystalline tests as an invalid technique? Indeed, my question of whether or not they even considered the wealth of data validating the technique was never answered at the meeting. I have no misgivings about the fact that microcrystalline tests are not suited to the identification of all drugs. That is simply too insane a position to hold. But I do submit that for the most common drugs encountered in local laboratories it is as valid a technique as any structural elucidation methods, and indeed, sometimes superior. By the subjection of microcrystalline tests to a class B test and the consequential requirement of a structural elucidation test, by your very guidelines you have relegated microcrystalline testing as an invalid means for identifying drugs. That is as logical an interpretation that can be drawn from this group's actions and is as logical as knowing that guidelines submitted to accrediting bodies will become requirements for their members. If you want to leave a legacy, then I suggest you leave one that appropriately and adequately articulates the reasons why microcrystalline tests were excluded from minimum standards of identification and, at the same time, why structural elucidation methods are so superior when they are used as nothing more than pattern matching techniques for routine casework.

This leads to the most difficult issue of this entire letter, regarding the sunset clause. If I may quote section 1.3 of the subcommittee recommendations, "It should be emphasized that the use of at least one technique that provides structural information is currently encouraged. After January 1, 2005, it will be SWGDRUG's recommendation that laboratories *require* the use of a structural elucidation technique in all forensic drug identifications." When broached at the meeting, it was indicated that this sunset clause was for the purpose of allowing laboratories to "gear up" to the new recommendations. Until then they are to approach their casework according to the guidelines set forth in the remainder of the section. The last point of this section indicates that the data has to have the capacity to be reviewed. Specifically it indicates that written descriptions are adequate but only for the morphological characteristics of marijuana. Why not that same consideration for microcrystalline tests? I know for a fact that most laboratories using them either draw what they see or are able to articulate a written description quite well. In fact that is part of their training. Further I have a question. If laboratories take photographs of their microcrystalline tests then does this meet the needs of this last requirement? It certainly does (I often answer my own questions). However, documentation has nothing to do with validity.

[H]as the Methods and Reports Subcommittee found any published data that regards microcrystalline tests as an invalid technique?

All this to introduce one very simple, but very powerful statement. In light of your mission statement that discusses recommending "minimum requirements" and recognizing that structural elucidation techniques are to be considered part of those "minimum requirements," the inclusion of a sunset clause is unethical and morally wrong. Either the subsections of 1.3 represent good science or they don't. If you, the group, and the subcommittee believe these to be inadequate for the purpose of identifying drugs, a position that is implied because of your insistence on structural elucidation techniques, then to condone bad forensic practice for a period of five years with a sunset clause is clearly unethical and to do so would bring one subject to potential charges of an ethical violation. I empathize with laboratories that do not have the capabilities for minimum standards. But if, in your group's opinion, they don't, then don't openly condone their work for any period of time.

I would submit that if the subsections of 1.3 are good enough for the purposes of a sunset clause, then they would serve well as minimum standards. As I see it, there are two potential possibilities when confronted with this situation. The

first is that the committee really does believe that structural elucidation techniques are necessary to meet the minimum standards. If such is the case, then the committee has a moral and ethical obligation to the public that we serve to prohibit any sort of sunset clause. Indeed, to permit such a clause would bring into question the ethical and moral practice of those serving on this committee. In addition, it will be necessary, for the cause of good science, to articulate specific reasons why these methods, specifically microcrystalline tests, are not valid methods. They have been in existence for over 100 years and while there is a plethora of published and presented data that validates this technique, I have yet to see any published or presented data to the contrary. I have however heard much anecdotal information regarding the issue. But to be perfectly honest, while it makes for good dinner conversation among peers with nothing better to talk about, as a foundation for the invalidation of techniques in use by the forensic field, no matter how seemingly small, it is completely useless. Simply put, if all one has to offer in opposition to microcrystalline tests is anecdotal information, they should keep their mouths closed because they otherwise confuse the issue.

The second possibility is that the committee does recognize the validity of such testing methods, but still would recommend the use of structural elucidation techniques. If this is the case, then there is no ethical or moral consideration involved. In fact, this reduces the scientific concerns to mere bureaucratic ones. Simply put, it is a matter of preference for a particular lab system. However, what has to be articulated is that the other testing procedures are indeed a valid way of analyzing for solid dosage drugs. In fact, in accordance with your mission of minimum accepted standards, they seem to fit quite well. A caveat that the committee still recommends the use of structural elucidation techniques may be offered, but it will have to be couched in the terms that it is over and above the minimum requirements. In addition, for the cause of good science, one should be able to articulate why structural elucidation is so recommended with the previous warnings against the use of anecdotal information.

I realize this letter is rather lengthy but there are two other issues I wish to address and will do so briefly. The first Mr. Javonsky, is your statement in response to speed of casework in which you indicated that you have yet to hear a bench scientist wish to do their job faster, only better. That statement is rich in implications that quite a few people would find personally offensive. Local public laboratories have clients that they serve, police agencies and the court system. To imply that simply because we wish to get them their results as fast as we can we are willing to sacrifice quality is an affront to the integrity of these scientists and frankly you should be ashamed of making such a potentially volatile statement which smacks of ignorance in such a public venue. Our clients expect valid results. They are getting them with microcrystalline tests. We are also offering them those results in as efficient manner as possible thus serving them in the best manner we possibly can and we are proud of it. To imply otherwise, as your statement can and did do, is offensive and I feel that an apology is owed to those in attendance.

The second is the statement made by Dr. Siegel regarding how we "serve two masters." Those "masters" are the legal system and science. I serve only one master and he is Christ Jesus. Now, while I took exception to Dr. Siegel's statement for that initial reason, I began to reflect on that statement and began to wonder if it is that very philosophy that has put us into the predicament in which we have found ourselves. The legal system and science are not masters. They are man-made institutions and as such should be regarded simply as tools. The legal system is a tool to pursue justice while science is a tool used to try to explain phenomena. I hesitated to even bring this issue up because at the current time this line of thought is something that requires serious reflection. However, it would also be arrogant of me to think that I alone am to reflect upon this issue. So, I am presenting it for you and the group to consider and reflect upon. It may help us gain a perspective that has been lost in the midst of *Kelly-Frye, Daubert* and increasing computerized technology.

These are not easy issues to deal with, especially the ethical and moral concerns I expressed. However, they are critical enough that answers have to be forthcoming. The opinions in this letter are not necessarily endorsed by my organization or any association to which I belong, but I stand prepared to defend them even if it means sacrificing forensics as a career. What one does for their career does not define whom they are as an individual but rather how they comport themselves as human beings in and outside their career. I have fought this fight for a long time and had considered accepting what seemed to be inevitable. However, the way in which this is being done is leaving a very bad taste in my mouth and the future generations of forensic scientists deserve better than artificial standards of acceptability that are based on nothing more than a popularity contest.

With that said I will close, but only for now. I will exercise all available avenues to bring all these issues into the open. I appreciate the time that you have taken to read this letter. I welcome the comments of anyone reading this whether they are negative or positive. I also welcome the opportunity to present these concerns in person to anyone who would like to hear them.

—Ronald G. Nichols

Congratulations to our members:

Chip Pollock
on the birth of his baby boy,
born December 13, 1999

Elissa Mayo
on her marriage, August 21, 1999

Jerry Massetti
on his promotion to
CCI Assistant Laboratory Director

Raymond Davis
on his assignment as Professional Development
Trainer at DOJ-DNA Lab

Meridee Smith
on her retirement from Sac Co. DA's lab

FSS 40th Anniversary Marked by CAC Resolution

RESOLUTION

WHEREAS, the Forensic Science Society was founded in Harrogate, England, in 1959, and

WHEREAS, the California Association of Criminalists was founded in San Jose, California, in 1953, and

WHEREAS, the Forensic Science Society is the professional association which represents forensic scientists in the United Kingdom, and

WHEREAS, the California Association of Criminalists is the professional association which represents forensic scientists in California, Nevada and Arizona, and

WHEREAS, the Forensic Science Society publishes Science and Justice, one of the leading forensic science journals, which journal is also the official organ of the California Association of Criminalists, and

WHEREAS, the members of the California Association of Criminalists have for over thirty years enjoyed affiliate membership in the Forensic Science Society, and

WHEREAS, the Forensic Science Society has established a program for the recognition of competence of forensic science practitioners through a program of certification in several forensic science specialties, and

WHEREAS, the California Association of Criminalists developed the first program for certification of Criminalists in the United States, and

WHEREAS, the Forensic Science Society and the California Association of Criminalists, in alternating years, recognize one of their young members with the Joint President's Award, and

WHEREAS, the Forensic Science Society has on numerous occasions over the past 40 years cordially welcomed visitors from the California Association of Criminalists, and

WHEREAS, the California Association of Criminalists has for a similar period of time welcomed guests from the Forensic Science Society, and

WHEREAS, the Forensic Science Society and the California Association of Criminalists have begun a tradition of sponsoring joint meetings of the two organizations, and

WHEREAS, the Forensic Science Society and the California Association of Criminalists are both committed to providing forensic science services of the highest quality to the citizens of their respective countries, and

WHEREAS, like those individuals who founded the California Association of Criminalists, the founders of the Forensic Science Society have provided to its members a legacy of professional development, ethical concern, technical advancement, and personal commitment that will continue to assure the highest level of professional excellence in the service of its members to the legal system and the citizens of the United Kingdom,

BE IT THEREFOR RESOLVED, that the California Association of Criminalists extends its heartfelt congratulations to the members of the Forensic Science Society on the occasion of the fortieth anniversary of its founding.

RESOLVED BY THE MEMBERS OF THE CALIFORNIA ASSOCIATION OF CRIMINALISTS ON THIS 15th DAY OF OCTOBER, 1999,

Hiram Evans, President
California Association of Criminalists

CAC President Hiram Evans (r) presenting to FSS President Norman Weston a Resolution passed by the CAC congratulating the FSS on the occasion of the 40th Anniversary of the FSS. This presentation was made at the FSS 40th Anniversary Meeting in Nottingham UK.

CAC Board of Directors

Candidate's Statements

For Membership Secretary
Jeanne Parsons

My name is Jeanne Parsons, from the San Diego Sheriff's Department Crime Laboratory, and I am running for the office of membership secretary. I have been an active member in the California Association of Criminalists for four years. As a member I have attended numerous study groups and seminars while meeting my fellow professionals in the forensic field. I am excited about the prospect of serving the members by bringing new ideas and hard work to help the growth of our organization. As members I believe we should give back to the organization which has helped further the development of our individual careers.

I believe my good organizational and outgoing people skills will be a strong asset in the membership process of quality professionals. A mixture of new and experienced individuals will continue a healthy growth and development of our organization as we move into the 21st century. Thank you for considering me for this position.

For Membership Secretary
James Mudge

I have been a member of the CAC since 1995. I have been active in the Northern California study groups, namely firearms and controlled substances. Currently I am a supervising criminalist with the San Mateo County Forensic Lab. I have also been employed with the San Diego County Sheriff's Crime Lab. I entered the field of forensics in 1993. I am a graduate of Cal Poly San Luis Obispo where I received a B.S. in Biology. I hold a master's degree in Anthropology from San Diego State, in which I concentrated in Forensic Anthropology. I have been fortunate to attend numerous courses from CCI and have benefited greatly from their training.

I am particularly excited about the position of membership secretary because it will give me an opportunity to become better acquainted with my colleagues, and take an active roll in recruiting new members to the organization. There is no doubt, a large pool of prospective members to draw from. Our field is skyrocketing in popularity and it is exciting to see the discipline receive such accolades and exposure. It is evident on TV and in the popular press, and has culminated in a statewide ballot initiative to assist in the construction of new labs and renovation of existing labs! My aim is to draw more people into the CAC, to continue making our presence known in the worldwide forensic community, and by further promotion through the Internet.

For Membership Secretary
Elyssa Mayo Thompson

I'm Elissa Mayo Thompson from the DOJ Riverside Crime Laboratory. I have worked in serology and crime scene investigation for the past 10 years. During that time I have been actively involved in providing crime scene training to the legal, medical and law enforcement communities and served as the program co-chair for the fall 1996 CAC semi-annual meeting in Palm Springs. In my spare time I enjoy graphic design, WEB surfing, gardening, and SCUBA diving.

I am seeking your vote for membership secretary as a means to become more involved in our organization. As membership and participation are the foundation of any organization, my goals include designing and producing an advertising and membership campaign to increase and encourage sustained membership, while remaining accessible and responsive to current CAC members.

As membership secretary, I will bring new ideas and enthusiasm to the CAC and look forward to the responsibility that the position requires.

For Recording Secretary
Brooke Barloewen (Carpenter)

I have been a criminalist with the Santa Clara County Crime Laboratory since 1995 and a proud member of the CAC since 1994, when I was a student in Forensic Science at U.C. Berkeley. I have attended many CAC seminars, presented some research, and organized the technical program for the 1996 Spring Seminar.

I have always seen my career in criminalistics as a profession and not just a job. I appreciate the role of the CAC in the evolution of the profession and want to be a part of it. I would like to become more involved in the CAC and now have enough time to make a larger contribution as recording secretary. I am very organized and dependable, and will be able to commit the time to be at all of the meetings to take the minutes. I would like the opportunity to serve as your Recording Secretary and would appreciate your vote.

For Regional Director, North
Ann Murphy

I have enjoyed working on the Board of Directors as Regional Director North for the last two years, and look forward to serving another term. I would also like to take this opportunity to thank those of you who helped by volunteering to host a dinner meeting. I appreciate the time and effort which you have put into planning this type of event. I would also like to acknowledge the study group chairs for all their work. It is their organization and coordination which has lead to so many informative and useful study group meetings.

For President Elect

At press time, the *CACNews* had not received word of any candidates for the office of president elect. Could YOU be the next one to lead our association? Please call Donald Jones, Nominating Committee at (909) 387-2200.

Alcohol Testing Reform Subject of Proposed law

[Following] is a draft of a bill that the Association's Public Health Liaison Committee has suggested to State Senator Ross Johnson. It has yet to be introduced in the California Senate, so there is no SB number as yet. As I'm sure you know, bills often pass through several incarnations and revisions prior to coming before the legislature for a vote. This draft is being provided to you for your comments and in an effort to solicit your support, at least conceptually, for reform of the regulations under which forensic alcohol analysis is regulated in California. Please note that the relevant Health & Safety Codes Sections were renumbered a few years ago; Sections 100700 to 100750 on the draft correspond to those formerly numbered 436.50 to 436.59.

The fundamental purpose of the bill is to limit DoHS' bureaucratic meddling, by several means:

1. Require the DoHS to reconstitute the Review Committee which has at the hands of DoHS remained inactive for so long, require the committee to meet at least every 5 years (!) and through them limit their regulations to those reasonably necessary to ensure laboratory and analyst competence. We believe this will reduce the bureaucratic interference of DoHS in procedure writing.

2. Incorporate the US DoT "Model Specifications for Evidential Breath Testing Devices" and "Model Specifications for Calibrating Units for Breath Testers"

3. Require the DoHS to issue a license to a laboratory accredited by ASLCD/LAB in alcohol analysis, which would

a. reduce the problem of accredited laboratories having to answer to two masters, DoHS and ASCLD/LAB,

b. allow DoHS to better focus their activities on what they do well, i.e. providing proficiency test samples, NOT method review. This reflects the recommendations in the State Auditor's report of August 1999.

I hope you will review the draft and make your comments known to Jeff Thompson, CAC's Public Health Liaison Committee chair. I will provide further information on the bill as it wends its way through the legislative chicane.

—Hiram K. Evans, M.Sc., F-ABC

FORENSIC LAB REGULATORY REFORM BILL

NOTE: additions are shown in bold italics, deletions are stricken through.

Health & Safety Code Section 100700 is amended to read:

The department shall adopt and publish regulations to be used in approving and governing the operation of laboratories engaging in the performance of tests referred to in Sections 100710 and 100715, including the qualifications of the employees who perform the tests, that are determined, pursuant to Sections 100701 and 100703, to be it determines are reasonably necessary to ensure the competence of the laboratories and employees to prepare, analyze, and report the results of the tests.

Section 100701 is added to the Health & Safety Code, to read:

On or before [date], the department shall revise, adopt and publish regulations to be used in approving and governing the operation of laboratories and law enforcement agencies engaging in the performance of the tests referred to in Section 100715. The regulations shall incorporate the "Model Specifications for Evidential Breath Testing Devices" and the "Model Specifications for Calibrating Units for Breath Alcohol Testers" as published in the Federal Register by the National Highway Traffic Safety Administration of the United States Department of Transportation. The revised regulations shall be adopted only after the department has convened a review committee pursuant to Section 100703, and the review committee has determined that the regulations are limited to requirements the review committee finds are reasonably necessary to ensure the competence of the laboratories or persons conducting the tests.

Section 100702 is added to the Health & Safety Code, to read:

(a) Regulations adopted pursuant to this article governing the tests referred to in Section 100710 shall not apply to a laboratory holding a current accreditation to perform the tests referred to in Section 100710 from the American Society of Crime Laboratory Directors/Laboratory Accreditation Board.

(b) Notwithstanding subdivision (a), the department may continue to impose proficiency testing requirements on a laboratory engaging in the performance of tests referred to in Sections 100710.

Section 100703 is added to the Health & Safety Code, to read:

(a) On or before July 1, 2001, and at least once in each five year period thereafter, the department shall convene a Review Committee to evaluate regulations proposed or adopted by the department pursuant to this article. The Review Committee shall be appointed by the director of the department, and shall have nine members, including one person representing each of the following: the Attorney General, the California Highway Patrol, district attorneys, public defenders, coroners, criminalists, pathologists, analytical chemists, and forensic laboratory managers.

(b) The Review Committee shall examine the regulations adopted by the department pursuant to this article, and recommend revisions that will limit the regulations to requirements the Review Committee determines are reasonably necessary to ensure the competence of the laboratories and employees to prepare, analyze and report the results of the test.

(c) The department shall adopt the revisions recommended by the Review Committee.

HSC 100710 is amended to read:

The testing by or for law enforcement agencies of blood, urine, or tissue for the purposes of determining the concentration of ethyl alcohol in the blood of persons involved in traffic accidents or in traffic violations shall be performed only by a laboratory approved and licensed by the director for the performance of these tests, [STRIKE THE COMMA] or by a laboratory holding a current accreditation to perform those tests from the American Society of Crime Laboratory Directors/Laboratory Accreditation Board.

HSC 100715 is amended to read:

The testing of breath samples by or for law enforcement agencies for purposes of determining the concentration of ethyl alcohol in the blood of persons involved in traffic accidents or in traffic violations shall be performed in accordance with regulations adopted by the

department pursuant to Section 100701. The regulations shall establish the procedures to be used by law enforcement agencies in administering breath tests for the purposes of determining the concentration of ethyl alcohol in a person's blood. The regulations shall be adopted and published in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

HSC Section 100720 is amended to read:

Each laboratory in the state that performs the tests referred to in Sections 100710 and 100715, shall be licensed by the director. The director shall issue a license to a laboratory that presents proof of a current accreditation to perform the tests referred to in Sections 100710 from the American Society of Crime Laboratory Directors / Laboratory Accreditation Board. Each of these laboratories, other than a laboratory operated by the state, city or county or other public agency shall upon application for licensing pay a fee to the department in an amount, to be determined by the department, that will reimburse the department for the costs incurred by the department in the issuance and renewal of these licenses. On or before each January 1 of each year thereafter, each of these laboratories shall pay to the department a fee so determined by the department.

Section 100725:

Legislative Counsel, I have not included any change in this section but please check to see if you think any conforming change is necessary.

On or after January 1, 1971, the department shall enforce this chapter and regulations adopted by the department.

100730:

Legislative Counsel, I have not included any change in this section but please check to see if you think any conforming change is necessary.

On or after January 1, 1971, the department shall annually publish a list of approved and licensed laboratories engaging in the performance of tests referred to in Sections 100710 and 100715.

100735:

Legislative Counsel, we want to provide that if a lab is exempt pursuant to §100702, then the department SHALL accept proof of inspection by the American Society of Crime Laboratory Directors / Laboratory Accreditation Board as satisfying the inspection requirement in this section.

Every approved and licensed laboratory shall be periodically inspected by the department. Reports of each inspection shall be prepared on forms furnished by the department and shall be filed with the department.

100740:

Legislative Counsel, I have not included any change in this section but please check to see if you think any conforming change is necessary.

Any license issued pursuant to Section 100720 may be suspended or revoked by the director for any of the reasons set forth in Section 100750. The director may refuse to issue a license to any applicant for any of the reasons set forth in Section 100745. The proceedings under this article shall be conducted in accordance with Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code, and the director shall have the powers and duties granted therein.

Section 100745:

Legislative Counsel: please make any conforming changes needed to ensure (a) isn't triggered merely by the exemption we are establishing in 100702.

The director may deny a license if the applicant or any partner, officer or director thereof:

(a) Fails to meet the qualifications established by the department pursuant to this article for the issuance of the license applied for.

(b) Was previously the holder of a license issued under this article that was revoked and never reissued or that was suspended and the terms of the suspension have not been fulfilled.

(c) Has committed any act involving dishonesty, fraud, or deceit whereby another was injured or whereby the applicant has benefited.

Section 100750:

Legislative Counsel: please make any conforming changes needed to ensure (a) isn't triggered merely by the exemption we are establishing in 100702, and add subdivision (d) below:

The director may suspend, revoke, or take other disciplinary action against a licensee as provided in this article if the licensee or any partner, officer or director thereof:

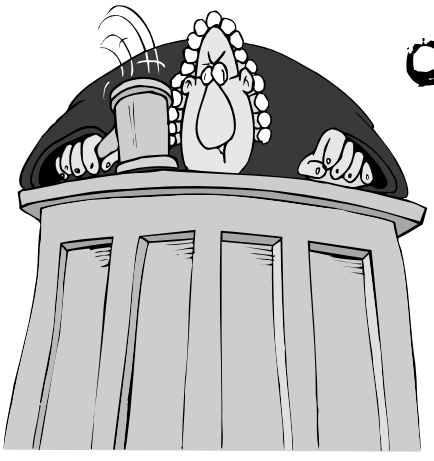
(a) Violates any of the regulations adopted by the department pursuant to this article.

(b) Commits any act of dishonesty, fraud, or deceit whereby another is injured or whereby the licensee benefited.

(c) Misrepresents any material fact in obtaining a license.

(d) A licensee accredited by the American Society of Crime Laboratory Directors / Laboratory Accreditation Board [or should it read exempt from regulation pursuant to 100702] has had its accreditation suspended or revoked by the Proficiency Review Committee of the American Society of Crime Laboratory Directors / Laboratory Accreditation Board.

Be sure to check our new feature—

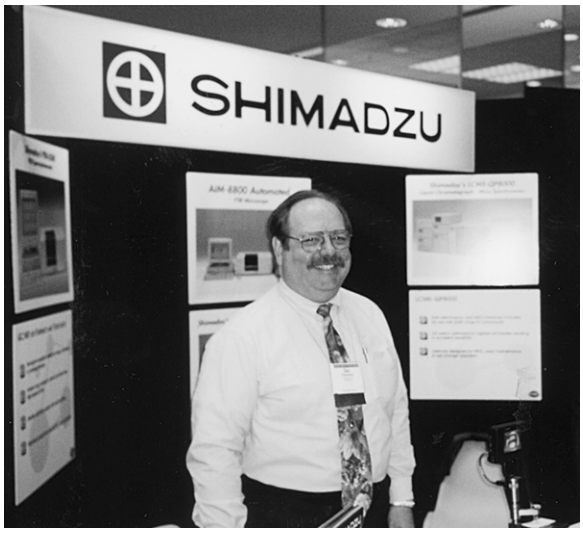


Courtroom Calamities

It'll have you laughing under oath!

(Inside back cover.)

AAFS Reno: Jackpot of a meeting



The theme was "Truth or Consequences" at the 52nd annual meeting of the American Academy of Forensic Sciences. The setting was the city of Reno, Nevada, with its snow-capped mountains visible from the windows of the John Ascuaga's Nugget Hotel and Casino. Members could be seen touring the exhibits, catching up with colleagues and participating in lively discussions at the many papers and poster sessions that were offered. Some attendees even tried their luck at the slot machines or table games. Hope their luck was better than mine!

The CAC also held their interim board of director's meeting on the Saturday following the AAFS. *(top right)*

Calico Press

What is a criminalist?

A participant in a recent discussion on the web asked recently:

How would you define what a criminalist is, or, how would you state the job description for a criminalist? I find myself almost exclusively in the lab, analyzing primarily drug and fingerprint evidence. I teach a course in forensic science to undergraduates, primarily non-science majors. I thought it would be interesting to hear the various interpretations of "criminalists" from participants on this list, in order to "flesh out" a presentation of the textbook definitions.

—Joy P.

Dave H. wrote: Could this be summarized as: California defines a criminalist as "any forensic scientist who is not a pathologist, anthropologist, or odontologist"? The State of California "job description" for criminalist is not the "definintion" of a criminalist or criminalistics, any more than "slices and dices dead bodies" is the definition of a pathologist. The job description follows from a professional definition. One can go to the ABC web site: www.criminalistics.com/ABC to see the difference. It is also the case that just because a scientist does an investigation that will be used in a courtroom, that scientist does not become a forensic scientist.

There seems to be a certain cachet these days, at least in the minds of some, to be being called a "forensic" whatever. This probably results from the fact that people hear about "expert witnesses" being involved a multi-gazillion dollar lawsuits, and some people think that by defining themselves as a forensic whatever they will be able to get some of the money generated by the lawsuit industry. It is also the case that certain employers like to be able to define their employees are "forensic" whatevers. For example, forensic DNA analysts or forensic chemists or forensic investigators.

Operating a mass spec in a crime lab, or extracting DNA from a blood sample in the Department of Justice's DNA laboratory, does not make the person doing that work a forensic anything. Any more than me doing those same tasks makes me an analytical chemist or a molecular biologist. Criminalists should, by their education and training, have an understanding of the questions and problems that can arise during investigations of incidents that may result in some legal proceeding, and be able to devise scientific experiments to address the relevant questions arising in such an investigation. In order to do that they need to understand law, in theory and in practice and science, in theory and in practice.

The following rather lengthy definition of criminalist is from the Calif. State Personnel Board Specification:

Criminalists conduct examinations of crime scenes for physical evidence, and in complex cases make all types of chemical analyses such as alcohol determinations, toxicological analyses of foods and body viscera and fluids; test for drugs and explosives, and various types of microchemical tests; make the difficult microscopic, chemical, and serological tests on blood and other physiological fluid stains; identify and compare hair, fibers, soil, paint, glass, building materials and other substances in forensic cases; make visual, microscopic and other technical examinations and comparisons of tool marks, firearms and other weapons, bullets, cartridge cases and ammunition; make casts; make and develop photographs and photomicrographs using black and white and color films; use complex measuring, recording and testing instruments and devices; prepare evidence and exhibits and testify in court as expert witnesses; assist local law enforcement officers and prosecutors in analyzing and interpreting evidence; write reports and correspondence; give instruction in this field at peace officer training schools; and provide forensic research, application, advanced casework, methodology development, and training to State and/or local forensic scientists and law enforcement agencies.

According to state personnel, the specification was first established in 1964. The series currently consists of four classifications: Criminalist (actually three ranges A,B,C) Senior Criminalist, Criminalist Supervisor and Criminalist Manager.

As you can see, the job specification covers a very wide range of applications. The State of California started out with the "generalist" approach to the occupation. During the past several years due to the advent of more technology, particularly DNA analysis, the trend has been toward specialization. More information may be obtained through the SPB web site http://www.spb.ca.gov

Mike E. wrote: Please let me weigh in with a few comments on the subject. "Criminalist" is in fact a small subspecialty of "forensic scientist",

The public generally knows of criminalistics more for its screw ups than for its social impact.

something akin to the hair on the forensic scientist's dog's tail. We criminalists would like to think that we define the profession, but in fact we are usually excluded (or ignored) during any general discussions of forensic science, law and the courts. This was obvious in the Carnegie Commission reports of 1993 on "Science and Technology in Judicial Decision Making."

Forensic medicine, medical malpractice forensic investigations, environmental forensic science, occupational forensic science, forensic engineering and failure analysis, forensic social science and several more spe-

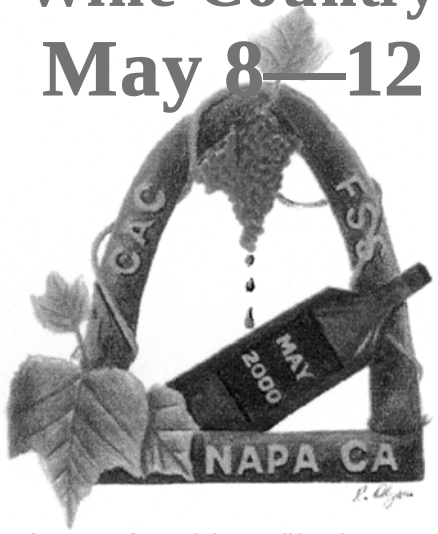
cialties are each far larger and more well known than our small world of criminal forensic science or "criminalistics." All of these branches of forensic science are generally involved in tort cases and investigations that make our criminal investigations seem minor in comparison, especially when viewed from the perspectives of time, social impact, financial gains and loses, judicial and legislative impact and journalistic interest.

The public generally knows of criminalistics more for its screw ups than for its social impact. Some members of the list would suggest that these fields and their practitioners are somehow fakes or hangers on or worse. Nothing could be farther from the truth or the facts. It's we criminalistics that are the trivial topic. In short, "criminalistics" is the practice of forensic science in the narrow environment of criminal law and the criminal courts, no more, no less.

Prof. J. responded: The question—definition of criminalist—it isn't strictly determined. In continental Europe the definition is derivated from the goals and its subjects of discipline called "criminalistics." In the widest sense the goals of criminalistics are: to examine and determine how the criminal acts are being committed; to determine the methods of collecting, finding, physical evidence and examination, that the criminal act has been commited; to instruct how on the base of physical evidence find the criminal offender; to help to find the most efficient methods for crime ivestigation; to propose efficient methods of conducting crime prevention.

[Years previous] Hans Gross wrote, "The criminalistics is the set of knowledge needed for the detection of criminal acts." In continental Europe you have the criminalistics divided into the three parts. Criminal tactics, Criminal technics and Criminal methods. Criminal technics is corresponding to your concept of criminalistcs. The criminalist in Europe is the user of the knowledge of criminalistics. To be a criminalist in a European sense you are a crime investigator.

A Joint Meeting in the Wine Country May 8—12



The Third Joint Meeting of the California Association of Criminalists and the Forensic Science Society is only weeks away! The meeting will be an exciting look at Forensic Science Past, Present and Future from an international perspective.

A special field trip is scheduled to the preserved historical site of the residential fire which destroyed Jack London's beloved Wolf House. This historical field trip will be followed by a wonderful evening dining in the famous Carneros viticulture region.

The present state of Forensic Science will be covered in a plenary session and workshops devoted to current state of the art in arson investigation, presentation software, and DNA. These workshops teach new methods and new ways of thinking about old problems. Issues of quality control, accreditation and certification will also be addressed and discussed by an international group of experts.

The meeting will conclude with a look into the future of Forensic Science and Technology. New paradigms for the new millennium include integrated investigative techniques exemplified by the UK's Intelligence Gathering program, as well as rapidly advancing DNA technologies and a myriad of new trace evidence techniques.

Industrial Light and Magic, the truly magical Marin County, California corporation responsible for so much of the technology which transports our imaginations in movie theaters all over the world, will join us for an intellectual flight into the new millennium on the final day of our meeting.

We've planned a lavish banquet, sure to be over-subscribed, so don't lose out by being late to reserve your tickets! We expect to be short of seating for this much anticipated evening. Last minute reservations cannot be accommodated. Because of limited seating we have not included banquet tickets in the meeting registration price. You must reserve your space as a separate item on the meeting registration form provided.

Embassy Suites can be reached by phone at 707 253 9540, by FAX at 707 253 9202. See our website for more information at http://www.serological.com/seri12.htm

Q & A: How can the percentages of blended fibers be determined?

Q: *I am wondering about blended fibers. If you examine a fiber sample and discover that it is made up of two strands wound around each other, you must examine each strand. Say you discover that one is polyester and the other cotton. How do you determine the percentage, like you usually see on clothing tags, e.g. 65% cotton/polyester?*
—Melissa

A: The structure of the fabric and the structure of the yarn and thread are important because the distribution of fiber types may not be uniform. The first step is to examine the weave of the fabric to determine how many types of yarns or threads are used and to obtain samples of each. Don't forget the thread that is used to stitch the garment (or other fabric item) together. **This would not count towards the fiber content ratio of the fabric, but would be important if stitching thread could be the source of transferred fibers or bits of thread found on other items.**

The next step is to examine each yarn to determine how many types of threads make up the yarn, and take samples of each. Then, determine how many types of fibers each thread comprises, and how they are arranged. For example, some fibers blends are twisted together in the spinning process, some are simply placed together in untwisted bundles, and some fibers of one type are spun around or arranged in bundles around a core of different fiber type. For example, cotton fibers are often spun around a polyester core in clothing fabric, and outer cordage fibers can be arranged around a core of different type.

If the difference in composition is due to different polymer types in the fiber itself, a chemical separation would probably be required. **(However, see below.) Most of the time the different polymer types are, in fact, found in separate fibers.**

If an approximate determination only is required, I would try some sort of cross-sectioning technique, assume that the cross-sectional area ratio would approximate the weight ratio, and do some geometry to obtain the cross-sectional area ratio. I have not run across this in the literature but would do a search if I needed to do this. If I did not find anything suitable to my sample I would do the foregoing. It wouldn't be a bad idea to validate this by comparing it with results from physical or chemical separations on a known piece of fabric.

If some of the fibers have a bi-component polymer structure and others do not, a combined approach should work. Determine the ratio using the bi-component as a single unit, then re-calculate the ratio after determining the ratio of the components in the bi-component.

Sometimes polymers of different composition are co-extruded or heat-bonded together, producing fibers that are bi-lobal or multi-lobal. If you can tell the difference between the lobes microscopically so as to know which is which, or if they can be differentially stained, you might then apply cross-sectional techniques similar to those described above, to the ratio of the lobes. If you use differential staining, do some tests to find out if the staining causes swelling in the fibers. If it does, you would not be able to use the cross-sectional technique with stained fibers. One occasionally sees bi-component fibers with a sheath-core structure. In theory it should be possible to determine the ratio of sheath and core (using the difference in diameter to calculate the different area of each). However, I think that in practice, it would be difficult to get accurate enough measurements of the much thinner sheath to produce reliable figures, and any small errors in the assumption that volume / area ratios approximate weight ratios would be exaggerated when one measurement (sheath thickness, or the difference between measured core diameter and measured fiber diameter) is much larger than the other.

—Chesterene Cwiklik
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(206)623-3637

JOHN**SIMMS**

Quality Assured

A Few Viewpoints on Quality Assurance

I had not realized I was going to use two full pages of the newsletter in the last edition and I greatly appreciate you allowing me to monopolize some of your valuable time. For this issue, I want to share a couple of frequently expressed viewpoints within the QA network.

These are the issues:

1) QA is perceived as punitive, or much like the internal affairs of criminalistics. What we would like for you to understand is that quality assurance managers have a job to do which is monitoring and measuring compliance with ASCLD/LAB and self-imposed standards. This means making corrections when compliance falls short. It means documenting situations when our quality falters. It means having to evaluate examiners who are highly trained, skilled, and confident in their own skills and abilities. I will speak more to this issue at the close of this article.

2) Despite years of experience with accreditation, one of the most common downfalls of laboratories that we as QA managers continue to see is insufficient or improper case packet marking. QA managers everywhere implore the reviewers at every level to get tough on case numbers or improper strikeouts. This is an essential criteria that should not be missed and yet persists in plaguing all of us.

Accreditation is not an easy thing for anyone involved in it.

Thank you. We had to get that off our chest.

Now, more about the issue of a punitive perception of quality assurance. Quality assurance managers want to remind everyone that they are in place for help and support. Their job is to audit, monitor, help find ways to do something better, and to suggest corrective actions when necessary. It is understandable that whenever someone looks over our shoulder to see how we are doing, some of us can get a little defensive. Each of us has an ego that is fed with years of experience, training, and our own confidence in our skills and abilities.

There is nothing wrong with egos. QA managers need to be sensitive to these feelings. Laboratory examiners need to be understand that quality assurance managers have to do their job. Accreditation is not an easy thing for anyone involved in it. So let's do it right. Let's do it together.

Thank you. We have been wanting to say this for a long time.

John Houde / Calico Press

Fire Scenes

Under the watchful eye of Dr. John DeHaan *(in baseball cap)*, participants in last month's "Advanced Arson Investigation" class set fires with and without accelerants. The week-long class was hosted by the Ventura County Fire Dept.'s Arson Investigation Unit and featured a day of supervised burning in addition to the classroom lectures. Assisting Dr. DeHaan were Monty McGill, Safa Egilmez (*lower left*) and attorney Doug Wood.

Weasel Words II: Further Insight into the "Similar to and Consistent With" Dilemma

Edited from the Forens-Listserver

The topic of report phraseology has been discussed at length in this forum on previous occasions. I wish I had an archive to refer to—but it's an important subject. The list membership keeps changing, so it's well worth raising again, and who knows, perhaps there will be some new insight.

The phrase "consistent with" should never, ever, be used alone. The example I always give to trainees is that if I bought a lottery ticket yesterday for last night's draw, I can fairly state "My purchase is consistent with my now being a millionaire." We all know that a much more likely outcome is that "My purchase is consistent with my having wasted a dollar." The problem of course is that an unqualified "consistent with" statement carries no weight. That leaves the interpretation to the reader, which is appallingly dangerous. The same can be said of other ways of phrasing conclusions, but for some reason "consistent with" seems particularly open to varying interpretations. My organization has taken the safest course, which is to ban it entirely from the forensic report writing vocabulary. It's a weasel word, and weasel words are the enemy of accurate report writing.

My personal view is that "consistent with" may sometimes be acceptable, BUT only if alternative scenarios are given with some weight attached. An example might read in part: "The paint found at the accident scene is indistinguishable from the paint from the suspect vehicle in its colour, layer sequence, and chemical composition. This finding is consistent with the paint at the scene having come either from the suspect vehicle, or from another vehicle painted with the same combination of layers. Such vehicles would include many turquoise blue automobiles manufactured by General Motors between 1992 and 1995 and still having the original manufacturer's finish." In a perfect world one would have information on how many such vehicles there are, and what percentage of the vehicles on the road they represented at the accident location.

Much the same objection applies to phrases such as "could have come from" and "similar to" which also carry no weight, unless further qualified with information as to what ELSE it could have come from and what ELSE it might be similar to.

Brian D.

Brent Turvey Offers His View

Reading through some of Kirk's work this evening I rediscovered a passage that bears sharing on this issue, which is really one of identification:

"In the examination and interpretation of physical evidence, the distinction between identification and individuation must always be clearly made, to facilitate the real purpose of the criminalist: to determine the identity of source. That is, two items of evidence, one known and the other unknown, must be identified as having a common origin. On the witness stand, the criminalist must be willing to admit that absolute identity is impossible to establish. Identity of source, on the other hand, often may be established unequivocally, and no witness who has established it need ever back down in the face of cross-examination.

It is precisely here that the greatest caution must be exercised. The inept or biased witness may readily testify to an identity, or to a type of identity, that does not actually exist. This can come about because of his confusion as to the nature of identity, his inability to evaluate the results of his observations, or because his general technical deficiencies preclude meaningful results...

To sum up: accurate identification must rest on a proper basis of training, experience, technical knowledge, and skill, and an understanding of the fundamental nature of identity itself. It should not be attempted without this kind of background, either by the police officer or the amateur. Highly experienced professional identification men make errors and overlook many significant matters. How much worse the situation would be if every police officer or amateur were to attempt the same identifications, merely because they had an interest in the matter and an opportunity to indulge their desires!"

—Paul Kirk & Thornton, J. (Ed.), Criminal Investigation, 2nd Ed., (John Wiley & Sons, 1974), p.15

And, without question, opportunity abounds on discussion lists such as this. Of significance, Kirk goes on to say on the next page that "...the amount of experience is unimportant beside the question of what has been learned from it."

In some cases, forensic scientists have by their experience learned to be cautious and withhold qualification from reports containing equivocal identification language such as "consistent with." One can only speculate as to the reasons. In others, they have learned to use the same terminology only with the appropriate qualifications.

In my own report writing, I will not offer any opinions without also providing the facts upon which they are based and sufficient qualifications as to potential interpretations. I have also learned that it is wisest to treat every report as though it is a potential forensic report— the distinguishing feature of such a document being that it is prepared with the expectation that it may be used in court and read by someone other than a colleague.

To give any opinions without a factual foundation is not a legitimate scientific or forensic practice. As someone much wiser than I has said ad naseum, "If there is no science, there can be no forensic science."

Brent E. Turvey

Brent E. Turvey, MS is a forensic scientist, criminal profiler, and a full partner of Knowledge Solutions, LLC. He is the author of "Criminal Profiling: An Introduction to Behavioral Evidence Analysis." He can be reached for comment or consultation at: Knowledge Solutions, 1961 Main St., PMB 221, Watsonville, CA 95076; Phone (831)786-9238; www.corpus-delicti.com. His comments are reprinted by permission.

TRAINING & RESOURCES VIDEO

(CAC Members Only)

SEROLOGY / DNA

S 1 **Electrophoresis Basics**—*Linhart* · **Glycogenated Vaginal Epithelia** —*Jones* · Erythrocyte Acid Phosphatase — *Rickard* · Phosphoglucomutase — *White / M. Hong*
S 2 **Immunology** — *Stockwell*
S 3 **Gm / Km** —*Stockwell / Wraxall*
S 4 **Peptidase A** — *Yamauchi*
S 5 **ABO** — *Thompson*
S 6 **Saliva** —*Spear* (incl DNA Kelly-Frye/Howard Decision)
S 7 **Presumpt. Tests/Species/ PCR Intro**—*Peterson/Mayo*
S 8 **Gc sub**—*Devine/Navette*
S 9 **Statistics**—*M. Stamm*
S 10 **Haptoglobin** — *D. Hong*
S 11 **Population Genetics & Statistics Course**—*Bruce Weir*
S 12 **Micro. Exam. of Sex Assault Evidence**—*Jones*
S 13 **DNA Workshop** — *Spring 1993*

CRIME SCENE

C 1 **Bloodspatter Lecture** —*Knowles*
C 2 **Bloodspatter Lecture** — *Chisum*
C 3 **Crime Scene Investigation Symposium**—*Fall '88 CAC*

GENERAL INTEREST

G 1 ABC News 9/23/91: "Lab Errors"
G 2 48 Hours 9/25/91: "Clues"
G 3 Founder's Lecture: Stuart Kind— *Fall '93*
G 4 Founder's Lecture: Walter McCrone—*Spr '90*
G 5 Founder's Lecture: J. Osterburg—*Fall '91*
G 6 Founder's Lecture: Lowell Bradford—*Spr '93*
G 7 OJ Simpson Tonight Show Clips
G 8 "Against All Odds—Inside Statistics"

ALCOHOL / TOXICOLOGY

A 1 Forensic Alcohol Supervisor's Course—*DOJ*

TRACE EVIDENCE

T 1 **Basic Microscopy Lecture**—*E. Rhodes*
T 2 **Tire Impressions as Evidence**—*Nause*
T 3 **Evaluation of Lamp Filament Evidence**—*Bradford*
T 4 **FTIR Lecture**—*Moorehead*
T 5 **Gunshot Residue Lecture**—*Calloway*
T 6 **Footwear**—*Bodziak*
T 7 **Footwear Mfg. Tour** —*Van's Shoes*
T 8 **Glass Methods**—*Bailey / Sagara / Rhodes*
T 9 **Fiber Evidence**—*Mumford/Bailey/Thompson*
T 10 **Trace Evidence Analysis**—*Barnett/Shaffer/Springer*

FIREARMS

F 1 **Forensic Firearms Evidence** —*Haag*
F 2 **Wound Ballistics**: "Deadly Effects"—*Jason*

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Or FAX this ad with your selections circled above.
(Be sure to include your name and address)

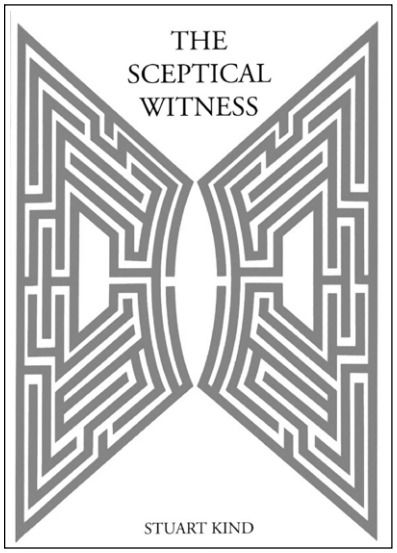
The Sceptical Witness

By Stuart Kind

Hodology, Ltd., $45.00
ISBN: 0 9533987 0 6

A damn good read!

This is a book which defies categorization. It is not a biography, yet it describes the life and career of an internationally prominent forensic scientist. It is not a forensic science reference work, yet it contains information of value to forensic scientists. It is not a philosophy of science textbook, yet it outlines a philosophy of forensic science (that of the author) which should be studied by aspiring forensic scientists. What is it then? Simply, a damn good read!



In the Forward, PD James (an inspired choice by, presumably, the author) makes the following observation: "—but only too often books by experts fail to satisfy because those with knowledge aren't good at communicating it, and those who write well have less knowledge. This certainly isn't true of Stuart Kind." "Eloquent" is a word rarely used to describe the writings of forensic scientists, but it leaps immediately to mind for the reader of Sceptical Witness. His experience as the first editor of the Journal of the Forensic Science Society (an organization of which he was a founder) "stimulated and maintained my interest in language," the results of which are evident on almost every page. Readers will want to keep a pen and notepad handy while reading this book as they will find themselves encountering phrases, thoughts and ideas throughout that they will want to remember.

Some examples: "I frequently digress. Controlled digression is a good antidote to the tedious daily necessity to consider most things in place and sequence." (p 4) In describing an incident in his youthful wartime service in the Home Guard in which he learned to pick a lock (for reasons of hunger rather than national security), he states "This minor piece of knowledge joined the other mental miscellany which helped form my intellectual equipment when I became a forensic scientist." (p 43) He goes on to expound on how this experience later on prompted him to require his laboratory staff who dealt with safe breaking cases to learn how to open safes (without benefit of the key or the combination) and for those who worked arson cases to actually learn how to throw a petrol bomb.

What forensic scientist other than Stuart Kind could create the phrase "—forensically antediluvian fumblings—" (p 106) to describe for today's scientists the techniques of yesteryear, or would describe himself thus: "A generous helping of indolence mixed with a tendency to day-dream, is a powerfully blunting influence on a will to succeed." (p 171)

For forensic scientists seeking hints on better ways to do things, there is little in this book to attract them. However, for those who are looking for a rational for doing them at all (or not) there is a surfeit of intellectual fodder. They will find that it is important to not only demonstrate that the compositions of two paint samples are the same but that one must "—show not only the whole picture but also the canvas upon which it is painted." (p 11) Institutional mandarins should take heed that "Imaginative ideas are seldom seeded, or fostered by the committee process." (p 208) and most of us can take comfort that "Human relationships are such that malice extended towards any particular individual is seldom unshared." (p 72)

This eclectic collection of anecdotes of Stuart Kind's childhood, education, war service and distinguished career in forensic science is liberally spiced with scientific tid bits, philosophy, thoughts and ideas resulting in a repast to appeal to virtually any palate. The Sceptical Witness should satisfy the most sceptical reader.

Reference Ammunition for Gunshot Residue Testing

*Lucien C. Haag**

Keywords: gunshot residue, GSR, propellants, gun powder, powder pattern, powder particles, stippling, tattooing, soot, standard ammunition, reference ammunition

Abstract

Custom made reference ammunition in several common calibers has been developed as a proposed standard for evaluating target materials for powder patterning and well as for evaluating and inter-comparing the effects of various firearms-related parameters on GSR production such as barrel length, groove depth, rifling system and cylinder gap spacing in revolvers. Loadings with both ball and flake propellants have been developed which produce particles of partially burned propellant upon discharge in commonly encounter firearms and with pressures typically less than factory ammunition of the same caliber, type and bullet weight.

Introduction

One of the difficulties with any effort to compare various media for gunshot residue (GSR) patterns or even to check the performance of some standardized medium employed by an agency or examiner is the lack of some consistent, reproducible source of ammunition. Efforts to study the various effects on soot deposition, stippling and / or powder patterns as a consequence of gun design, barrel length, bore diameter, land and groove count, cylinder gap space and possibly other parameters of interest are also complicated by the lack of reference ammunition designed for such purpose. The use of some common form of commercial ammunition does not offer a solution to this problem. It is relatively well known that manufacturers of commercial ammunition load their products to pressure and velocity requirements with an additional eye toward cost and efficient performance of the propellant. This may and often does mean that one lot of a very common round such as 115 gr. 9mm Luger FMJ-RN by company "X" will be loaded with "Y" amount of an unperforated disk-flake powder and some subsequent lot will be found to be loaded with "Z" grains of flattened ball powder. Both loadings will produce the same nominal muzzle velocity from a particular test gun but will leave decidedly different powder patterns at the same standoff distance.

Even if the examiner can find out what specific propellant was used by the manufacturer for a particular product's lot number, the propellant may not be a canister powder and therefore not available for handloading purposes. This will immediately defeat efforts to assemble equivalent cartridges.

This paper describes the development of several standard rounds in popular calibers which can be assembled by any laboratory equipped with some basic ammunition reloading tools and subsequently used for GSR production, research, performance testing, GSR media evaluation and comparisons.

*Forensic Science Services, Carefree, AZ

Procedure

[Cartridge and Components Selection]

The two most common physical forms of smokeless powder encountered in case work involving handguns are unperforated disk-flake powder (e.g.- Bullseye, Unique) or flattened ball powders. A successful search for suitable sources of each of these forms was carried out. The rationale for the ultimate choices will be described later in this paper.

Commercial ammunition companies are not only very interested in pressure and velocity requirements but are also interested in selecting powders that are efficient and cost effective in fulfilling the mission of propelling a particular projectile from a standard test barrel within certain peak pressure and velocity (P&V) requirements. The writer's mission was somewhat different. I did not want maximum safe velocity and pressure nor optimum propellant efficiency. In fact, I wanted the propellant to be somewhat inefficient and below industry standards for P&V. A less than efficient propellant was sought so there would be numerous partially-burned and unburned powder particles expelled from the muzzle for close-range powder pattern production. Somewhat less than normal peak pressures were deemed desirable since there might be some concern on the part of forensic practitioners regarding the possibility of over working or even damaging reference or evidence guns with hand loaded ammunition. A search for suitable propellants that would either fill or nearly fill the available space in the cartridge was also deemed desirable to minimize any effect of propellant charge position in the cartridge case at the time of discharge. Cartridges and components that are readily available and common were also of considerable importance.

For the foregoing reasons and purposes, virgin Winchester cases and Winchester primers were chosen in 9mm Luger, 38 Special and 45 Automatic. Speer total metal jacketed (TMJ) bullets in 115 gr., 158 gr. and 230 gr. weights respectively were selected not because the writer has some criticism of Winchester bullets but for the reasons that Winchester bullets as reloading components are less common than the Speer product line. Furthermore, the TMJ-type bullet was deemed desirable so that any lead in the gunshot residue deposits would be from primer and not from the lead of an open-based bullet or from any exposed lead tip of a jacketed soft point bullet.

Alliant (formerly Hercules) Blue Dot powder was selected for the disk-flake propellant. This is a common and readily obtainable double based propellant of very fixed morphology that has been on the market since 1972. Its dark gray particles are about 0.011 to 0.015" thick and have diameters of 0.055 to 0.062". Current canisters of Alliant's Blue Dot (manufactured in 1999) describes its make up as nitrocellulose, nitroglycerin, diphenylamine, ethyl centralite, rosin and polyester. Blue Dot is also a relatively slow burning powder in these cartridge / bullet weight combinations. A sample of this powder on an 1 / 10 inch grid is shown in Photograph 1.

Matters are not quite so simple with flattened ball powders. They are typically a blend of particle sizes which have been formulated on the basis of chemical composition, particle size distribution and morphology to fulfill a performance specification. As a result of these multiple parameters the actual physical form of the individual particles will not only vary in a particular production run (lot number of powder) but may also vary to an even more noticeable degree between different vintages (or sources) of a product bearing the same name. Accurate Powder Company's products are an example. Samples of Accurate Number 5 and Accurate Number 7 purchased by this

writer in the 1980s (manufactured in Israel by IMI) can be seen to be somewhat different than the current (1998-1999) samples manufactured in the Czech Republic by Synthesia, a.s.- a division of Explosia. Photograph 2A and 2B illustrate this difference for Accurate Number 7.

The current form of Accurate No. 7 (manufactured in the Czech Republic) was chosen over canister ball powders manufactured by Primex (formerly Olin) and suitable for 9mm, 38 Spl. and 45 Auto because all the currently available Primex powders were found to be so significantly flattened as to approach a flake powder in morphology. It was the more spheroidal shape that was sought by the author for GSR production by a ball powder. Accurate No. 7 satisfies this requirement.

At this point it might do well to suggest that those readers who wish to avail themselves of these proposed standards and who are concerned about possible future changes in the morphology or availability of these powders would be well advised to purchase one or two pounds of these products. Approximately 800 rounds of ammunition in these calibers can be loaded from a 1 pound canister of these propellants.

[Standardized Loads for GSR Production]

The 9mm Luger cartridge was viewed as the most common and useful cartridge for the purpose of GSR production, testing and comparisons no matter where the reader might be employed. The only deficiency would be tests of cylinder gap discharge associated with revolvers consequently 38 Spl. loadings were also developed.

The virgin Winchester 9mm Luger cases were primed with Winchester WSP small pistol primers and 8.0 grain charges of Alliant Blue Dot and Accurate Number 7. The Speer 115 gr. TMJ bullets were seated to give an overall cartridge length of 1.15 inches. Average velocities of these two loadings fired from a Ruger P85 pistol with a 4.25 inch, 6-right barrel and measured at 10 feet beyond the muzzle with a Pact chronograph were 1098f/s ± 34f/s (N=5) and 1135 f/s ±20 f/s (N=5) respectively. The temperature and relative humidity at the time of these tests was 730F and 20% respectively. Paul Szabo (AFTE's Technical Advisor at Olin Corporation) was very helpful in this project and provided pressure and velocity data on these two rounds with two test barrels using SAAMI's protocol (4 inch test barrels, piezoelectric pressure and velocity at 15 feet from the muzzle). These data are summarized in Table 1 and Table 2. Representative powder patterns from the previously-described Ruger P85 pistol fired at a standoff distance of 9 inches against the filter paper side of Whatman's BenchKote(r) gave a 5.5" to 6" diameter pattern with Accurate No. 7 and a 7" to 8" pattern with Blue Dot. These patterns are shown in Figure 1 and 2. Table 3 provides a comparison of powder patterns produced by three common canister powders, Unique, Herco and Winchester 231, and the proposed reference ammunition where the gun, muzzle to target distance and target material were held constant.

Although is was felt that the 9mm Luger cartridge would be the most useful cartridge for a standard GSR round, loads with these same propellants were developed in 38 Special and 45 Auto. As with the 9mm loads, virgin Winchester cases and primers were used as well as Speer TMJ bullets (158 gr. in 38 Spl. and 230 gr. in 45 Auto) for the same reasons as previously stated. The 38 Spl. loads used charges of 8.0 gr. and 9.0 gr. of Alliant Blue Dot and Accurate No. 7 respectively with the Speer 158 gr. TMJ bullets seated to the midpoint of the bullet's cannelure giving an overall cartridge length of 1.45 inches (36.8mm). These loads gave an average velocity of 897 f/s ± 38 f/s (N=5) for the Blue Dot load and 888 f/s ± 23 f/s (N=5) from a 4 inch Model 15 Smith & Wesson, 5-right revolver with a cylinder gap of 0.006 in. (0.15mm) and measured with a Pact chronograph positioned at 15 feet from the muzzle.

Powder patterns on BenchKote positioned 9 inches from the muzzle of the 4 inch S&W test gun were prepared and gave a 5 to 6 inch diameter pattern for the Blue Dot load and a 5 to 5.5" pattern for the Accurate No. 7 load. Numerous 'pimples' were produced on the plastic backside of both sheets and a few unburned particles of Blue Dot perforated the BenchKote paper. Representative patterns at a 9 inch standoff distance for the 38 Special loads are shown in Figure 3 and 4.

The 45 Auto loads consisted of 9.0 grs. of Blue Dot and 10.0 grs. of Accurate No. 7 with the Speer 230 gr. TMJ bullets seated to an overall cartridge length of 1.26 inches (32.0mm). Velocities at 15 feet from a 5 inch Colt Model 1911A1, standard 6-left barrel averaged 828 f/s ± 43 f/s (N=5) and 856 f/s ± 33 f/s (N=5) respectively.

Powder patterns on BenchKote positioned at 9 inches as with the other loads and guns gave a 6 to 6.5 inch diameter pattern for the Blue Dot load and a 5" to 5.5" pattern for the Accurate No. 7 load. Numerous 'pimples' were produced on the plastic backside of both sheets. Representative patterns at a 9 inch standoff distance with the Gov't. 1911A1 .45 Automatic are shown in Figure 5 and 6.

Summary

The components and materials outlined in this paper, if assembled in the same manner, should provide examiners working in different laboratories with a consistent and reproducible source of reference ammunition for powder pattern and gunshot residue testing as well as provide a means for inter-comparing testing procedures and results between laboratories.

The very essence of any endeavor that purports to be scientific is the ability for independent researchers, scientists and laboratory examiners to be able to reproduce laboratory results. Presently there are several limitations and shortcomings insofar as any standard methodology and materials for powder pattern tests and gunshot residue production. Attempts to have a standard ammunition based on some commercially available ammunition are doomed to failure for the reasons stated in this paper. This article represents a means to obviate one such shortcoming by developing reproducible reference ammunition in three popular calibers for use in GSR procedures.

TABLE 1

Alliant Blue Dot 9mmP Load

Winchester cases with Winchester standard small pistol primers (product #WSP), lot PDLD392)
Speer 115 gr. TMJ bullets of 0.355" diameter (lot G08D) and seated to an overall cartridge length of 1.15"
8.0 gr. charges of Alliant Blue Dot (lot Jan 11 '99 99S2LOT 232)

Olin-Winchester results (SAAMI protocol):

	[barrel 1]			[barrel 2]		
	Vel. at 15'	Pressure	IBT	Vel. at 15'	Pressure	IBT
	1055	242	1.25	1082	245	1.24
	1177	287	1.19	1168	293	1.19
	1102	265	1.23	1119	268	1.23
	1166	296	1.17	1057	249	1.29
	1166	306	1.19	1164	262	1.22
Ave.	1133	279	1.21	1118	263	1.23
S.D.	53	26	0.03	49	19	0.04

TABLE 2

Accurate No. 7 9mmP Load

Winchester cases with Winchester standard small pistol primers (product #WSP), lot PDLD392)
Speer 115 gr. TMJ bullets of 0.355" diameter (lot G08D) and seated to an overall cartridge length of 1.15"
8.0 gr. charges of Accurate No. 7 (Czech Republic mfg., lot 27198)

Olin-Winchester results (SAAMI protocol):

	[barrel 1]			[barrel 2]		
	Vel. at 15'	Pressure	IBT	Vel. at 15'	Pressure	IBT
	1159	298	1.20	1166	326	1.17
	1162	321	1.15	1167	326	1.17
	1164	315	1.16	1173	330	1.15
	1165	320	1.14	1165	305	1.17
	1167	316	1.16	1179	327	1.13
Ave.	1133	314	1.16	1170	323	1.16
S.D.	3	9	0.02	6	10	0.02

Note: All tests performed in 4" SAAMI barrels
Velocity in feet per second
Pressure in psi / 100
IBT = Ignition-Barrel Time in milliseconds

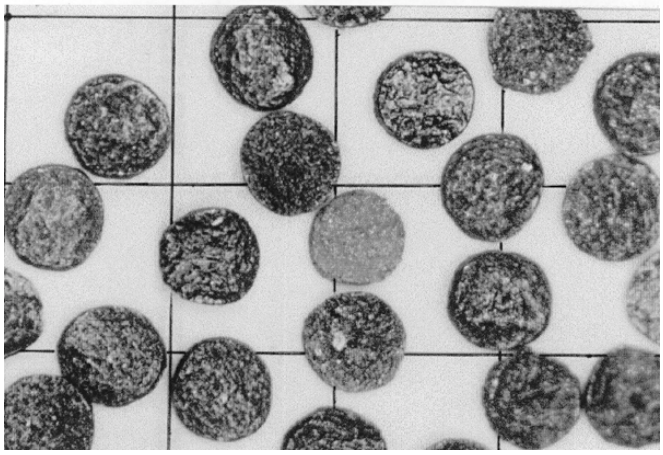
TABLE 3

POWDER PATTERN DIAMETER and APPEARANCE vs. PROPELLANT:
38 SPL. CARTRIDGES with 158 gr. TMJ BULLETS
WINCHESTER STANDARD SMALL PISTOL PRIMER
S&W MODEL 15 REVOLVER with 4" BARREL / 0.006" GAP
STAND-OFF DISTANCE HELD CONSTANT at 6 INCHES
TARGET MATERIAL: WHATMAN BENCHKOTE - FILTER PAPER SIDE
5.0 grs. CHARGES of UNIQUE, HERCO and WIN. 231
8.0 grs of ALLIANT BLUE DOT (Reference Ammunition)
9.0 grs. of ACCURATE No. 7 (Reference Ammunition)

Propellant Description	**Diameter of Powder Pattern**	**Comments**
UNIQUE - disk-flake 0.065 x 0.006", density = 0.52g / cc	4 - 4.5 in.	Dense pattern of unburned powder particles and powder fragments with ca. 1/3" between the unburned powder particles with pimpling of the BenchKote (B-K) paper.
HERCO - disk-flake 0.065 x 0.005", density= 0.60g / cc	4 - 4.5 in.	Dense pattern of unburned powder particles, powder fragments and sooty material; pimpling and some perforation of the B-K paper.
WINCHESTER 231 - density = 0.635g / cc	ca. 3 in.	Dense pattern of fine particles and some cracked ball, soot; average particle size = 0.0255", a few pimples in the B-K paper.
ALLIANT BLUE DOT - 0.062-.065 x 0.012-.015" density = 0.73 g / cc	4 - 4.5 in.	Dense pattern of unburned and partially burned disk-flake powder particles, powder fragments and some sooty material; pimpling and some perforation of the B-K paper
ACCURATE No. 7 density = 1.02g / cc ave. particle size ?0.019" (range = 0.007" to 0.033")	3.5 - 4 in.	Dense pattern of fine particles with faint soot; flattened ball (Czech mfg.) very dense pimpling of the B-K paper.

Note:
Density values are the dry (or bulk) density
Particle size values are taken from Propellant Profiles, Vol. 1, 1st Ed.(1982) except for Czech-manufactured Accurate No. 7 which was measured by the author.

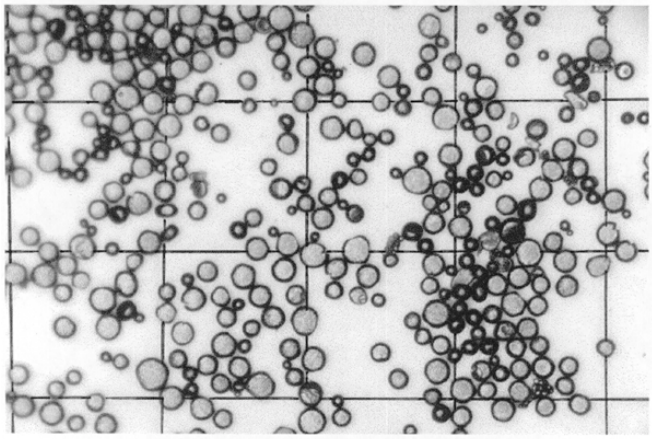
Alliant BLUE DOT on a 1/10 INCH GRID



POWDER PATTERN at 9 INCHES
9mm REFERENCE AMMUNITION

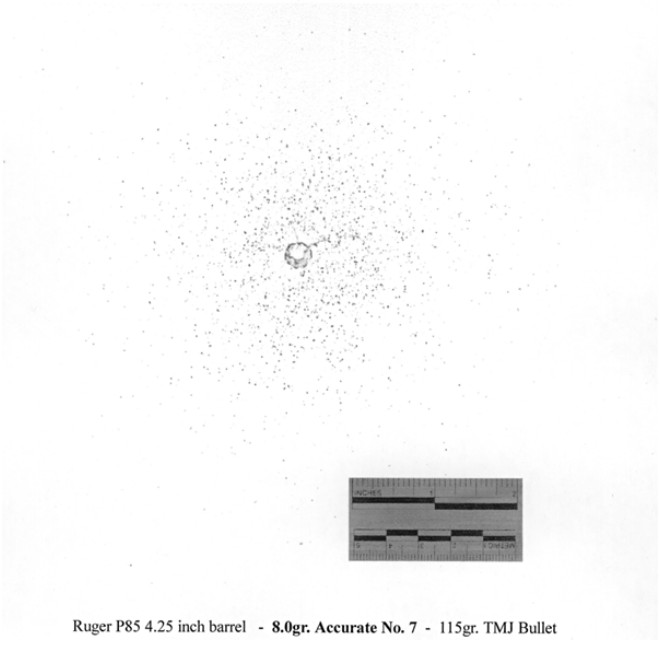
Ruger P85 4.25 inch barrel - **8.0gr. Alliant Blue Dot** - 115gr. TMJ Bullet

Accurate No. 7 on a 1/10 INCH GRID



manufactured by Israeli Military Industries

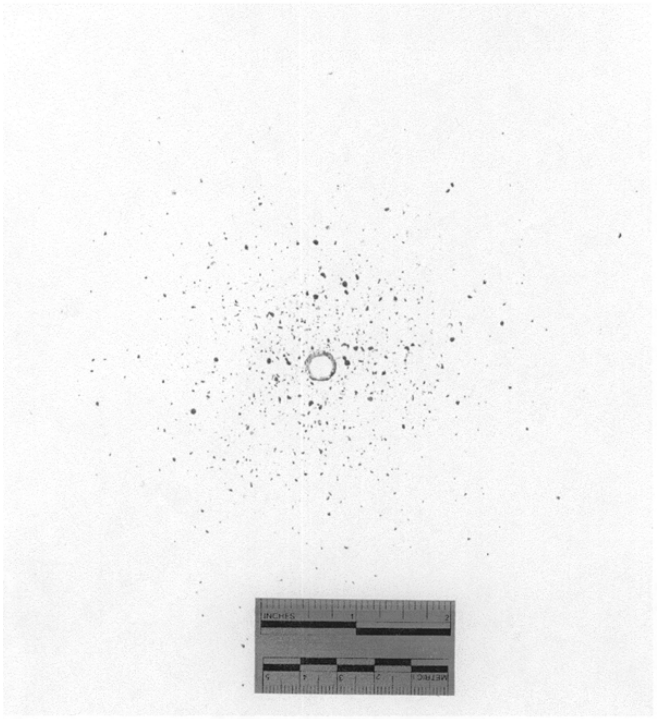
POWDER PATTERN at 9 INCHES
9mm REFERENCE AMMUNITION



manufactured by Synthesia – Czech Republic

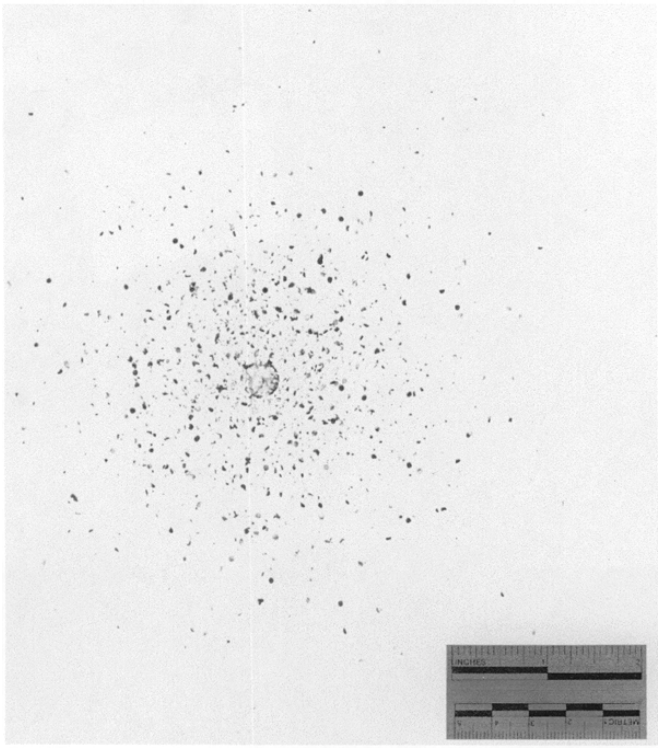
Ruger P85 4.25 inch barrel - **8.0gr. Accurate No. 7** - 115gr. TMJ Bullet

POWDER PATTERN at 9 INCHES
38 SPL. REFERENCE AMMUNITION



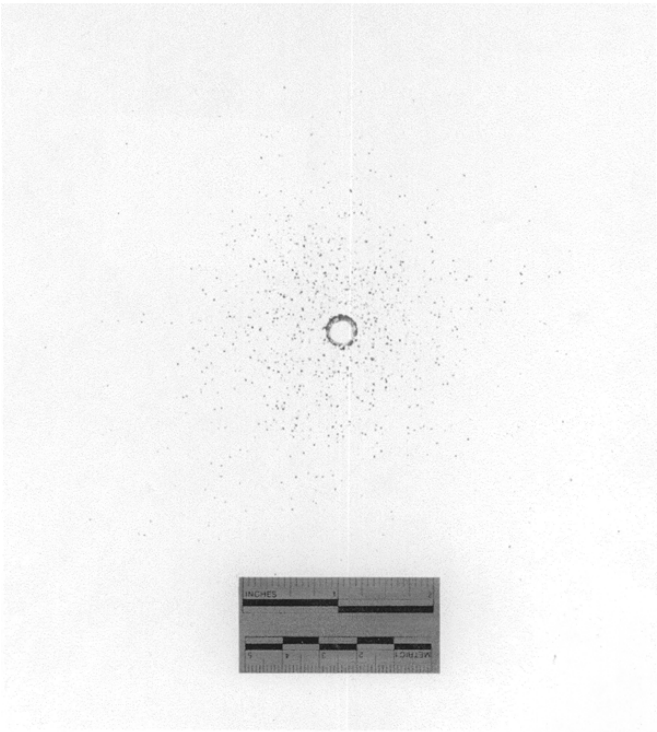
Model 15 S&W 4 inch barrel - **8.0gr. Alliant Blue Dot** - 158gr. TMJ Bullet

POWDER PATTERN at 9 INCHES
45 AUTOMATIC REFERENCE AMMUNITION



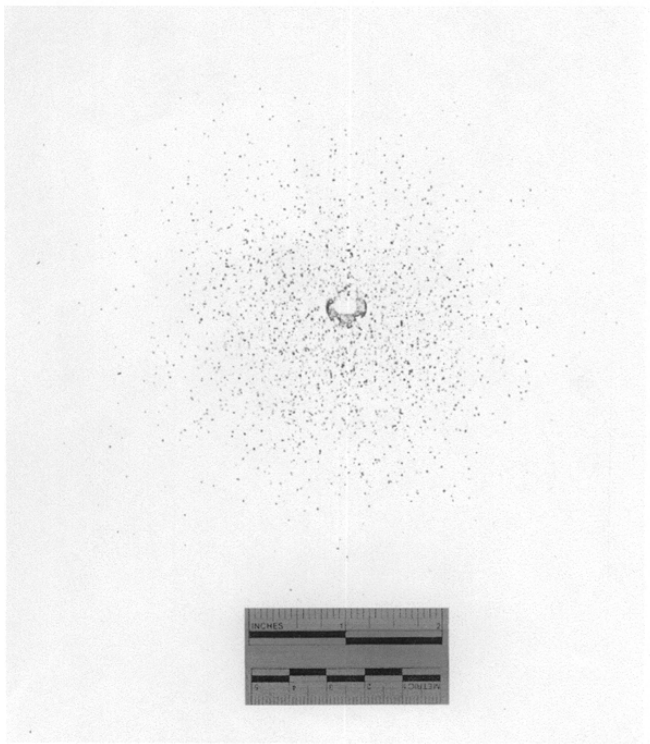
Model 1911A1 Colt 5 in. barrel - **9.0gr. Alliant Blue Dot** - 230gr. TMJ Bullet

POWDER PATTERN at 9 INCHES
38 SPL. REFERENCE AMMUNITION



Model 15 S&W 4 inch barrel - **9.0gr. Accurate No. 7** - 158gr. TMJ Bullet

POWDER PATTERN at 9 INCHES
45 AUTOMATIC REFERENCE AMMUNITION



Mod. 1911A1 Colt 5 inch barrel - **10.0gr. Accurate No. 7** - 230gr. TMJ Bullet

B O A R D O F D I R E C T O R S

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Unusual Methamphetamine Laboratory

On 4/1/99, I arrived at a suspected methamphetamine laboratory in the city of Armpitt, California, where an unusual synthesis could have taken place. The suspect was barbecuing chicken in the back yard near a swimming pool when the narcotic officers arrived and upon investigation, revealed the suspect had no finished product. Actually, there were no obvious precursors present, either.

The guy, however, looked suspicious and since he was busted near the BBQ area, a bag of charcoal was immediately suspect. Upon my arrival, I was asked if charcoal could be used to make methamphetamine and although it would be difficult, I admitted that meth does contain a lot of carbon atoms and that's basically what charcoal is—carbon. Theoretically, charcoal could be the precursor of a precursor of a precursor of a precursor, etc. If the crankster was using this approach, I reasoned, he would also need lots of hydrogen as well. Any chemist worth his/her sodium chloride knows that water is actually H 2 O and H 2 O has lots of hydrogen in it. This guy had a pool full of water. Note that the BBQ was situated 87.3 cm from the pool. Also needed would be nitrogen, of which the air contains about 80% or so. The back yard was surrounded by air. A sample was taken for analysis.

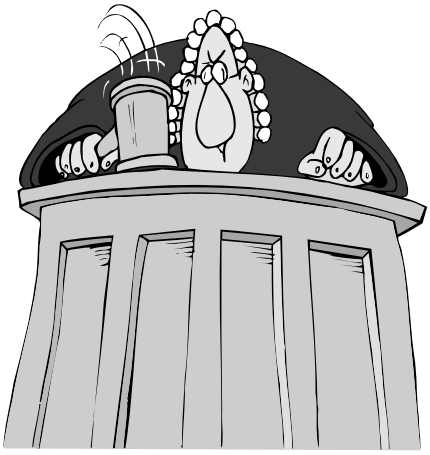
Finally, chloride would be required for the salt version of the final product. Although there was no pool acid present, a considerable amount of table salt (sodium chloride) was found near some cobs of corn in a salt shaker device in the kitchen area as well as an additional amount in an ice cream maker. Note that small children were near the ice cream maker, which was actively processing ice cream, when agents arrived.

Other items consistent with clandestine drug manufacture included coffee filters and a turkey baster (found in the kitchen), duct tape and a dart board (found in the garage), and a 1982 May issue of Playboy magazine, featuring Kathy 'Bubbles' Tortinni, found in the attic. Limiting reagent turned out to be the charcoal, and if the 5 lb bag as well as the carbon formed from the chicken (which ended up being burnt) were fully converted to meth at 100% yields, we were looking at 6 or 7 lb of final product. Overall reaction goes something like this:

10C + 8H 2 + ½ N 2 + NaCl —> Methamphetamine HCl + Na

The suspect has been in custody for the past 10 months while we figure out a confirmatory test for carbon, nitrogen, hydrogen, and chloride.

Courtroom Calamities



"While addressing a question on the stand never start by saying, ' to be honest with you.'" -*Anonymous*

"A piece of gum I *thought* I successfully tossed before taking the stand got stuck to my skirt, my notebook and eventually the evidence! As you can imagine, the piece of tissue given to me did not help matters."—*Jennai Lawson*

"I didn't realize I left the price tag hanging from my suit until a juror pointed it out to me on my way out of the courthouse!"—*Bill Carlton*

Lawyer: "Haven't you EVER made a mistake?"

Criminalist: "Well, I should have bought real estate a few years back..."

—*Darrell Tate as told to John Houde*

Lawyer: "What gives you the right to call the evidence powder chunks in this report and white powdery substance in THAT one?"

Criminalist: "Poetic license!"

—*John Houde*

* * *

If YOU have a Courtroom Calamity to share (and the statute of limitations has expired) please send them to: Nancy McCombs, Editor at: MCCOMBSN@hdcdojnet.state.ca.us

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